CURRÍCULUM VÍTAE NORMALIZADO

Aitana Tamayo Hernando

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General quality indicators of scientific research

This section describes briefly the main quality indicators of scientific production (periods of research activity, experience in supervising doctoral theses, total citations, articles in journals of the first quartile, H index...). It also includes other important aspects or peculiarities.

Total Articles in Publication List (SCI): 89 (Scopus). 42% as 1st or last author and 49% as corresponding author. Non SCI publications (Proceedings books among others): 15. Books co-authored: 6. Sum of times Cited: 1342 (Scopus, 80% Percentile) h-index: 22. Verified Peer Reviews: 34. Articles in collective books: 15. 2 Patent Applications. Participation in competitive projects from national calls: 1 as IP (COMFUTURO), 3 as project coordinator (PERTE-VEC, 2 international: iCOOP, LincGLOBAL), 8 as member of the research and working group. Participation in international projects from EU call: 1 as member of the research group. R+D Projects and contracts with private bodies: 34 (24 provision of services) Participation in 46 International conferences and workshops (> 50% Oral, 4 invited, 2 highlighted lecture) plus 23 national conferences. Member of the organizing committee of 2 international conferences. Chair and co-chair in 2 international conferences. Invited as researcher specialist at 2 EERA workshops (Joint Programme AMPEA, Advanced Materials and Processes for Energy Applications). Supervision of 17 end of course projects or Master Thesis and 1 Doctoral Thesis (plus two in course). Participation in accelerating program for startups and spin-offs DINAMIZA. Invited lecturer at international event "Women in Science", TU Darmstadt, Germany. Highly active in dissemination activities (Dia de la Mujer y la Niña en la Ciencia, Inspiring girls, Ciudad Ciencia, Ciencia en el Barrio, European Research Night and Pint of Science, among others) and awarded with a prize in dissemination activities for students (Somos Cientificos). University professor accredited by ANECA. Representative of ICV-CSIC at the Equity Commission of Campus Excelencia CSIC-UAM. Founder member of the Equity, Communication and Diffusion Commission at ICV-CSIC.

Aitana Tamayo Hernando

Surname(s): **Tamayo Hernando**
Name: **Aitana**
ORCID: **0000-0002-9828-3461**
ScopusID: **15063296200**
ResearcherID: **E-7543-2012**
Contact aut. region/reg.: **Castile and León**

Current professional situation

Employing entity: Instituto de Cerámica y Vidrio **Type of entity:** State agency
Department: Química Física de Superficies y Procesos, Instituto de Cerámica y Vidrio
Professional category: Researcher **Educational Management (Yes/No):** No
City employing entity: Madrid, Community of Madrid, Spain
Phone: (+34) 917355840 **Fax:** (+34) 917355843 **Email:** aitanath@icv.csic.es
Start date: 01/09/2015
Type of contract: Temporary employment contract **Dedication regime:** Full time
Primary (UNESCO code): 331200 - Materials technology
Secondary (UNESCO code): 331206 - Glass
Performed tasks: As a highly active researcher, I can distinguish two main research lines perfectly differentiated but with a clear connecting point which is the exploitation of the polymer-derived-ceramic route for the synthesis of advanced materials. My first research line deals with the development of ceramic and glass materials for sustainable energy production whereas the second one is mainly focused on porous materials for biotechnological purposes. As a beneficiary of a COMFUTURO project, from Fundacion General CSIC, I had the opportunity to start a new research line at ICV CSIC and work as independent researcher in the development of porous ceramic and glass materials for the production of solar fuels by using concentrated solar radiation. As a leader of the line, I have supervised two end-of-course projects (Master) whilst concurring to many different calls to attract new students to feed the group. In 2017, my research line was extended to the field of energy storage thanks to a new project financially supported by the Spanish Ministry of Economics and Competitiveness and devoted to the development of hybrid supercapacitors with highly porous carbon electrodes where I have supervised several end-of-course projects as well as a PhD student. Parallel to my investigations in the field of materials for clean energies, I became specialized in the biotechnological applications of the polymer derived ceramics, being the most recognized researcher around the world in the application of porous silicon oxycarbide materials as smart drug delivery systems. Apart from leading the tasks focused on the synthesis, design and selective modification of porous ceramics in a “NPR Challenges of Society” multidisciplinary collaborative project I have devoted one full year to expand my background with a Master in Biotechnology. Together with the Pharmacy specialists, we are designing selectively functionalized drug delivery formulations for the prevention and treatment of sexual diseases. The results have been published in some of the most relevant journals in the field of biomedical materials and. Apart to the previously mentioned end-of-course projects, I am currently supervising two doctoral theses, one of them as a result of years of international collaboration with developing countries. Moreover, I have been the coordinator of a joint project (iCOOP-CSIC call) with Universidad Nacional Mayor de San Marcos (Lima, Perú) for the development of glass fertilizers for legume crops. As an internationally recognized scientist in the area of the polymer derived ceramics, I am the sole Spanish member of the Technical Interest Group of the American Ceramic Society "From Molecules to Manufacturing: Products Arising from Polymer Derived Ceramics". In the last months, I became a member of the co-organization committee of the next MSE meeting in Darmstadt (Germany)

and I have been invited to share my research as invited talks (and highlighted lectures) in several international conferences. All this know-how is exported to the industry where I am tightly involved in several technology transfer activities. I have participated in multiple projects with industries funded by Spanish and International agencies, standing out the application of glass to reduce the environmental contamination of extensive crops (EEA grant/Norway grants) and a project financially supported by the European Union (Life program) dealing with green technologies for glass production. In the last few years, I became independent with regard to industrial relationships and I started my own R+D projects and collaborations with Spanish companies.

Identify key words: Surface spectroscopy; Chemisorption; Chemical phisycs of materials; Porous materials and zeolites; Amorphous; Ceramics; Nanomaterials; Structural determination and study of properties physical-chemistries; Inorganic polymers

Field of management activity: Public Research Body

Previous positions and activities

	Employing entity	Professional category	Start date
1	COALBA ENERGIA, S.A. - CENER	Researcher	06/07/2015
2	Instituto de Cerámica y Vidrio	JaeDoc Researcher	16/03/2012
3	Instituto de Cerámica y Vidrio	Post Doctoral Researcher	13/08/2010
4	Technische Universität Darmstadt	Post Doctoral Researcher	01/04/2008
5	Instituto de Cerámica y Vidrio	Post Doctoral Researcher	01/01/2008
6	University of Colorado at Boulder	Faculty	15/02/2007
7	Instituto de Cerámica y Vidrio	Pre-doctoral student	01/08/2004
8	Persianas Hernando, S.L.	Quality Management Manager	01/02/2003
9	Duraline Iberia	Quality Management Technicien	21/02/2001

1

Employing entity: COALBA ENERGIA, S.A. - CENER
Professional category: Researcher
Start-End date: 06/07/2015 - 31/08/2015 **Duration:** 1 month - 25 days
Type of contract: Temporary employment contract
Field of management activity: Public Research Body

2

Employing entity: Instituto de Cerámica y Vidrio **Type of entity:** State agency
Department: Consejo Superior de Investigaciones Científicas
Professional category: JaeDoc Researcher **Educational Management (Yes/No):** No
Start-End date: 16/03/2012 - 04/07/2015 **Duration:** 3 years - 3 months - 18 days
Type of contract: Grant-assisted student (pre or post-doctoral, others)
Dedication regime: Full time
Primary (UNESCO code): 331203 - Ceramics
Secondary (UNESCO code): 331200 - Materials technology
Performed tasks: The project involved the development of porous ceramic materials for concentrated solar power applications.
Identify key words: Surface spectroscopy; Raman; Porous materials and zeolites; Amorphous; Ceramics
Field of management activity: Public Research Body

3

Employing entity: Instituto de Cerámica y Vidrio **Type of entity:** State agency
Department: Química Física de Superficies y Procesos, Instituto de Cerámica y Vidrio
City employing entity: Madrid, Community of Madrid, Spain
Professional category: Post Doctoral Researcher **Educational Management (Yes/No):** No
Phone: (+34) 917355840 - 1310 **Fax:** (+34) 917355843 **Email:** aitanath@icv.csic.es
Start-End date: 13/08/2010 - 15/03/2012 **Duration:** 1 year - 7 months - 2 days
Type of contract: Temporary employment contract
Dedication regime: Full time
Primary (UNESCO code): 331206 - Glass
Performed tasks: Directly linked with industrial research, I participated in several projects for green energy. New coatings with self-cleaning and icephobic properties were developed within the NEWIND project (with the financial support of CDTI). In the same project, several investigations on the physic chemical characteristics of the surface properties of carbon nanofibres were carried out in order to obtain nanofibre reinforced composites for the fabrication of wind turbine blades. Regarding the glass and ceramic industry, the surface modification of glass frits was also the main subject of a project for the optimization of the process conditions of a cathodic electrophoretic deposition of ceramic particles. During that time, I carried out the supervision of two end of course projects, one related with icephobic coatings and the other related with the recycling of industrial waste for the ceramic industry.
Identify key words: Porous materials and zeolites; Amorphous; Ceramics
Field of management activity: Public Research Body

4 **Employing entity:** Technische Universität Darmstadt **Type of entity:** University
Department: Disperse Feststoffe, Material und Geo-wissenschaften
City employing entity: Darmstadt, Darmstadt, Germany
Professional category: Post Doctoral Researcher **Educational Management (Yes/No):** No
Start-End date: 01/04/2008 - 31/12/2009 **Duration:** 1 year - 8 months
Type of contract: Temporary employment contract
Dedication regime: Full time
Primary (UNESCO code): 331203 - Ceramics
Performed tasks: With the finnacial support of SGL Carbon, GmbH, I developed oxidation resistant coatings for silicon carbide fibres based on the pyrolysis of inorganic polymers, silazanes and polysilazanes. In a colaborating project with the Colorado School of Mines and UC Davis I proposed a new characterization method of nanostructured ceramics and glasses based on the modelling of Small Angle X Ray Scattering results. This method had an excelent acceptation within the Polymer Derived Ceramic comunity.
Identify key words: Ceramics; Inorganic polymers

5 **Employing entity:** Instituto de Cerámica y Vidrio **Type of entity:** State agency
Department: Quimica Fisica de Superficies y Procesos
City employing entity: Madrid, Community of Madrid, Spain
Professional category: Post Doctoral Researcher **Educational Management (Yes/No):** No
Start-End date: 01/01/2008 - 31/03/2008 **Duration:** 3 months
Type of contract: Temporary
Dedication regime: Full time
Primary (UNESCO code): 331200 - Materials technology
Performed tasks: During this short period, I participated in the design of carbon fibre and glass fibre reinforced composites for structural applications in a collaborating project with the company Moldeo y Diseño, S.L.. I also designed new corrosion resistant coatings for metallic alloys based on silanes, titanates and zirconates by using the sol-gel method.

6 **Employing entity:** University of Colorado at Boulder **Type of entity:** University
Department: Mechanical Engineering, Engineering Center
City employing entity: Boulder, United States of America
Professional category: Faculty **Educational Management (Yes/No):** No
Start-End date: 15/02/2007 - 31/12/2007 **Duration:** 10 months - 15 days
Type of contract: Temporary employment contract
Dedication regime: Full time
Primary (UNESCO code): 331200 - Materials technology
Secondary (UNESCO code): 331203 - Ceramics
Performed tasks: The main research activities were based on the obtaining of boron silicon oxycarbide fibres from preceramic polymers. In collaboration with NREL, I prepared ceramic membranes with carbon nanotubes and that were tested as anodes for Lithium ion batteries. There, I learned the Small angle X Ray Scattering technique and its applicability for the characterization of nanostructured materials. That knowledge was the basis for the development of a new characterization method based on the analysis of the Small Angle X-Ray Scattering curves applied to amorphous ceramics and glasses.
Identify key words: Ceramics; Nanomaterials
Field of management activity: University

7 **Employing entity:** Instituto de Cerámica y Vidrio **Type of entity:** State agency
Department: Química Física de Superficies y Procesos, Instituto de Cerámica y Vidrio
City employing entity: Madrid, Community of Madrid, Spain
Professional category: Pre-doctoral student **Educational Management (Yes/No):** No
Start-End date: 01/08/2004 - 31/12/2006 **Duration:** 2 years - 4 months
Type of contract: Grant-assisted student (pre or post-doctoral, others)
Dedication regime: Full time
Primary (UNESCO code): 331206 - Glass
Performed tasks: During this period I worked as a pre-doctorate student in the Ceramics and Glass Institute. After 30 months I was ready to defend my PhD, which I obtained with the maximum qualifications. My PhD was performed within the frame of an industrial project and with the finnancial support of Industria de Turbo Propulsores, S.A. The work carried out was the development of temperature-resistant materials with resonant properties for being used as noise absorbers and advanced materials thermally and chemically stable up to high temperatures. The materials were carbide-derived ceramics manufactured in the form of highly porous monoliths or ceramic fibres, all of them from preceramic hybrids obtained through the sol-gel method. The acquired skills in the sol-gel methodology were highly valuable for the development of new scratch resistant inorganic coatings on polymeric substrates in a project also linked with industrial research.
Identify key words: Structural determination and study of properties physical-chemistries; Inorganic polymers
Field of management activity: Public Research Body

8 **Employing entity:** Persianas Hernando, S.L.
Professional category: Quality Management Manager
Start-End date: 01/02/2003 - 31/07/2004 **Duration:** 1 year - 5 months
Type of contract: Temporary
Performed tasks: The main dutties there were the set up of the Quality Management System according to the ISO 9001 by using a six sigma strategy. The implement of the quality management system involved the processes defnition and the description of the work instructions and operating procedures as well. The elaboration of all the documentation included the Quality manual was one of my responsibilities too. Moreover, I worked directly at the production line and stablished the criterium for the rejectable products to achieve the desired quality.

9 **Employing entity:** Duraline Iberia **Type of entity:** Business
Professional category: Quality Management Technicien
Start-End date: 21/02/2001 - 15/11/2002 **Duration:** 1 year - 8 months - 25 days
Type of contract: Temporary
Performed tasks: I started and optimimized a lab for quality assurance tests in a completelly new plant for plastic pipe production. As a Quality Management assistant I had the responsibilities of writing and supervising the Quality Management System according to ISO 9001. There, I received internal training courses to become an Internal Auditor for Quality Management Systems according to the mentioned standard. During that period, I acquired a great knowledge on industrial management and industrial processes.

Education

University education

1st and 2nd cycle studies and pre-Bologna degrees

1 **University degree:** Higher degree
Name of qualification: Master in Biotechnology
City degree awarding entity: Madrid, Community of Madrid, Spain
Degree awarding entity: Universidad Autónoma de Madrid **Type of entity:** University
Date of qualification: 30/06/2019
Average mark: Excellent
Standardised degree: Yes

2 **University degree:** Higher degree
Name of qualification: Licenciado en Química Orientación Ciencia de Materiales
Degree awarding entity: Universidad Complutense de Madrid **Type of entity:** University
Date of qualification: 01/09/2000
Average mark: Pass

Doctorates

Doctorate programme: Química física aplicada
Degree awarding entity: Universidad Complutense de Madrid **Type of entity:** University
City degree awarding entity: Madrid, Community of Madrid, Spain
Date of degree: 07/02/2007
DEA awarding entity: Universidad Complutense de Madrid
Date DEA was awarded: 02/07/2007
European doctorate: No
Thesis title: Synthesis and characterization of dense and porous oxycarbide glasses (Original title in spanish: Síntesis y caracterización de vidrios de oxicarburo porosos y no porosos)
Thesis director: Juan Rubio Alonso
Obtained qualification: Sobresaliente cum laude
Recognition of quality: Yes
Special doctorate award: No

Specialised, lifelong, technical, professional and refresher training (other than formal academic and healthcare studies)

1 **Type of training:** Practical work
Training title: Acceleration program DINAMIZA (Original title in spanish: Programa de aceleración DINAMIZA)
Awarding entity: CSIC Innovacion **Type of entity:** Public Research Body
End date: 01/02/2022 **Duration in hours:** 65 hours

2 **Training title:** Gender equity in science (Original title in spanish: La igualdad de género en la Ciencia)
Awarding entity: Universidad Autónoma de Madrid **Type of entity:** University
End date: 27/09/2019 **Duration in hours:** 20 hours

3 **Type of training:** Course
Training title: H2020: Funding opportunities and proposal preparation (Original title in spanish: H2020: Oportunidades de financiación y preparación de propuestas)
Awarding entity: Gabinete de Formación. Secretaría General de Recursos Humanos CSIC
End date: 27/06/2017 **Duration in hours:** 16 hours

4 **Type of training:** Course
Training title: Characterization techniques for Photovoltaic materials and cells (Original title in spanish: Técnicas de Caracterización de Materiales y Células fotovoltaicas)
Awarding entity: Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas **Type of entity:** Public Research Body
End date: 09/10/2015 **Duration in hours:** 20 hours

5 **Training title:** Solid State NMR (Original title in Spanish: Resonancia Magnética de Estado Sólido)
Awarding entity: Instituto de Cerámica y Vidrio **Type of entity:** State agency
End date: 29/10/2014 **Duration in hours:** 10 hours

6 **Training title:** High structural and spatial resolution using Raman Confocan and Scanning Probe Microscopy
Awarding entity: Instituto de Cerámica y Vidrio **Type of entity:** State agency
End date: 07/11/2013 **Duration in hours:** 18 hours

7 **Type of training:** Course
Training title: Qualification for Operator in Radioactive Installations
City awarding entity: Madrid, Spain
Awarding entity: Infocitec **Type of entity:** Business
End date: 18/10/2012 **Duration in hours:** 30 hours

8 **Type of training:** Course
Training title: Raman Spectroscopy for Inorganic and Organic Materials
City awarding entity: Madrid, Spain
Awarding entity: Renishaw, S.A. **Type of entity:** Business
End date: 16/12/2010 **Duration in hours:** 30 hours

9 **Training title:** IRCA QMS Auditor/Lead Auditor and Internal Auditor
City awarding entity: Madrid, Spain
Awarding entity: Bureau Veritas **Type of entity:** Business
Aims of the entity: Quality Management

End date: 25/07/2003 **Duration in hours:** 40 hours

10 **Type of training:** Course
Training title: Executive Master in Engineering and Environmental Management
City awarding entity: Madrid, Spain
Awarding entity: Escuela de Organización Industrial **Type of entity:** Business
Aims of the entity: Executive Education
End date: 30/06/2003 **Duration in hours:** 390 hours

11 **Type of training:** Course
Training title: Environmental Management
City awarding entity: Madrid, Spain
Awarding entity: Escuela de Estudios Medioambientales **Type of entity:** Business
End date: 28/02/2001 **Duration in hours:** 50 hours

Language skills

Language	Listening skills	Reading skills	Spoken interaction	Speaking skills	Writing skills
German		A1	A1	A1	A1
French		C1	A1	A1	C1
English		C1	C1	C1	C1

Teaching experience

General teaching experience

1 **Type of teaching:** Official teaching
Name of the course: Coordinación de actividades y de operaciones de rescate sanitarios en medios inhóspitos
Type of programme: Master's degree
University degree: Master Universitario en Montaña y Medios Inhóspitos
Start date: 01/09/2021 **End date:** 31/08/2022
Type of hours/ ECTS credits: Hours
Entity: Universidad Camilo José Cela **Type of entity:** University
Faculty, institute or centre: Facultad de Enfermería

2 **Type of teaching:** Official teaching
Name of the course: Coordinación de actividades y de operaciones de rescate sanitarios en medios inhóspitos
Type of programme: Master's degree
University degree: Master Universitario en Montaña y Medios Inhóspitos
Start date: 01/09/2020
Type of hours/ ECTS credits: Hours
Entity: Universidad Camilo José Cela **Type of entity:** University

3 **Type of teaching:** Official teaching
Name of the course: Coordinación de actividades y de operaciones de rescate sanitarios en medios inhóspitos
Type of programme: Master's degree

University degree: Master Universitario en Montaña y Medios Inhóspitos
Start date: 01/09/2019
Type of hours/ ECTS credits: Hours
Entity: Universidad Camilo José Cela **Type of entity:** University

4 **Type of teaching:** Official teaching
Name of the course: Coordinación de actividades y de operaciones de rescate sanitarios en medios inhóspitos
Type of programme: Master's degree
University degree: Master Universitario en Montaña y Medios Inhóspitos
Start date: 01/09/2018
Type of hours/ ECTS credits: Hours
Entity: Universidad Camilo José Cela **Type of entity:** University

5 **Type of teaching:** Official teaching
Name of the course: Coordinación de actividades y de operaciones de rescate sanitarios en medios inhóspitos
Type of programme: Master's degree
University degree: Master Universitario en Montaña y Medios Inhóspitos
Start date: 01/09/2017
Type of hours/ ECTS credits: Hours
Entity: Universidad Camilo José Cela **Type of entity:** University

6 **Type of teaching:** Official teaching
Name of the course: Espeleología para sanitarios
Type of programme: Master's degree
University degree: Master Universitario en Montaña y Medios Inhóspitos
Start date: 01/09/2016
Type of hours/ ECTS credits: Hours
Entity: Universidad Camilo José Cela **Type of entity:** University

7 **Type of teaching:** International teaching
Name of the course: INTERNATIONAL COURSE CERAMIC MATERIALS IN BUILDING HERITAGE: CONSERVATION PROBLEMS AND INTERVENTION
Type of programme: Specialization course **Type of teaching:** In person theory
Start date: 29/06/2016
Entity: YOCOCU España- Youth in the Conservation of Cultural Heritage **Type of entity:** Associations and Groups
Faculty, institute or centre: Ceramics and Glass Institute

8 **Type of teaching:** Official teaching
Name of the course: Materials Engineering for Cavers
Type of programme: Vocational Training **Type of teaching:** In person theory
Type of subject: Modular
University degree: Técnico Deportivo
Frequency of the activity: 6
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 8
Entity: Escuela Española de Espeleología **Type of entity:** Associations and Groups
City of entity: Ramales de la Victoria, Spain

Teaching experience in the field of healthcare R&D and/or post specialist healthcare R&D

Name of the speciality: University Master in Mountain Emergencies and Inhospitable Places
Target group profile: Health
Awarding entity: Universidad Camilo José Cela **Type of entity:** University
Start-End date: 01/09/2017 - 30/06/2018

Experience supervising doctoral thesis and/or final year projects

1 **Project title:** Desarrollo de Fases cristalinas de alta reflexión óptica visible
Type of project: Minor thesis
Co-director of thesis: Aitana Tamayo
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Jazmín Melissa Mayta Milla
Date of reading: 21/06/2022

2 **Project title:** Research and development of vaginal mucoadhesive formulations of tenofovir sustained release for HIV prevention
Type of project: Doctoral thesis
Co-director of thesis: Maria Dolores Veiga Ochoa; Roberto Ruiz Caro
Entity: Universidad Complutense de Madrid **Type of entity:** University
City of entity: Madrid, Spain
Student: Araceli Martin Illana
Obtained qualification: Sobresaliente Cum Laude
Date of reading: 17/02/2022
European doctorate: Yes
Quality recognition: Yes

3 **Project title:** Development of nanocellulose-carbon composites for hybrid capacitor electrodes
Type of project: Minor thesis
Co-director of thesis: Aitana Tamayo; Rama Layek
Entity: Universidad Politécnica de Madrid **Type of entity:** University
Student: Berta Perez Roman
Date of reading: 04/02/2021
European doctorate: Yes

4 **Project title:** Cobalt-doped nanofibers for their use as capacitor electrodes (Original title in spanish: Nanofibras de carbono dopadas Con cobalto para su aplicación en Electrodos de Supercondensadores)
Type of project: End of course project
Co-director of thesis: Aitana Tamayo; MªAngeles Rodriguez; Fausto Rubio
Entity: Universidad de Extremadura **Type of entity:** University
Student: Ana Mateos Rodríguez
Date of reading: 19/06/2020

5 **Project title:** Development of a new material as electrode in supercapacitors (Original title in spanish: Desarrollo de un nuevo material para su uso como electrodos en supercondensadores)
Type of project: End of course project
Co-director of thesis: MªAngeles Rodriguez; Fausto Rubio

Entity: Universidad de Extremadura **Type of entity:** University
Student: Amalia Lubian Ramos
Date of reading: 19/06/2020

6 **Project title:** N/P C-doped electrodes derived from Si(O)C (Original title in spanish: Electrodos de C dopado con N/P derivados de Si(O)C)
Type of project: End of course project
Entity: Universidad Politécnica de Madrid **Type of entity:** University
Student: Berta Pérez Roman
Identify key words: Electrodes; Nitrides and carbides; Porous materials and zeolites; Ceramics
Date of reading: 14/09/2018

7 **Project title:** Assessmento of SAm Pelvic Sling II(R) in systematic external immobilization in mountaineering polytraumatized patients to prevent hypovolemic shock (design of a clinical trial). Original title in spanish: Valoración de la eficacia del SAM Pelvic Sling II® en la inmovilización externa sistemática del anillo pélvico en el paciente politraumatizado en montaña para prevenir el shock hemorrágico. (diseño de un ensayo clínico)
Type of project: Minor thesis
Entity: Universidad Camilo José Cela **Type of entity:** University
Student: Victor Manuel Sanchez Robledillo
Obtained qualification: 7
Date of reading: 11/07/2018

8 **Project title:** Lixiviation of SiO2-K2O glasses as fertilizers for bean crops (Original title in spanish: Lixiviación de vidrios de SiO2-K2O utilizados como fertilizantes para cultivo de leguminosas)
Type of project: End of course project
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Noemí Novoa Fraga
Date of reading: 06/04/2018

9 **Project title:** Obtention of carbon electrodes for capacitors from silicon oxycarbides (Original title in spanish: Obtención de electrodos de carbono para condensadores a partir de oxicarburos de silicio)
Type of project: End of course project
Co-director of thesis: Nª Angeles Rodriguez; Fausto Rubio; Aitana Tamayo
Entity: Universidad de Extremadura **Type of entity:** University
Student: Almudena Rodriguez
Identify key words: Electrodes; Nitrides and carbides; Porous materials and zeolites; Ceramics
Date of reading: 11/07/2017

10 **Project title:** Application of solar energy for glass melting (Original titl ein spanish: Aplicación de la energía solar para la fusión de vidrios)
Type of project: Minor thesis
Co-director of thesis: Aitana Tamayo; Juan Rubio
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Noemí Novoa
Date of reading: 11/07/2017

11 **Project title:** Obtaining of carbon electrodes for supercapacitors from silicon oxycarbide (Original title in spanish: Obtención de electrodos de Carbono para condensadores a partir de oxicarburos de silicio)
Type of project: End of course project
Co-director of thesis: MªAngeles Rodriguez; Fausto Rubio
Entity: Universidad de Extremadura **Type of entity:** University
Student: Almudena Rodriguez Utrero

Date of reading: 21/06/2017

12 **Project title:** Thermocatalytic nanocomposites for green fuels generation using concentrated solar power
Type of project: End of course project
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Beatriz Garcia
Obtained qualification: 9.9
Date of reading: 15/12/2016
Date of award: 15/12/2016

13 **Project title:** Synthesis of glass matrix - perovskite nanocomposites for green fuel generation using solar energy (Original title in spanish: Preparación de nanocomposites de matriz vítrea y refuerzo de perovskita para generación de gas mediante energía solar)
Type of project: Practice
Entity: Universidad Rey Juan Carlos **Type of entity:** University
Student: Eva Casado Romeral
Date of reading: 31/08/2016

14 **Project title:** Ce-based thermocatalytic nanocomposites for green fuels generation
Type of project: Practice
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Beatriz Garcia
Date of reading: 30/06/2016

15 **Project title:** Application of water-treatment plant slurries in ceramics for bricks and tiles (Original title in spanish: Aplicación de lodos de depuradora en cerámicas para tejas y ladrillos)
Type of project: End of course project
Entity: Universidad Rey Juan Carlos **Type of entity:** University
Student: Joaquin Soriano
Date of reading: 01/07/2014

16 **Project title:** Application of glass frits as seawed nutrient in biodiesel production (Original title in spanish: Empleo de fritas de vidrio como aportadores de nutrientes para algas productoras de biodiesel)
Type of project: Internship
Entity: Universidad Rey Juan Carlos **Type of entity:** University
Student: Daniel Calvo Marco
Date of reading: 13/06/2013

17 **Project title:** Synthesis of icephobic or anti-dust coatings for glass fiber composites used in wind rotor blades (Original title in spanish: Obtención de Recubrimientos antihielo o antisuciedad sobre materiales compuestos de fibra de vidrio para palas eólicas)
Type of project: End of course project
Entity: Universidad Autónoma de Madrid **Type of entity:** University
City of entity: Madrid, Community of Madrid, Spain
Student: Raúl Aguirre Saiz
Obtained qualification: 8,5
Date of reading: 08/02/2013

18 **Project title:** Utilization of sludges in the ceramic industry and automation of a WWTP (wastewater treatment plant) (Original title in spanish: Aprovechamiento de los fangos de tratamiento de agua potable en la industria cerámica y automatización de una EDAR (Estación depuradora de aguas residuales))
Type of project: End of course project

Co-director of thesis: Arisbel Cerpa Naranjo
Entity: Universidad Europea de Madrid **Type of entity:** University
City of entity: Madrid, Community of Madrid, Spain
Student: Mónica Martín Sánchez
Obtained qualification: 10
Date of reading: 17/06/2011

19 **Project title:** Organic substances removal through an advanced oxidation method using high-Fe content ceramics and glasses (Eliminación de compuestos orgánicos por métodos de oxidación avanzada utilizando vidrios y cerámicos con alto contenido en hierro
Type of project: Doctoral thesis
Entity: Universidad Autónoma de Madrid **Type of entity:** University
City of entity: Madrid, Community of Madrid, Spain
Student: Margarita Amado González

Student tutorials

1 **Name of the programme:** Improved performance
Entity: Universidad Complutense de Madrid **Type of entity:** University
Number of recognized hours/ECTS credits: 30 **Frequency of the activity:** 6
Number of tutored students: 1

2 **Name of the programme:** Mobility programme
Entity: Universidad Complutense de Madrid **Type of entity:** University
Frequency of the activity: 2
Number of tutored students: 2

Healthcare experience

Courses and seminars given to healthcare professionals focused on improving medical care

1 **Name of the course:** Coordinación de actividades y operaciones de rescate sanitario en medios inhóspitos
Type of participation: Participatory - Plenary session
Entity where project took place: Universidad Camilo José Cela **Type of entity:** University
Start-End date: 01/09/2021 - 31/08/2022

2 **Name of the course:** Técnicas de rescate sanitario
Type of participation: Participatory - Plenary session
Entity where project took place: Universidad Camilo José Cela **Type of entity:** University
Start-End date: 01/09/2021 - 31/08/2022

3 **Name of the course:** Coordinación de actividades y operaciones de rescate sanitario en medios inhóspitos
Type of participation: Participatory - Plenary session
Entity where project took place: Universidad Camilo José Cela **Type of entity:** University
Start-End date: 01/09/2020 - 31/08/2021

4 **Name of the course:** Técnicas de rescate sanitario
Type of participation: Participatory - Plenary session
Entity where project took place: Universidad Camilo José Cela **Type of entity:** University
Start-End date: 01/09/2020 - 31/08/2021

5 **Name of the course:** Coordinación de actividades y operaciones de rescate sanitario en medios inhóspitos
Type of participation: Participatory - Plenary session
Entity where project took place: Universidad Camilo José Cela **Type of entity:** University
Start-End date: 01/09/2019 - 31/08/2020

6 **Name of the course:** Técnicas de rescate sanitario
Type of participation: Participatory - Plenary session
Entity where project took place: Universidad Camilo José Cela **Type of entity:** University
Start-End date: 01/09/2019 - 31/08/2020

7 **Name of the course:** Coordinación de actividades y operaciones de rescate sanitario en medios inhóspitos
Type of participation: Participatory - Plenary session
Entity where project took place: Universidad Camilo José Cela **Type of entity:** University
Start-End date: 01/09/2018 - 31/08/2019

8 **Name of the course:** Técnicas de rescate sanitario
Type of participation: Participatory - Plenary session
Entity where project took place: Universidad Camilo José Cela **Type of entity:** University
Start-End date: 01/09/2018 - 31/08/2019

9 **Name of the course:** Coordinación de actividades y operaciones de rescate sanitario en medios inhóspitos
Type of participation: Participatory - Plenary session
Entity where project took place: Universidad Camilo José Cela **Type of entity:** University
Start-End date: 01/09/2017 - 31/08/2018

10 **Name of the course:** Técnicas de rescate sanitario
Type of participation: Participatory - Plenary session
Entity where project took place: Universidad Camilo José Cela **Type of entity:** University
Start-End date: 01/09/2017 - 31/08/2018

Scientific and technological experience

Research and development groups/teams

Name of the group: Biotransformaciones
Aims of the group: Synthesis of compounds of industrial interest in non-polluting conditions using immobilized cells or enzymes. Sustainable chemistry: Synthesis processes carried out in non-polluting conditions for the environment; Isolation, characterization and synthesis of natural products; Bioremediation and fight against contamination of chemical origin; Design and characterization of therapeutic systems for percutaneous and oral administration; Pharmaceutical Chemistry; Synthesis of glycostructures with biological activity and industrial interest; Polymer synthesis; Synthesis of conductive nanostructures; Biocatalysis; SYNTHESIS OF INORGANIC NANOSTRUCTURES; Sustainable Chemistry; Cloning and expression of enzymes; Use of thermostable enzymes in Biotransformations; Analysis and quality control in drug analysis; molecular recognition
Name of principal investigator: María Josefa Hernaiz Degano
Standardised code: 920227
Type of collaboration: Co-authorship of projects and their development
Affiliation entity: Facultad de Farmacia
Type of entity: University Centres and Structures and Associated Bodies

Scientific or technological activities

R&D projects funded through competitive calls of public or private entities

1 **Name of the project:** Investigación sobre los componentes de pilas de combustible de Hidrógeno y prueba de concepto
Type of project: Research and development, including transfer
Degree of contribution: Scientific coordinator
Entity where project took place: Instituto de Cerámica y Vidrio
Type of entity: State agency
Name principal investigator (PI, Co-PI....): Eva Chinarro; Sandra Mazo; Miguel Angel Rodriguez; Raul Mario del Toro; Aitana Tamayo; Fausto Rubio; Juan Rubio
Nº of researchers: 7
Funding entity or bodies:
Ministerio de Industria Turismo y Comercio
Type of entity: Ministerio de Industria
Type of participation: Co-ordinator
Name of the programme: PERTE Vehículo Eléctrico y Conectado
Code according to the funding entity: VEC-010000-2022-10
Start-End date: 01/01/2023 - 30/09/2025
Duration: 2 years - 9 months
Total amount: 330.998,24 €
Sub-project amount: 477.000 €
Applicant's contribution: I conceptualize, wrote and coordinate the application with other partners. Acting as scientific and managing coordinato

2 **Name of the project:** Fertilizantes Sostenibles Frente al Cambio Global
Type of project: Research and development, including transfer
Geographical area: Non EU International
Degree of contribution: Researcher
Type of entity: State agency

Entity where project took place: Instituto de Cerámica y Vidrio
Name principal investigator (PI, Co-PI....): Aitana Tamayo; Alejandra Mazo; Wilfredo More; Nilo Cornejo; Juan Rubio
Nº of researchers: 4
Funding entity or bodies:
Consejo Superior de Investigaciones Científicas **Type of entity:** State agency

Name of the programme: Plan de Colaboración Internacional CSIC
Code according to the funding entity: INCGL20033
Start-End date: 01/07/2022 - 31/12/2024
Sub-project amount: 29.781,52 €
Applicant's contribution: Development of glass fertilizers from sustainable ressources. Initialization of a startup

3 **Name of the project:** Reutilización de residuos de vertederos como fertilizantes inorgánicos estabilizados
Type of project: Research and development, including transfer
Degree of contribution: Scientific coordinator
Entity where project took place: Instituto de Cerámica y Vidrio **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Juan Rubio; Aitana Tamayo; Sandra Mazo; Wilfredo More; Nilo Cornejo
Nº of researchers: 5
Funding entity or bodies:
Ministerio de Ciencia e Innovación. Investigación **Type of entity:** Ministerio de ciencia

Type of participation: Co-ordinator
Start-End date: 01/12/2022 - 30/11/2024 **Duration:** 2 years
Total amount: 103.500 €
Applicant's contribution: I was the responsible of the project concept, writting and application. I act as scientific coordinator of the project, coordinating the tasks and meetings

4 **Name of the project:** New hybrid supercapacitors based on (oxy)carbide-derived carbon/graphene electrodes (Original title in spanish: Nuevos supercondensadores híbridos basados en electrodos de nanocomposites de carbon/grafeno derivados de (oxi)carburos)
Type of project: Precompetitive development
Degree of contribution: Miembro del equipo de trabajo
Entity where project took place: Instituto de Cerámica y Vidrio **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Fausto Rubio; Maria Teresa Colomer
Nº of researchers: 7
Funding entity or bodies:
Ministerio de Economía y Competitividad

Type of participation: Team member
Start-End date: 01/01/2017 - 31/12/2019 **Duration:** 3 years
Total amount: 200.000 €
Applicant's contribution: Due to incompatibilities as a head researcher in other project, my participation here is only as a member of the group but I tightly collaborate with the two head researchers of the project. The project is actually an extension of my principal research line and is focused on the development of carbon electrodes for hybrid supercapacitors. These carbon electrodes are obtained from chemical etching of carbides and oxycarbides synthesized through the polymer derived ceramic route. I have described all the task that must be carried out in the project in terms of the description of the materials that should be investigated, the people in charge of each defined activity, goals, etc...

5 **Name of the project:** Thermocatalytic nanocomposites for green fuels generation using solar energy
Identify key words: Porous materials and zeolites; Ceramics; Supported catalysis
Type of project: Research and development, including transfer
Geographical area: National
Degree of contribution: Researcher
Entity where project took place: Instituto de Cerámica y Vidrio
Type of entity: State agency
Name principal investigator (PI, Co-PI....): Aitana Tamayo
Nº of researchers: 1
Nª people/year: 1
Funding entity or bodies:
FUNDACION GENERAL CSIC
City funding entity: Spain

Type of participation: Principal investigator
Name of the programme: Comfuturo
Start-End date: 01/09/2015 - 31/08/2018
Duration: 3 years
Total amount: 150.000 €
Relevant results: The project aims to obtaining porous catalytic supports for the obtaining fo syngas from the thermocatalytic decomposition of H2O and CO2
Dedication regime: Full time
Applicant's contribution: One of the most chalenging tasks of the project is to start a new researh line focused on the development of catalytic supports. As project leader and concept deviser, I am the responsible of the definition of the material´s requirements and tests that should be carried out to guarantee the suitability for the identified purpose. Not only the material is a challenge itself but also the design of a solar reactor for in-situ measurements of gas production by using concentrated solar power.

6 **Name of the project:** Vidrios fertilizantes diseñados específicamente para el cultivo de leguminosas en suelos de Perú
Degree of contribution: Coordinator of total project, network or consortium
Entity where project took place: Instituto de Cerámica y Vidrio
Type of entity: State agency
Name principal investigator (PI, Co-PI....): Juan Rubio; Alberto Garrido Shaeffer
Nº of researchers: 6
Type of participation: Co-ordinator
Name of the programme: iCOOP Suelos y Legumbres
Code according to the funding entity: P2016SULE
Start-End date: 01/07/2016 - 30/06/2017
Duration: 1 year
Total amount: 20.000 €
Sub-project amount: 20.000 €
Applicant's contribution: Coordination of the project between Universidad Nacional Mayor de San Marcos and Instituto de Ceramica y Vidrio

7 **Name of the project:** Research in materials and innovative designs for advanced solar receivers (Original title in spanish: Investigación en materiales y diseños innovadores para receptores avanzados solares)
Identify key words: Porous materials and zeolites; Ceramics
Type of project: Research and development, including transfer
Geographical area: National
Degree of contribution: Researcher
Entity where project took place: Instituto de Cerámica y Vidrio
Type of entity: State agency
Name principal investigator (PI, Co-PI....): Fausto Rubio Alonso
Nº of researchers: 3
Funding entity or bodies:

Ministerio de Economía y Competitividad

Type of participation: Others
Code according to the funding entity: ENE2012-29385-C03-01
Start-End date: 01/01/2013 - 31/12/2016 **Duration:** 3 years
Participating entity/entities: Centro Nacional de Investigaciones Metalúrgicas; FUNDACION CENER-CIEMAT; FUNDACION PRODINTEC; Instituto de Cerámica y Vidrio
Sub-project amount: 108.000 €
Dedication regime: Part time
Applicant's contribution: The main topic of this project and the one of my JAE-Doc contract fully converge in all the extension. The objectives of the project are the research of new materials and microsctructures to enhance the solar absorbance of the current SiC open air receivers. My work here consist in the synthesis and characterization of advanced carbides and nitrides with low reflectivity and high thermal and mechanical stability for being used as volumetric receivers in solar thermal power plants.

8 **Name of the project:** New fertilizers based on glass to apply in tomato crops for reducing the environmental impact
Identify key words: Materials; Fertiliser
Type of project: Research and development, including transfer **Geographical area:** European Union
Degree of contribution: Researcher
Entity where project took place: Instituto de Cerámica y Vidrio **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Juan Rubio
Nº of researchers: 5
Funding entity or bodies:
Centro para el Desarrollo Tecnológico Industrial **Type of entity:** Business
City funding entity: Madrid, Community of Madrid, Spain

Type of participation: Others
Name of the programme: EEA-Grants
Start-End date: 01/09/2014 - 31/08/2016 **Duration:** 2 years
Participating entity/entities: Centro Tecnológico Agroalimentario de Extremadura; Cooperativa San Isidro de Miajadas; Instituto de Cerámica y Vidrio
Applicant's contribution: The aim of the project is to develop environmentally friendly fertilizers for tomato crops by using glasses of a composition similar to conventional NPK fertilizers. These glasses must proceed to a gradual lixiviation of their components in order to reduce the amount of fertilizer that should be applied in the crops and the inherent contamination of the conventional fertilizers due to its lixiviation to ground water. My contribution is the design of glass frits with the selected composition that contain into their structure not only silica but also Nitrogen, Phosporous and Potassium. I study the leaching rate of the glasses obtained from these glass frits. The glasses are partially soluble and the solubility of the glasses is adjusted as a function of the elemental composition in order to obtain a controlled lixiviation rate extended in time.

9 **Name of the project:** Mucoadhesive formulations for controlled drug delivery systems designed for vaginal application to prevent sexually transmitted diseases (Original title in spanish: formulaciones mucoadhesivas de liberación sostenida de fármacos microbiocidas de apicación vaginal para la prevención de enfermedades de transmisión sexual)
Type of project: Basic research (including archaeological digs, etc) **Geographical area:** National
Degree of contribution: Researcher
Entity where project took place: Instituto de Cerámica y Vidrio **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Maria Dolores Veiga Ochoa
Funding entity or bodies:

Ministerio de Economía y Competitividad

Type of participation: Others
Code according to the funding entity: MAT2012-34552
Start-End date: 01/01/2013 - 31/12/2015 **Duration:** 3 years
Participating entity/entities: Facultad de Farmacia, UCM
Sub-project amount: 33.000 €
Applicant's contribution: The objective is the designing of new pharmacological formulations that provide a controlled release of antiretroviral drugs. In this project, the main tasks I'm carrying out are the synthesis and characterization of biocompatible porous materials with controlled porosity.These materials will act either as structural excipients in the formulation and drug carrier as well. After the synthesis I perform the modification of the surface characteristics through grafting of different molecules with a specific functionality to tune the adsorption and desorption rates of selected drugs.

10 **Name of the project:** The disappearance of Neantherthal groups in the Iberian Mediterranean region. A metodologic approach to the historic process and their paleoenvironmental framework (Original title in spanish: La desaparición de los grupos Neandertales en la región central del Mediterráneo Ibérico. Una propuesta metodológica de aproximación al proceso histórico y al marco paleoambiental)
Identify key words: Archeology
Identify key words: Structural determination and study of properties physical-chemistries; Geochemistry; Ancient history
Type of project: Basic research (including archaeological digs, etc)
Degree of contribution: Researcher
Entity where project took place: Universidad de La Laguna **Type of entity:** University
Nº of researchers: 10
Funding entity or bodies:
Ministerio de Economía y Competitividad

Type of participation: Others
Code according to the funding entity: HAR2012-32703
Start-End date: 01/01/2013 - 31/12/2015 **Duration:** 3 years
Participating entity/entities: Centro Nacional de Investigación sobre la Evolución Humana; Universidad de La Laguna
Sub-project amount: 48.000 €
Dedication regime: Part time
Applicant's contribution: This project has lead to the opening of a new research line in which I am the solely participant in the Glass and Ceramic Institute. My dutties here are the textural, mechanical and structural characterization of flint tools found in archaeological sites and also the geological chert from different outcrops. I become a part of a multidisciplinary group with researchers coming from different disciplines such as archaeology, geology, biology and materials science as well (me).

11 **Name of the project:** Environmentally Friendly Processing of Ceramics and Glass
Identify key words: Fight against wastage
Type of project: Research and development, including transfer **Geographical area:** European Union
Degree of contribution: Researcher
Entity where project took place: Instituto de Cerámica y Vidrio **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Xerman de la Fuente
Nº of researchers: 10 **Nª people/year:** 10
Funding entity or bodies:
Comisión Europea **Type of entity:** EU
City funding entity: Madrid, Community of Madrid, Spain

Type of participation: Others
Name of the programme: LIFE+ Environment Policy and Governance
Code according to the funding entity: LIFE ENV/ES/000560
Start-End date: 01/06/2012 - 30/06/2015 **Duration:** 3 years
Participating entity/entities: Instituto de Cerámica y Vidrio ; Instituto de Ciencia de Materiales de Aragón; Torrecid, S.A.; Universidad de Zaragoza
Sub-project amount: 33.000 €
Applicant's contribution: The goal of the project is to develop a new manufacturing process for glasses. The technology is based on laser firing, that reduces significantly the energy of the process and the CO2 emissions as well. My contribution is the designing of new compositions of glass frits suitable for being treated with laser firing technology.

12 **Name of the project:** Synthesis and Characterization of gradient Silicon Oxycarbonitride Materials for traditional applications (Original title in spanish: Preparación y Caracterización de Materiales de Oxicarbonitruro de Silicio con Función Gradiente para Aplicaciones Tradicionales)
Identify key words: Porous materials and zeolites; Ceramics
Type of project: Research and development, including transfer **Geographical area:** National
Degree of contribution: Current university student
Entity where project took place: Instituto de Cerámica y Vidrio **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Jose Luis Oteo
Nº of researchers: 3 **Nª people/year:** 3
Funding entity or bodies:
Ministerio de Ciencia e Innovación **Type of entity:** Pública
City funding entity: Madrid, Community of Madrid, Spain

Name of the programme: Programa Personal Técnico de Apoyo
Code according to the funding entity: MAT2002-03891
Start-End date: 01/01/2002 - 31/12/2004 **Duration:** 2 years
Total amount: 29.633,83 €
Relevant results: Silicon oxycarbide monolithic glasses with gradient porosity were obtained. A method for predicting the porosity as a function of the evaporation rate and the size and shape of the hybrid preceramic precursors was also established.
Dedication regime: Full time
Applicant's contribution: I did participate in the project as a part of my PhD. I performed the synthesis and full characterization of the monolithic porous silicon oxycarbide glasses and their precursors as well. With the data obtained from the textural characterization and the synthesis conditions used in each case, I developed a method for predicting the pore size distribution of the ceramic materials. The materials were also characterized in terms of their acoustic properties, directly linked with the pore size distribution.

R&D non-competitive contracts, agreements or projects with public or private entities

1 **Name of the project:** Research in new technologies, materials and processes associated to the H2 chain value (Original title in spanish: Investigación en nuevas tecnologías, materiales y procesos asociados a la cadena de valor del hidrógeno)
Type of project: Research and development, including transfer
Nº of researchers: 18
Participating entity/entities: Grupo Antolin-Irausa, S.A.; Instituto de Carboquímica ; Instituto de Cerámica y Vidrio
Funding entity or bodies:
Centro para el Desarrollo Tecnológico Industrial **Type of entity:** Business

Start date: 01/01/2022 **Duration:** 4 years
Total amount: 608.993 €

2 **Name of the project:** Physicochemical characterization of functional coatings - FUNCER (Original title in spanish: Caracterización fisico química de recubrimientos funcionales)
Type of project: Industrial research
Nº of researchers: 3
Participating entity/entities: Instituto de Cerámica y Vidrio ; Torrecid, S.A.
Funding entity or bodies:
Torrecid, S.A. **Type of entity:** Business

Start date: 01/07/2021 **Duration:** 2 years - 6 months
Total amount: 48.400 €

3 **Name of the project:** Thermoelectric accumulation by enhanced reflectance - ALTERA (Original title in spanish: Almacenamiento termoeléctrico por reflectancia aumentada)
Type of project: Research and development, including transfer
Participating entity/entities: Estetyco, S.L.; Instituto de Cerámica y Vidrio
Funding entity or bodies:
Centro para el Desarrollo Tecnológico Industrial **Type of entity:** Business

Start date: 01/07/2021 **Duration:** 2 years
Total amount: 93.775 €

4 **Name of the project:** New frit compositions for ceramic applications - FRIMEIM (Original title in spanish: Nuevas composiciones de fritas para aplicaciones cerámicas)
Type of project: Industrial research
Participating entity/entities: Instituto de Cerámica y Vidrio ; Torrecid, S.A.
Funding entity or bodies:
CENTRO DE ACUSTICA APLICADA Y EVALUACION NO DESTRUCTIVA **Type of entity:** Associations and Groups

Torrecid, S.A. **Type of entity:** Business

Start date: 01/06/2021 **Duration:** 2 years
Total amount: 24.200 €

5 **Name of the project:** Thermoelectric accumulation by enhanced reflectance
Type of project: Research and development, including transfer
Participating entity/entities: Advanced Thermal Devices, S.L.; Instituto de Cerámica y Vidrio
Funding entity or bodies:
Centro para el Desarrollo Tecnológico Industrial **Type of entity:** Business

Start date: 01/01/2021 **Duration:** 2 years
Total amount: 54.475 €

6 **Name of the project:** Circular economy in composites industry - EOCENE (Original title in spanish: Economía circular en la industria de los composites)
Type of project: Research and development, including transfer
Participating entity/entities: Instituto de Cerámica y Vidrio
Funding entity or bodies:
Centro para el Desarrollo Tecnológico Industrial **Type of entity:** Business

Start date: 18/10/2020 **Duration:** 2 years
Total amount: 148.007,2 €

7 **Name of the project:** Finish optimization in continuous carbon fibres for their use in long-fibre thermoplastic composites (Original title in Spanish: Mejora del ensimaje de fibras continuas de carbono para su uso en composites termoplásticos de fibra continua LFT (FIBRA CARBONO))
Type of project: Industrial research
Degree of contribution: Researcher
Nº of researchers: 3
Participating entity/entities: AIMPLAS Instituto Tecnológico del Plástico; Instituto de Cerámica y Vidrio
Funding entity or bodies:
AIMPLAS Instituto Tecnológico del Plástico **Type of entity:** Innovation and Technology Centres
City funding entity: Paterna, Valencian Community, Spain

Start date: 01/12/2019 **Duration:** 6 months
Total amount: 17.242,23 €

8 **Name of the project:** Finish optimization in recycled fibres for their use in composites produced with recycled polyester resin (Original title in spanish: Mejora del ensimaje de fibras recicladas para su uso en composites fabricados con resinas de poliéster recicladas (FIBRA LARGA))
Type of project: Industrial research
Degree of contribution: Researcher
Nº of researchers: 3
Participating entity/entities: AIMPLAS Instituto Tecnológico del Plástico; Instituto de Cerámica y Vidrio
Funding entity or bodies:
AIMPLAS Instituto Tecnológico del Plástico **Type of entity:** Innovation and Technology Centres
City funding entity: Paterna, Valencian Community, Spain

Start date: 01/12/2019 **Duration:** 6 months
Total amount: 18.016,9 €

9 **Name of the project:** Research in new Materials (composite, graphenic and ceramic) and Textiles for profesional clothing protection against projectiles, environment, fire and biological risks (MATEX)
Type of project: Research and development, including transfer
Degree of contribution: Researcher
Name principal investigator (PI, Co-PI....): J. Rubio
Nº of researchers: 3
Participating entity/entities: Instituto de Cerámica y Vidrio ; SIFAXTD, S.A.
Funding entity or bodies:
SIFAXTD, S.A.

Start date: 01/12/2019 **Duration:** 3 years
Total amount: 118.580 €

10 **Name of the project:** Research in new Materials (composite, graphenic and ceramic) and Textils for profesional clothing protection against projectiles, environment, fire and biological risks (MATEX)
Type of project: Research and development, including transfer
Degree of contribution: Researcher
Name principal investigator (PI, Co-PI....): J. Rubio
Nº of researchers: 3
Participating entity/entities: Grupo Antolin-Irausa, S.A.; Instituto de Cerámica y Vidrio
Funding entity or bodies:
Grupo Antolin-Irausa, S.A. **Type of entity:** Business
City funding entity: Burgos, Castile and León, Spain

Start date: 01/12/2019 **Duration:** 3 years

Total amount: 48.400 €

11 **Name of the project:** Nanoparticle characterization for inks (original title in spanish: Caracterización de nanopartículas para su uso en tintas)
Type of project: Industrial research
Nº of researchers: 3
Participating entity/entities: Torrecid, S.A.
Funding entity or bodies:
Torrecid, S.A. **Type of entity:** Business

Start date: 20/10/2019 **Duration:** 3 years
Total amount: 53.240 €

12 **Name of the project:** Development of household textiles through digital printing of hybrid inks (Original title in Spanish: Desarrollo de Textiles para el hogar mediante impresión digital de tintas híbridas (HYTEX))
Degree of contribution: Researcher
Name principal investigator (PI, Co-PI....): J. Rubio
Nº of researchers: 5
Participating entity/entities: Instituto de Cerámica y Vidrio ; Torrecid, S.A.
Funding entity or bodies:
Torrecid, S.A. **Type of entity:** Business
City funding entity: Alcora, Valencian Community, Spain

Start date: 01/06/2019 **Duration:** 2 years
Total amount: 44.000 €

13 **Name of the project:** Use of ELT rubber in brake disks (Utilización de caucho de NFVU en pastillas de freno (BRAKETYRE))
Type of project: Research and development, including transfer
Degree of contribution: Researcher
Name principal investigator (PI, Co-PI....): J. Rubio
Nº of researchers: 3
Participating entity/entities: Instituto de Cerámica y Vidrio ; SIGNUS, S.A.
Funding entity or bodies:
Signus, S.A.

Start date: 01/02/2019 **Duration:** 6 months
Total amount: 24.200 €

14 **Name of the project:** Advanced research to respond the future challenges in detergents - REDEFINE (Original title in Spanish: Investigación avanzada para dar respuesta a los retos de la detergencia del futuro)UESTA A LOS RETOS DE LA DETERGENCIA DEL FUTURO
Type of project: Research and development, including transfer
Degree of contribution: Researcher
Name principal investigator (PI, Co-PI....): J. Rubio
Nº of researchers: 5
Participating entity/entities: Instituto de Cerámica y Vidrio ; Torrecid, S.A.
Funding entity or bodies:
Centro para el Desarrollo Tecnológico Industrial **Type of entity:** Business
City funding entity: Madrid, Community of Madrid, Spain

Start date: 01/01/2018 **Duration:** 3 years
Total amount: 54.450 €

15 **Name of the project:** Solid state devices for thermionic conversion
Type of project: Industrial research
Degree of contribution: Researcher
Name principal investigator (PI, Co-PI....): J. Rubio
Nº of researchers: 5
Participating entity/entities: Instituto de Cerámica y Vidrio ; Ádvanced Thermal Ceramics, S.A.
Funding entity or bodies:
Centro para el Desarrollo Tecnológico Industrial **Type of entity:** Business
City funding entity: Madrid, Community of Madrid, Spain

Start date: 01/10/2017 **Duration:** 1 year
Total amount: 54.450 €
Relevant results: We developed a hollow cathode with reversible thermionic conversion compatible with the remainder components of the thermionic converter. We obtained a completelly reversible thermionic emission at temperatures above 500 ºC

16 **Name of the project:** Physic-chemical characterization of thermoionic devices (Original title in spanish: Caracterización físico-química de Materiales Termiónicos)
Type of project: Industrial research
Degree of contribution: Researcher
Name principal investigator (PI, Co-PI....): J. Rubio
Nº of researchers: 5
Participating entity/entities: Advanced Thermal Ceramics, SA; Instituto de Cerámica y Vidrio
Funding entity or bodies:
Centro para el Desarrollo Tecnológico Industrial **Type of entity:** Business
City funding entity: Madrid, Community of Madrid, Spain

Start date: 01/07/2016 **Duration:** 6 months
Total amount: 30.250 €
Relevant results: We selected the most adequate post-synthetic treatments required to maximize the thermionic properties of glass-ceramic materials. I designed a ultra-high vacuum furnace working in extremally high reduced conditions for the extraction of entrapped iones within the glass network

17 **Name of the project:** Viability study of the thermionic devices. Synthesis and properties. (Original title in spanish: Estudio de viabilidad de materiales en dispositivos de emisión termoiónica. Síntesis y propiedades)
Type of project: Research and development, including transfer
Degree of contribution: Researcher
Name principal investigator (PI, Co-PI....): Aitana Tamayo; Juan Rubio; Fausto Rubio; Jesús Tartaj
Nº of researchers: 4
Funding entity or bodies:
Advanced Thermal Devices **Type of entity:** Business
City funding entity: Madrid, Community of Madrid, Spain

Start date: 01/10/2015 **Duration:** 3 months
Total amount: 60.500 €
Relevant results: We exploided the different synthetic methods for obtainining glass or ceramic materials with thermionic properties. Starting from the adequate ratio of the raw materials, We adjusted not only the chemica composition but also the thermal treatments more adequate to provide the materials reversible thermionic emission

18 **Name of the project:** Strategic advances in materials through digital printing (Original title in spanish: Avances estratégicos en materiales mediante impresión digital)
Identify key words: Ceramics

Type of project: Industrial research
Entity where project took place: Instituto de Cerámica y Vidrio
Degree of contribution: Researcher
Entity where project took place: Instituto de Cerámica y Vidrio
Type of entity: State agency
Name principal investigator (PI, Co-PI....): Juan Rubio
Nº of researchers: 3
Participating entity/entities: AERNNOVA ENGINEERING SOLUTIONS IBERICA SA; Afford, S.A.; BSH BALAY, S.A.; Cemitec; FUNDACION CIDETEC; Hutpire, S.A.; Instituto de Cerámica y Vidrio ; MAIER TECHNOLOGY CENTRE, S. COOP.; Teckniker; Torrecid, S.A.; Universidad Politécnica de Madrid
Funding entity or bodies:
Centro para el Desarrollo Tecnológico Industrial
Type of entity: Business
City funding entity: Madrid, Community of Madrid, Spain

Type of project: Cooperation
Start date: 01/01/2015
Duration: 3 years
Total amount: 69.000 €
Relevant results: The project aims to develop glass surfaces in domestic electrical appliances. My tasks here are the development of new glass compositions suitable for being applied in metallic surfaces through digital printing

19 **Name of the project:** Development of thermal reflective coatings for domestic ovens (Original title in spanish: Desarrollo de recubrimientos reflectivos térmicos para hornos domésticos)
Identify key words: Ceramics
Type of project: Industrial research
Entity where project took place: Instituto de Cerámica y Vidrio
Degree of contribution: Researcher
Entity where project took place: Instituto de Cerámica y Vidrio
Type of entity: State agency
Name principal investigator (PI, Co-PI....): Juan Rubio
Participating entity/entities: AIN; Arcelik, S.A.; Instituto de Cerámica y Vidrio ; Torrecid, S.A.
Funding entity or bodies:
Centro para el Desarrollo Tecnológico Industrial
Type of entity: Business
City funding entity: Madrid, Community of Madrid, Spain

Start date: 01/11/2014
Duration: 2 years
Sub-project amount: 10.000 €
Relevant results: The goal of the project is the development of glass surfaces of high reflectivity at working operation temperatures to optimize heating by using the emitted infrared radiation. My task here are not only the development of the glass compositions but also the design of new devices for high temperature light measurements

20 **Name of the project:** New glass fertilizers for reducing environmental impact (original title in spanish: Nuevos vidrios fertilizantes para la reducción del impacto ambiental)
Type of project: Research and development, including transfer
Participating entity/entities: Instituto de Cerámica y Vidrio ; Torrecid, S.A.
Funding entity or bodies:
Torrecid, S.A.
Type of entity: Business

Start date: 01/10/2014
Duration: 1 year - 2 months
Total amount: 36.300 €

21 **Name of the project:** Recycling of carbon fibers from waste of composite materials for aeronautical use for the development of new high-performance materials (Original title in spanish: Reciclado de fibras de carbono de residuos de materiales compuestos de uso aeronautico para el desarrollo de nuevos materiales de altas prestaciones)

Type of project: Research and development, including transfer

Funding entity or bodies:

Torrecid, S.A. **Type of entity:** Business

Start date: 01/10/2014 **Duration:** 1 year - 2 months

Total amount: 84.700 €

22 **Name of the project:** Characterization of ceramic particles, glass frits and pigments for tactile surfaces (Original title in spanish: Caracterización de partículas cerámicas, fritas y pigmentos para superficies táctiles visuales)

Identify key words: Materials

Type of project: Industrial research **Entity where project took place:** Instituto de Cerámica y Vidrio

Degree of contribution: Researcher

Entity where project took place: Instituto de Cerámica y Vidrio **Type of entity:** State agency

Name principal investigator (PI, Co-PI....): Juan Rubio

Nº of researchers: 5

Participating entity/entities: Instituto de Cerámica y Vidrio ; Tecnoseñal; Torrecid, S.A.

Funding entity or bodies:

Centro para el Desarrollo Tecnológico Industrial **Type of entity:** Business

City funding entity: Madrid, Community of Madrid, Spain

Type of project: Cooperation

Start date: 01/01/2013 **Duration:** 2 years - 9 months

Total amount: 400.000 € **Sub-project amount:** 75.000 €

Relevant results: Glass frits of a specified melting point (according to the target surface), viscosity and surface tension have been produced. I designed the thermophisical properties of the frits for smooth printing characters and reliefs for visual impaired people

23 **Name of the project:** Research and development of new technologies and materials for the integral restoration of heritage buildings subjected to aggressive environments (Original title in spanish: Investigación y Desarrollo de nuevas tecnologías y materiales para la restauración de edificios patrimoniales sometidos a atmósferas muy agresivas)

Identify key words: Chemical phisycs of materials; Materials; Inorganic polymers

Type of project: Industrial research **Entity where project took place:** Instituto de Cerámica y Vidrio

Degree of contribution: Researcher

Entity where project took place: Instituto de Cerámica y Vidrio **Type of entity:** State agency

Name principal investigator (PI, Co-PI....): José Luis Oteo; Juan Rubio; Fausto Rubio; Aitana Tamayo

Nº of researchers: 4 **Nª people/year:** 4

Participating entity/entities: Conservación del Patrimonio Artístico, S.L.; Metrum, S.A; Unidad Ejecutora del Arzobispado de Santo Domingo

Funding entity or bodies:

Centro para el Desarrollo Tecnológico Industrial **Type of entity:** Business

City funding entity: Madrid, Community of Madrid, Spain

Type of project: Cooperation

Name of the programme: IBEROEKA

Code according to the funding entity: IB 11-674 CATEDRAL
Start date: 01/07/2011 **Duration:** 2 years
Total amount: 897.438,5 € **Sub-project amount:** 210.000 €
Relevant results: The research project was a part of the wall restoration of a Cathedral. The subproject consisted on the obtaining of protective hybrid coatings for being applied in natural stone. The coatings I developed possess certain hidrophobicity to protect the stone and are extremelly resistant agains highly saline and tropical environments.

24 **Name of the project:** Anti-ice coatings for surface treatment of composite materials (Original title in spanish: Estudio de materiales antihielo para el tratamiento superficial de materiales compuestos)
Identify key words: Chemical surface; Inorganic polymers
Type of project: Industrial research **Entity where project took place:** Instituto de Cerámica y Vidrio
Degree of contribution: Post doctoral researcher
Entity where project took place: Instituto de Cerámica y Vidrio **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): José Luis Oteo
Nº of researchers: 3 **Nª people/year:** 2
Participating entity/entities: Instituto de Cerámica y Vidrio ; Maeco Eólica, S.L.
Funding entity or bodies:
Centro para el Desarrollo Tecnológico Industrial **Type of entity:** Business
City funding entity: Madrid, Community of Madrid, Spain

Type of project: Cooperation
Start date: 01/07/2009 **Duration:** 2 years
Total amount: 120.000 €
Relevant results: Ice accretion was minimized by the application of hybrid coatings on the surface of wind rotor blades. I developed new hybrid coatings that not only prevents the formation of ice because the decrease of the freezing temperature but also allows the elimination of the already formed ice layers due to the high surface energy of the coating, i.e. its adhesion energy. Moreover, I performed the synthesis optimization and scale experiments for a pilot plant production. The minimum temperature achieved in the lab experiments were -15 0C for ice formation. In situ experiments in real turbines revealed a faster elimination of the ice in case of snow precipitation.

25 **Name of the project:** Surface modification of ceramic particles (Original title in spanish: Modificación superficial de partículas cerámicas)
Identify key words: Surface spectroscopy; Chemisorption; Chemical phisycs of materials
Type of project: Industrial research **Entity where project took place:** Instituto de Cerámica y Vidrio
Degree of contribution: Post doctoral researcher
Entity where project took place: Instituto de Cerámica y Vidrio **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Juan Rubio
Nº of researchers: 3 **Nª people/year:** 1
Participating entity/entities: Instituto de Cerámica y Vidrio ; Torrecid, S.A.
Funding entity or bodies:
Centro para el Desarrollo Tecnológico Industrial **Type of entity:** Business
City funding entity: Madrid, Community of Madrid, Spain

Type of project: Cooperation
Code according to the funding entity: TRIDEP
Start date: 01/07/2009 **Duration:** 1 year - 11 months
Total amount: 70.000 € **Sub-project amount:** 70.000 €
Percentage as grant: 0 **Percentage as credit:** 0

Relevant results: Silanization of low-temperature glass frits have been carried out in order to modify the surface characteristics of the frits. The objective was to selectively modify the surface properties of the frits for being deposited through a cathodic electrodeposition method over aluminum substrates. Physico chemical characteristics of the frits were studied by Inverse Gas Chromatography at infinite Dilution and contact angle measurements in order to estimate the orientation of the functional groups of the silanes. The orientation of the functional groups turned out to be crucial for the stabilization of the frit suspension in the electrodeposition media.

26 **Name of the project:** Research and development of materials and joint processes in solar collectors and development of surface treatment to achieve anti reflexive effects (Original title in spanish: Investigación y Desarrollo Tecnológico de Materiales y Procesos de Soldadura en Colectores Solares y Desarrollo de Tratamiento Superficial para conseguir Efectos Antirreflexivos)

Identify key words: Amorphous; Ceramics; Structural determination and study of properties physical-chemistries

Type of project: Industrial research

Entity where project took place: Instituto de Cerámica y Vidrio

Degree of contribution: Post doctoral researcher

Entity where project took place: Instituto de Cerámica y Vidrio

Type of entity: State agency

Name principal investigator (PI, Co-PI....): Fausto Rubio

Nº of researchers: 3

Nª people/year: 2

Participating entity/entities: ABENGOA SOLAR NEW TECHNOLOGIES, S.A.; Instituto de Cerámica y Vidrio

Funding entity or bodies:

Centro para el Desarrollo Tecnológico Industrial

Type of entity: Business

City funding entity: Madrid, Community of Madrid, Spain

Type of project: Cooperation

Start date: 01/07/2008

Duration: 2 years

Total amount: 322.147 €

Sub-project amount: 322.147 €

Relevant results: New glass compositions with high thermal and mechanical properties were obtained allowing the welding process of metals commonly used in solar collectors. By using the chemical vapor deposition, I developed new coatings of silanes and siloxanes over the glass surfaces with high solar transmission and high resistance to the atmospheric environment.

27 **Name of the project:** Ceramic Materials synthesis derived from Silicon based polymers for SiC fiber coating applications (Original title in german: Synthese Si-basierter Keramikschichten aus polymeren Vorstufen über ein fluid-coating-Verfahren und deren Anwendung für die SiC-Faserbeschichtung)

Identify key words: Ceramics; Nanomaterials

Type of project: Industrial research

Entity where project took place: Technische Universität Darmstadt

Degree of contribution: Researcher

Entity where project took place: Technische Universität Darmstadt

Type of entity: University

City of entity: Darmstadt, Darmstadt, Germany

Name principal investigator (PI, Co-PI....): Ralf Riedel

Nº of researchers: 2

Nª people/year: 2

Participating entity/entities: SGL Carbon; Technische Universität Darmstadt

Funding entity or bodies:

SGL Carbon, GmbH

Type of project: Cooperation

Start date: 01/04/2008

Duration: 1 year - 9 months

Relevant results: Polymer-derived ceramic coatings were prepared from silazanes and polysilazanes in order to obtain a chemically stable ceramic coating fully compatible with the surface of the silicon carbide fibers. Thick coatings were required. The obtaining of crack-free 2 microns coatings were achieved over silicon carbide fibers with an average diameter of 10 microns.

28 **Name of the project:** Advances in technological coatings for decorative applications (Original title in spanish: Avances en recubrimientos tecnológicos para aplicaciones decorativas)
Identify key words: Chemical phisycs of materials; Ceramics
Type of project: Industrial research
Entity where project took place: Instituto de Cerámica y Vidrio
Degree of contribution: Post doctoral researcher
Entity where project took place: Instituto de Cerámica y Vidrio
Type of entity: State agency
Name principal investigator (PI, Co-PI....): Fausto Rubio
Nº of researchers: 3
Nª people/year: 2
Participating entity/entities: Instituto de Cerámica y Vidrio ; Torrecid, S.A.
Funding entity or bodies:
Centro para el Desarrollo Tecnológico Industrial
Type of entity: Business
City funding entity: Madrid, Community of Madrid, Spain

Type of project: Cooperation
Name of the programme: CENIT-ARTDECO
Start date: 01/11/2007
Duration: 3 years - 1 month
Sub-project amount: 270.000 €
Relevant results: Two different lines were followed based on the same objective of coating aluminum surfaces. In the first one, I developed ceramic coatings for the base of irons by calcination of low-temperature glass frits. In the second line, luminescent glass frits were applied over aluminum surfaces for road sign posting.

29 **Name of the project:** Multicomponent silicon oxyarbide layers on metallic alloys surfaces by spray plasma (Original title in spanish: Capas de oxicarburos de Silicio multicomponentes en superficies de aleaciones metálicas por plasma spray)
Identify key words: Ceramics
Type of project: Industrial research
Entity where project took place: Instituto de Cerámica y Vidrio
Degree of contribution: Post doctoral researcher
Entity where project took place: Instituto de Cerámica y Vidrio
Type of entity: State agency
Name principal investigator (PI, Co-PI....): Fausto Rubio
Nº of researchers: 3
Nª people/year: 1
Participating entity/entities: Industria de Turbo Propulsores, S.A. ; Instituto de Cerámica y Vidrio
Funding entity or bodies:
MINISTERIO DE EDUCACION Y CIENCIA
City funding entity: Spain

Type of project: Cooperation
Name of the programme: PROFIT 2004-2007. Programa nacional de materiales
Code according to the funding entity: CIT-030000-2007-38
Start date: 01/01/2007
Duration: 1 year
Total amount: 187.451 €
Sub-project amount: 69.000 €
Percentage as grant: 84
Relevant results: Thin inorganic coatings were prepared from hybrid gels deposited on metallic surfaces. Boron, zirconium, titanium and aluminum alcoxydes were mixed with carbon-containing silicon alcoxydes in order to obtain hybrid solutions that were subsequently deposited and heat treated to obtain the mixed

silica-derived network. I carried out the characterization of the coatings that I had obtained in terms of their chemical and thermal stability, hardness and abrasion resistance.

30 **Name of the project:** Synthesis and development of innovative materials with oriented nanotechnology (Original title in spanish: Desarrollo y obtención de materiales innovadores con nanotecnología orientada.)
Identify key words: Nanomaterials; Structural determination and study of properties physical-chemistries
Type of project: Industrial research
Entity where project took place: Instituto de Cerámica y Vidrio
Degree of contribution: Post doctoral researcher
Entity where project took place: Instituto de Cerámica y Vidrio
Type of entity: State agency
Name principal investigator (PI, Co-PI....): Fausto Rubio
Nº of researchers: 3
Nª people/year: 2
Participating entity/entities: Instituto de Cerámica y Vidrio ; Moldeo y Diseño, S.L.
Funding entity or bodies:
Centro para el Desarrollo Tecnológico Industrial
Type of entity: Business
City funding entity: Madrid, Community of Madrid, Spain

Type of project: Cooperation
Name of the programme: CENIT. DOMINO
Code according to the funding entity: CENIT-2007-1001
Start date: 01/01/2007
Duration: 1 year
Total amount: 1.408.610 €
Sub-project amount: 322.147 €
Relevant results: Carbon nanofibres have been used for the obtaining of nanoreinforced resin composites for architectural applications. In order to increase the compatibility of the fiber with the epoxy resin used for the fabrication of the composites, the surface of the fibers had to be modified. A complete study of the physic chemical characteristics of the fiber was performed in terms of the wettability, surface energy and acid-base properties. The silanization of the fiber with carbon-containing silicon alcoxydes allowed the incorporation of the reinforcement within the resin.

31 **Name of the project:** Bibliographic research on the surface treatment of polimeric materials for glass substitution in the automobile industry (Original title in spanish: Estudio Bibliográfico sobre el Tratamiento Superficial de Materiales Poliméricos para la sustitución de Vidrio en el Automóvil)
Identify key words: Amorphous
Type of project: Industrial research
Entity where project took place: Instituto de Cerámica y Vidrio
Degree of contribution: Current university student
Entity where project took place: Instituto de Cerámica y Vidrio
Type of entity: State agency
Name principal investigator (PI, Co-PI....): José Luis Oteo
Nº of researchers: 3
Nª people/year: 0,5
Participating entity/entities: Grupo Antolin-Irausa, S.A.; Instituto de Cerámica y Vidrio
Funding entity or bodies:
Grupo Antolin-Irausa, S.A.
Type of entity: Business
City funding entity: Burgos, Castile and León, Spain

Type of project: Cooperation
Name of the programme: Proyecto directo con Empresa
Start date: 01/11/2005
Duration: 4 months
Total amount: 18.000 €
Sub-project amount: 0 €
Percentage as grant: 0
Percentage as credit: 0
Relevant results: I performed a thoughtful bibliographic research on transparent scratch-resistant coatings suitable for the application on polycarbonate substrates. New hybrid coatings were also prepared and tested on the plastic surfaces. The main drawback of the low adherence of the coatings in the polycarbonate

substrate was settled by the incorporation of epoxy-derived silanes to the original formulation. Indentation test lead an improvement of the hardness of the surface of around 20% because of the application of the hybrid coating.

32 **Name of the project:** Advanced Materials for High Temperature Applications (Original title in spanish: Materiales avanzados para aplicaciones a alta temperatura)
Identify key words: Ceramics
Type of project: Industrial research
Entity where project took place: Instituto de Cerámica y Vidrio
Degree of contribution: Current university student
Entity where project took place: Instituto de Cerámica y Vidrio
Type of entity: State agency
Name principal investigator (PI, Co-PI....): Fausto Rubio
Nº of researchers: 3
Nª people/year: 1
Participating entity/entities: Industria de Turbo Propulsores, S.A. ; Instituto de Cerámica y Vidrio
Funding entity or bodies:
MINISTERIO DE EDUCACION Y CIENCIA
City funding entity: Spain

Type of project: Cooperation
Name of the programme: PROFIT 2004-2007
Code according to the funding entity: CIT-030000-2005-17
Start date: 01/01/2005
Duration: 2 years
Total amount: 268.072 €
Sub-project amount: 140.000 €
Percentage as grant: 60
Percentage as credit: 7
Relevant results: For the first time, boron silicon oxycarbide glasses were obtained. Hybrid solutions containing the boron and silicon precursors were synthesized by the sol-gel method. A fiber-spinning setup was also designed to obtain a large mat of continuous fiber with various meter length. The mechanical properties of the fibers were dependent on the composition because of the different incorporation of boron into the ceramic structure. In this sense,I demonstrated that segregation of boron clusters of precipitates caused a serious damage on the final properties of the obtained fibers.

33 **Name of the project:** Research and development of new advanced materials for Aeronautic applications. Development of new Silicon Oxycarbide glasses as absorbers in selected regions of the Electromagnetic spectra (Original title in spanish: Investigación y Desarrollo de nuevos materiales avanzados para usos Aeronáuticos. Desarrollo de nuevos vidrios de Oxicarburo de Silicio como absorbentes en regiones específicas del Espectro electromagnético)
Identify key words: Ceramics; Aircraft external noise
Type of project: Industrial research
Entity where project took place: Instituto de Cerámica y Vidrio
Degree of contribution: Current university student
Entity where project took place: Instituto de Cerámica y Vidrio
Type of entity: State agency
Name principal investigator (PI, Co-PI....): José Luis Oteo
Nº of researchers: 3
Nª people/year: 0,5
Participating entity/entities: Industria de Turbo Propulsores, S.A. ; Instituto de Cerámica y Vidrio
Funding entity or bodies:
MINISTERIO DE EDUCACION Y CIENCIA
City funding entity: Basque Country, Spain

Type of project: Cooperation
Start date: 01/01/2005
Duration: 6 months
Total amount: 67.965,4 €
Sub-project amount: 67.965,4 €
Percentage as grant: 0
Percentage as credit: 0

Relevant results: This project was a part of my PhD wok thesis. Synthesis of porous silicon oxycarbide glasses with acoustic resonant properties to minimize the noise of exhaust valves. Mesoporous glasses with gradient porosity were obtained through pyrolysis of hybrid materials synthesized by the sol-gel method. The noise absorption coefficient of the glasses was around 0,4 at about 2000 Hz frequency whereas it was found absorption coefficients over 0,7 for the noise of 4000 Hz frequency.

34 **Name of the project:** Research and Development of new advanced materials for Aeronautic applications (Original title in spanish: Investigación y Desarrollo de nuevos materiales Avanzados para usos Aeronáuticos)
Identify key words: Ceramics
Type of project: Industrial research
Entity where project took place: Instituto de Cerámica y Vidrio
Degree of contribution: Current university student
Entity where project took place: Instituto de Cerámica y Vidrio
Type of entity: State agency
Name principal investigator (PI, Co-PI....): José Luis Oteo
Nº of researchers: 3
Nª people/year: 3
Participating entity/entities: Industria de Turbo Propulsores, S.A. ; Instituto de Cerámica y Vidrio
Funding entity or bodies:
Industria de Turbo Propulsores, S.A.
Type of entity: Business
City funding entity: Zamudio, Basque Country, Spain

Type of project: Cooperation
Name of the programme: Proyecto directo con empresa
Start date: 01/08/2003
Duration: 1 year - 5 months
Total amount: 271.861,8 €
Sub-project amount: 0 €
Percentage as grant: 0
Percentage as credit: 0
Relevant results: I was the responsible of the third part of the project that lead to the obtaining of large monoliths of macroporous silicon oxycarbide glasses with bimodal pore distribution stable up to very high temperatures. The control of the porosity depending on the size and dimensions of the material was a key issue on the project since it was demonstrated that the evaporation rate of the solvents and the molecular weight of the raw materials plays an important role on the pore size distribution of this kind of materials, specially in large volumes

Results

Industrial and intellectual property

1 **Title registered industrial property:** MATERIAL ADSORBENTE DE ALTA VELOCIDAD
Inventors/authors/obtainers: F. Rubio; J. Rubio; A. Tamayo; MªA. Rodriguez; J. Beltrán
Entity holder of rights: Consejo Superior de Investigaciones Científicas
Nº of application: 202130111
Country of inscription: Spain
Date of register: 12/02/2021
Conferral date: 18/08/2022

2 **Title registered industrial property:** Hybrid particles with thermal functionalized surface for the sustained molecule release
Inventors/authors/obtainers: A. Tamayo; J. Rubio; F. Rubio; M.D. Veiga
Entity holder of rights: Consejo Superior de Investigaciones Científicas
Nº of application: 202030249

Country of inscription: Spain
Date of register: 26/03/2023
Conferral date: 27/09/2021

Technological results derived from specialized and transfer activities, not included in previous sections

1 **Description:** Oil absoprtion analysis (Original title in spanish: Análisis de absorción de aceite)
Name of the principal Investigator (PI): J. Jiménez
Expert technologist: Yes
Collaborating entity or bodies:
Befesa Aluminio, S.L.U.

Start date: 23/06/2021

2 **Description:** Oil adsorption in powdered samples (original title in spanish: Adsorción de aceite en muestras en polvo)
Name of the principal Investigator (PI): J. Jiménez
Expert technologist: Yes
Collaborating entity or bodies:
Befesa Aluminio, S.L.U

Start date: 02/06/2021

3 **Description:** Adhesion test to ice and snow after the application of Ultra Ever Dry Product (Original title in spanish: Pruebas de adherencia del hielo y la nieve con la aplicación del producto Ultra Ever Dry)
Name of the principal Investigator (PI): Aitana Tamayo
Degree of contribution: Researcher
Expert technologist: Yes
Collaborating entity or bodies:
Instituto de Cerámica y Vidrio **Type of entity:** State agency
City collaborating entity: Madrid, Community of Madrid, Spain

Patentes Talgo, S.A. **Type of entity:** Business
City collaborating entity: Madrid, Community of Madrid, Spain

Start date: 14/02/2017 **Duration:** 6 months

4 **Description:** Determination of the gases generated in resins curing (Original title in spanish: Determinación de los gases generados durante el curado de pinturas)
Name of the principal Investigator (PI): Aitana Tamayo
Degree of contribution: Researcher
Expert technologist: Yes
Collaborating entity or bodies:
Instituto de Cerámica y Vidrio **Type of entity:** State agency
City collaborating entity: Madrid, Community of Madrid, Spain

Patentes Talgo, S.A. **Type of entity:** Business
City collaborating entity: Madrid, Community of Madrid, Spain

Start date: 26/10/2016 **Duration:** 6 months

5 **Description:** Determination of the wettability of paintings (Original title in spanish: Determinación de la mojabilidad de pinturas)
Name of the principal Investigator (PI): Aitana Tamayo
Degree of contribution: Researcher
Expert technologist: Yes
Collaborating entity or bodies:
Instituto de Cerámica y Vidrio **Type of entity:** State agency
City collaborating entity: Madrid, Community of Madrid, Spain

Patentes Talgo, S.A. **Type of entity:** Business
City collaborating entity: Madrid, Community of Madrid, Spain

Start date: 26/10/2016 **Duration:** 6 months

6 **Description:** Analysis of glass containers for canned food (Original title in spanish: Análisis de tarros de vidrio para conservas)
Name of the principal Investigator (PI): A. Tamayo
Collaborating entity or bodies:
Instituto de Cerámica y Vidrio **Type of entity:** State agency
City collaborating entity: Madrid, Community of Madrid, Spain

Grupo El Consorcio **Type of entity:** Business
City collaborating entity: Santoña, Cantabria, Spain

Start date: 01/07/2016 **Duration:** 6 months

7 **Description:** Properties of commercial Al2O3 (Original title in spanish: Propiedades de alumina comercial)
Name of the principal Investigator (PI): Aitana Tamayo
Degree of contribution: Researcher
Expert technologist: Yes
Collaborating entity or bodies:
Instituto de Cerámica y Vidrio **Type of entity:** State agency
City collaborating entity: Madrid, Community of Madrid, Spain

EuroTransport Solutions SLU **Type of entity:** Business

Start date: 01/07/2016 **Duration:** 1 month

8 **Description:** Resins Curing Study (Original title in spanish: Estudio del curado de resinas)
Name of the principal Investigator (PI): Aitana Tamayo
Degree of contribution: Researcher
Expert technologist: Yes
Collaborating entity or bodies:
Instituto de Cerámica y Vidrio **Type of entity:** State agency
City collaborating entity: Madrid, Community of Madrid, Spain

Patentes Talgo, S.A. **Type of entity:** Business
City collaborating entity: Madrid, Community of Madrid, Spain

Start date: 14/06/2016 **Duration:** 6 months

9 **Description:** Characterization of carbon used in drinking water treatment plants (Original title in spanish: Caracterización de carbones utilizados en Estaciones de Tratamiento de Agua Potable (EDAP))
Name of the principal Investigator (PI): Aitana Tamayo
Degree of contribution: Researcher

Expert technologist: Yes
Collaborating entity or bodies:
Instituto de Cerámica y Vidrio **Type of entity:** State agency
City collaborating entity: Madrid, Community of Madrid, Spain

Canal de Isabel II **Type of entity:** Business
City collaborating entity: Madrid, Community of Madrid, Spain

Start date: 01/01/2011 **Duration:** 6 months

10 **Description:** Analysis of isolation materials for melting furnaces (Original title in spanish: Análisis de muestras aislantes en hornos de fusión)
Name of the principal Investigator (PI): A. Tamayo
Expert technologist: Yes
Collaborating entity or bodies:
ENERGON TECNOLOGIA DE LA FUNDICION Y TRATAMIENTO S.L

Scientific and technological activities

Scientific production

Publications, scientific and technical documents

1 Araceli Martin; Eva Chinarro; Raul Cazorla; Fernando Notario; M. DOlores Veiga; Juan Rubio; Aitana Tamayo. Optimized hydration dynamics in mucoadhesive Xanthan-based trilayer vaginal films for the controlled release of tenofovir. Carbohydrate Polymers. 278, pp. 118958. Elsevier, 28/11/2021.
DOI: 10.1016/j.carbpol.2021.118958
Type of production: Scientific paper **Format:** Journal
Position of signature: 7 **Degree of contribution:** Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 7 **Corresponding author:** Yes
Impact source: ISI **Category:** Science Edition - POLYMER SCIENCE
Impact index in year of publication: 9.381 **Journal in the top 25%:** Yes
Position of publication: 3 **No. of journals in the cat.:** 88
Source of citations: SCOPUS **Citations:** 1

Relevant results: Karaya gum, pectin and xanthan gum have been tested as candidates for manufacturing mucoadhesive trilayer films containing ethylcellulose and chitosan for the vaginal administration of the antiviral Tenofovir (TFV). The swelling profile correlated with the amount of mobile dipoles determined by impedance spectroscopy allows the determination of the hydration dynamics of these films. The fast water penetration has been demonstrated to favor the formation of polyelectrolyte complexes (PEC) via hydrogen or ionic bonds which would favor a controlled release. The incorporation of an inorganic drug release regulator induces the weakness of the polymeric chains thus enhancing the ionic mobility via the formation of low molecular weight PECs in films manufactured with karaya gum. Due to the different mechanical properties of the individual components, pectin-based films failed for a potential pharmaceutical formulation. However, mucoadhesive trilayer films produced with xanthan gum have demonstrated a moderate swelling, improved wettability and a controlled release of TFV.
Relevant publication: Yes

2 Elena Whittle; Araceli Martin; Raul Cazorla; Fernando Notario; M. Dolores Veiga Ochoa; Juan Rubio; Aitana Tamayo. Silane modification of mesoporous materials for the optimization of antiviral drug adsorption and releasing capabilities in vaginal media. Pharmaceutics. 13 - 9, pp. 1416. MDPI, 08/10/2021.
DOI: 10.3390/pharmaceutics13091416

Type of production: Scientific paper
Format: Journal
Position of signature: 7
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 7
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - PHARMACOLOGY & PHARMACY
Impact index in year of publication: 6.321
Journal in the top 25%: Yes
Position of publication: 29
No. of journals in the cat.: 275

Relevant results: Three different functionalities have been incorporated into mesoporous materials by means of a coupling reaction with the siloxanes 3-glycidoxypropyl-trimethoxysilane (GLYMO), 3-methacryloxypropyl-trimethoxysilane (MEMO), and 3-mercaptopropyl-trimethoxysilane (MPTMS). The disposition of the different functional groups, as well as the interaction mechanism, with the mesoporous substrate has been identified. The amount of the antiviral drug acyclovir (ACV) adsorbed depends not only on the available surface area but also on the chemical or physicochemical interactions between functionalities. The drug adsorption isotherm of the materials functionalized with GLYMO and MPTMS follow mechanisms dependent on the different surface coverage and the possibilities to establish physicochemical interactions between the drug molecule and the functionalities. On the contrary, when functionalizing with MEMO, the dominant adsorption mechanism is characteristic of chemically bonded adsorbates. The ACV release kinetics is best fitted to the Weibull model in all the functionalized materials. When the MTPMS is used as a functionalizing agent, the drug diffusion occurs at low kinetics and homogeneously along the mesoporous channels
Relevant publication: Yes

3 Berta Perez; Rama Layek; MªAngeles Rodriguez; Fausto Rubio; Juan Rubio; Aitana Tamayo. Insights into the structural and surface characteristics of carbide derived carbons obtained through single and double halogen etching. Microporous and Mesoporous Materials. 310, pp. 110675. Elsevier, 06/01/2021. ISSN 13871811
DOI: 10.1016/j.micromeso.2020.110675

Type of production: Scientific paper
Format: Journal
Position of signature: 6
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 6
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - CHEMISTRY, APPLIED
Impact index in year of publication: 5.455
Journal in the top 25%: Yes
Position of publication: 12
No. of journals in the cat.: 74

Relevant results: Carbide derived carbons CDC are prepared from polymeric preceramic precursors by incorporating different amounts of a divinylbenzene and heat treated at different temperatures. The effects of a single (Cl2) and double (HF + Cl2) etching treatment have been studied. The amount of divinlylbenzene incorporated into the preceramic precursor will determine the relative amount of linear to highly crosslinked silica units therefore the sensitivity to the etching process. The obtained microporous materials possess a self-similar surface and different microstructure depending on the temperature and the etching treatment which inevitably affect the electrochemical characteristics. Wet etching reduced the amount of zigzag edges in the microporous carbon thus contributing to the decrease of the areal capacitance. In the case of a single etching, the capacitance increases with the relative number of armchair to armchair + zigzag edges only when the materials were treated at high temperature. On contrary, by double etching treatment, the electrochemical characteristics are strongly related to the pore anisotropy independently on the temperature of the treatment. In this study we provide several clues for the design of highly capacitive microporous carbons from preceramic polymers with a view in the pore architecture, surface characteristics, defects, disorder and reactivity of the carbon edges
Relevant publication: Yes

4 Aitana Tamayo; Fausto Rubio; M.Teresa Colomer; Carmen Arroyo; MªAngeles Rodriguez. Characterization of polymer-derived ceramers subjected to wet-etching and the evolution of the carbon phase during thermal conversion. Journal of Non Crystalline Solids. 547, pp. 120302. 01/11/2020.
DOI: 10.1016/j.jnoncrysol.2020.120302
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 2.929
Journal in the top 25%: Yes
Position of publication: 4
No. of journals in the cat.: 28

Relevant results: Highlights • Carbon nano-onions are formed within the matrix of the polymer derived ceramics at intermediate temperatures. • Onions can be isolated by chemical etching. • The preceramic network prevents from premature decomposition of the cobalt carbides.
Relevant publication: Yes

5 Araceli Martín-Illana; Raúl Cazorla-Luna; Fernando Notario; Roberto Ruiz-Caro; Luis Miguel Bedoya; Maria Dolores Veiga-Ochoa; Juan Rubio; Aitana Tamayo. Amino Functionalized Micro-Mesoporous Hybrid Particles for the Sustained Release of the Antiretroviral Drug Tenofovir. Materials. 13 - 16, pp. 3494. MDPI, 07/08/2020.
DOI: 10.3390/ma13163494
Type of production: Scientific paper
Format: Journal
Position of signature: 8
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 8
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, MULTIDISCIPLINARY
Impact index in year of publication: 3.057
Journal in the top 25%: No
Position of publication: 132
No. of journals in the cat.: 314

Relevant results: The sustained release of an antiretroviral agent to women mucosa has been proved as an excellent strategy to reduce the sexual transmission of HIV. Hybrid micro-mesoporous particles have been synthesized and functionalized with a silane coupling agent followed by loading the antiretroviral tenofovir. It has been observed that the disposition of the silane molecule on the surface of the particles determines the interaction mechanism with the antiretroviral molecule loaded independently on the surface area of the particles. In this sense, available and free amino groups are required to achieve a smart pH-responsive material, a condition that is only achieved in those materials containing a silane chemisorbed monolayer. Moreover, the modulation of the release kinetics attributed to the presence of the silane monolayer covering the mesopores has been confirmed by fitting the releasing curves to the first order and Weibull models. The developed micro-mesoporous particles have been demonstrated to be excellent smart-release vehicles for antiviral agents and can be safely used in polymer mucoadhesive vaginal gels.
Relevant publication: Yes

6 A. Tamayo; E. Casado; B. Garcia. Synthesis and characterization of Ce/SiOC nanocomposites through the polymer derived ceramic method and evaluation of their catalytic activity. Ceramics International. 46 - 2, pp. 1362 - 1373. Elsevier, 01/02/2020.
DOI: 10.1016/j.ceramint.2019.09.099
Type of production: Scientific paper
Format: Journal
Position of signature: 3
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 3
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS

Impact index in year of publication: 3.45
Journal in the top 25%: Yes
Position of publication: 2
No. of journals in the cat.: 28

Relevant results: Cerium oxide and silicon oxycarbide (Ce/SiOC) porous nanocomposites have been synthesized through the polymer derived ceramic route. In the synthesis of the preceramic precursors, the addition of urea facilitates the deposition of Cerium atoms on the surface of SiO2 nanoparticles since it prevents the SiO2 from agglomeration. Both Ce and urea affects the structural and textural parameters of the obtained ceramics. Less crosslinked structures are formed when the urea concentration increases and it also provokes a reduction of the carbon crystallite size. Cerium, on the other hand, induces an increase of the carbon size as well as the number of SiOC units. Pore anisotropy and smoothness of the surface are also dependent on the composition of the material. As expected, the better thermocatalytic behavior against CO2 decomposition is found at the largest Ce amounts but also, smooth surfaces and low pore anisotropies favor the accessibility of the gases to the thermocatalytic centers.
Relevant publication: Yes

7 Eva Casado; Beatriz García; Aitana Tamayo. Synthesis and characterization of Sr1-xLaxMnO3/SiOC nanocomposites decorated with 1D nanostructures for high temperature CO2 splitting. Ceramics International. 44 - 15, pp. 18585 - 18594. 15/10/2018.
DOI: 10.1016/j.ceramint.2018.07.083
Type of production: Scientific paper
Format: Journal
Position of signature: 3
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 3
Corresponding author: Yes
Impact source: ISI
Category: Materials Science - Ceramics
Impact index in year of publication: 3.057
Journal in the top 25%: Yes
Position of publication: 2
No. of journals in the cat.: 27

Relevant results: 1D nanostructures of Lanthanum Strontium Manganite (LSM) are tested as thermochemical catalyst for CO2 splitting. The manganite precursors were incorporated into a ceramic silicon oxycarbide (SiOC) matrix at two different stages during its synthesis to form the nanocomposites. As a result, the LSM nanostructures decorate the large-size pores of the SiOC matrix in form of 1D nanofibers and nanowires. At the same time, the formation of the SiOC units decreases because of the incorporation of these LSM. Moreover, the synthetic strategy strongly affects the surface parameter related to apolar interactions. It turns out that the surface fractal constant of the nanocomposite determines the reactivity of the LSM materials towards CO2. This reactivity has been verified by collecting the spectra of the gases involved in the thermochemical reactions and determining the relative CO2 concentration as a function of the temperature.
Relevant publication: Yes

8 Aitana Tamayo; Maria Angeles Rodríguez; Carmina Arroyo; Jesus Beltran-Heredia; Fausto Rubio. Dependence of the synthetic strategy on the thermochemical energy storage capability of CuxCo3-xO4 spinels. Journal of the European Ceramic Society. 38 - 4, pp. 1583 - 1591. ELSEVIER, 20/10/2017.
DOI: doi.org/10.1016/j.jeurceramsoc.2017.10.038
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: Yes
Impact source: ISI
Category: Materials Science, Ceramics
Impact index in year of publication: 3.454
Journal in the top 25%: Yes
Position of publication: 1
No. of journals in the cat.: 26

Relevant results: CuxCo3-xO4 spinels have been prepared through three different synthetic approaches to obtain oxide materials where the cationic distribution along the octahedral and tetrahedral sites is modified. The correlation of the spectroscopic characterization techniques and XRD patterns allowed to identify the relative concentration of the cationic species in the coordination environments. The aqueous routes favor the intimate contact of the cations and then, the migration of Co(III) to a tetrahedral coordination with Cu incorporation is promoted. This conversion to a partially inverse spinel structure leads to a decrease of the thermochemical

capability of the prepared materials, in terms of energy balance but the O2 release from the structure is favored with the increase in the number of cations occupying the tetrahedral sites. The endothermic reaction associated to the redox transition to CoO occurs in two differentiated steps which can be correlated with the degree of the inversion of the spinel structure.
Relevant publication: Yes

9 Aitana Tamayo; Sandra Mazo; Maria Dolores Veiga; Roberto Ruiz-Caro; Fernando Notario-Perez; Juan Rubio. Drug kinetics release from Eudragit – Tenofovir@SiOC tablets. Materials Science & Engineering C. Materials for Biological Applications. 06/03/2017.
DOI: 10.1016/j.msec.2017.03.016

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 6
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, BIOMATERIALS
Impact index in year of publication: 3.420
Journal in the top 25%: No
Position of publication: 12
No. of journals in the cat.: 33

Relevant results: A novel drug release system has been obtained in form of tablets from Eudragit® RS and tenofovir loaded on porous silicon oxycarbide glasses (SiOC). Continuous tenofovir release for > 20 days has been obtained for the SiOC material functionalized with amine groups. We concluded that the drug release occurs in two steps that involve a drug diffusion step through the material pores and diffusion through the swollen polymer. The interactions between the tenofovir drug and de amine groups of the functionalized silicon oxycarbide also play an important role in the release process.
Relevant publication: Yes

10 Aitana Tamayo; Maria Alejandra Mazo; Roberto Ruiz Caro; Araceli Martín Illana; Luis Miguel Bedoya; Maria Dolores Veiga Ochoa; Juan Rubio. Mesoporous silicon oxycarbide materials for controlled drug delivery systems. Chemical Engineering Journal. 280, pp. 165 - 175. 15/11/2015.
DOI: 10.1016/j.cej.2015.05.111

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 7
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - ENGINEERING, CHEMICAL
Impact index in year of publication: 4.321
Journal in the top 25%: Yes
Position of publication: 9
No. of journals in the cat.: 135

Source of citations: WOS
Citations: 6

Relevant results: For the first time, it was reported the suitability of using Silicon Oxycarbide Glasses as controlled drug delivery systems. The surface modification of the SiOC with amino-containing silanes lead to different availability of the functional groups to interact with the loaded drug molecule. The materials are biologically inactive but they can host a large amount of active drug molecules per cm2 into their porous structure. The adsorption kinetics have been compared with mesoporous silica and mesoporous active carbon and we have deducted that the drug penetrates faster in the SiOC than in the AC and the adsorption mechanism occurs via acceptor–donor interactions between the drug molecules and the surface of the materials.
Relevant publication: Yes

11 Aitana Tamayo; Juan Rubio; Fausto Rubio; Jose Luis Oteo; Ralf Riedel. Texture and Micro-nanostructure of porous silicon oxycarbide glasses prepared from hybrid materials aged in different solvents. Journal of the European Ceramic Society. 31 - 9, pp. 1791 - 1801. Elsevier, 25/02/2011. ISSN 0955-2219
DOI: 10.1016/j.jeurceramsoc.2011.02.03

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 2,575
Journal in the top 25%: Yes
Position of publication: 1
No. of journals in the cat.: 27
Source of citations: WOS
Citations: 14

Relevant results: Aging preceramic hybrid materials in different solvents leads to a different pore size distribution both in the preceramic hybrid and in the obtained ceramic material as well. SAXS characterization reveals that the textural properties (i.e. porosity, permeability and fractal dimension) are directly connected with the nanodomain size. Phase separation and different carbon distribution within the ceramic network occurs due to the physico chemical characteristics of the solvents used. That leads to the different growing of the nanodomains encountered in the microstructure of the obtained ceramic.
Relevant publication: Yes

12 Gabriela Mera; Aitana Tamayo; Hong Nguyen; Sabyasachi Sen; Ralf Riedel. Nanodomain Structure of Carbon-Rich Silicon Carbonitride Polymer-Derived Ceramics. Journal of the American Ceramic Society. 93 - 4, pp. 1169 - 1175. The American Ceramic Society, 14/01/2010. ISSN 0002-7820
DOI: 10.1111/j.1551-2916.2009.03558.x
Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 2,169
Journal in the top 25%: Yes
Position of publication: 2
No. of journals in the cat.: 27
Source of citations: WOS
Citations: 36

Relevant results: For the first time, the microstructure of the silicon carbonitrides obtained from preceramic polymers was described based on the results of the Small Angle X-Ray Scattering. The model describing the microstructure was obtained from a new modeling method based on the response of the amorphous particles of different chemical composition, size and shape to the X ray scattering. The model is supported on the Raman and X-Ray diffraction results and provides useful information on how is the modeling process and the application to other nanostructured systems.
Relevant publication: Yes

13 Aitana Tamayo; Juan Rubio; Raquel Peña-Alonso; Fausto Rubio; Jose Luis Oteo. Gradient Pore Size Distributions in Porous Silicon Oxycarbide Materials. Journal of the European Ceramic Society. 28 - 9, pp. 1871 - 1879. Elsevier, 16/12/2007. ISSN 0955-2219
DOI: 10.1016/j.jeurceramsoc.2007.12.026
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 1,580
Journal in the top 25%: Yes
Position of publication: 2
No. of journals in the cat.: 27
Source of citations: WOS
Citations: 19

Relevant results: The pore size distribution of Silicon Oxycarbide glasses obtained through the pyrolysis in inert atmosphere of preceramic hybrid materials is strongly dependent on the evaporation rate of the solvents during drying and aging step in the sol-gel process. During the synthesis of the preceramic hybrid material, the size and shape of the container, and thus, the area exposed to the atmosphere, directs the pore structure of the ceramic material.
Relevant publication: Yes

14 Khalissa Ariane; Aitana Tamayo; Abdallah Chorfa; Fausto Rubio; Juan Rubio. Optimization of the nucleating agent content for the obtaining of transparent fluormica glass-ceramics. Ceramics International. 49 - 6, pp. 9826 - 9838. Elsevier, 15/03/2023.
DOI: 10.1016/j.ceramint.2022.11.156

Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 5.532
Journal in the top 25%: Yes
Position of publication: 3
No. of journals in the cat.: 29

Relevant results: The crystallization behaviours, mechanical and optical properties of fluormica glass-ceramic system without and with P2O5 as nucleating agent are studied. The crystallization mechanism of fluor-phlogopite (KMg3(Si3AlO10)F2) without P2O5 oxide represented one-dimensional surface crystallization with a fixed number of nuclei, and with the addition of P2O5, the mechanism tends to two-dimensional bulk crystallization with a constant nucleation rate being the most predominant phase, forsterite crystals (Mg2SiO4). The base glasses had the spinodal phase separation, which coarsened considerably by increasing P2O5 content. P2O5 had a strong influence on the microstructure and morphology of this type of glass-ceramic. The addition of small amount of P2O5 (1.0 mol%) to these glass-ceramic changed the microstructure from dendritic growth having leaf-like feature to a flower-like morphology of the crystal phase. Glass-ceramic without P2O5 produces yellowish to colourless transparent glass-ceramic, and with the incorporation of the P2O5 (1.0 mol%), which has been found the optimum to obtain transparent glass-ceramics, the transmittance is still about 85%. As the P2O5 content increased to 3.0 mol%, besides fluor-phlogopite mica, forsterite also precipitates, the size of the crystals increase, their distributions turned to be broad due to the change of the crystallization mechanism and the transparency of glass-ceramic consequently decreases.
Relevant publication: No

15 Edisson Pacheco Quito; Luis Miguel Bedoya; Juan Rubio; Aitana Tamayo; Roberto Ruiz Caro; Maria Dolores Veiga. Layer-by-Layer Vaginal Films for Acyclovir Controlled Release to Prevent Genital Herpes. International Journal of Pharmaceutics. 627, pp. 122239. Elsevier, 05/11/2022.
DOI: 10.1016/j.ijpharm.2022.122239

Type of production: Scientific paper
Format: Journal
Position of signature: 4
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 7
Corresponding author: No
Impact source: ISI
Category: Science Edition - PHARMACOLOGY & PHARMACY
Impact index in year of publication: 6.510
Journal in the top 25%: Yes
Position of publication: 40
No. of journals in the cat.: 279

Relevant results: The combination of iota-CG/HPMC, produces a layer with a high mucoadhesive capacity. A combination of Eudragit® RS PO and S100 modulates the diffusion of the drug. The LbL films had the best performance for controlling the release of acyclovir.
Relevant publication: No

16 Berta Perez Roman; Fausto Rubio; Juan Rubio; Aitana Tamayo. Defective structure of doped carbons obtained from preceramic polymers through Cl2 and NH3-assisted thermolysis. International Journal of Applied Ceramic Technology. Wiley, 27/09/2022.

DOI: 10.1111/ijac.14220

Type of production: Scientific paper
Format: Journal
Position of signature: 4
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 2.328
Journal in the top 25%: No
Position of publication: 12
No. of journals in the cat.: 29

Relevant publication: No

17 Araceli Martin Illana; Raul Cazorla Luna; Fernando Notario; Roberto Ruiz Caro; Juan Rubio; Aitana Tamayo; Maria Dolores Veiga Ochoa. Silicon oxycarbide porous particles and film coating as strategies for Tenofovir controlled release in vaginal tablets for HIV prevention. Pharmaceutics. 14 - 8, pp. 1567. MDPI, 01/08/2022.

DOI: 10.3390/pharmaceutics14081567

Type of production: Scientific paper
Format: Journal
Position of signature: 6
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 7
Corresponding author: No
Impact source: ISI
Category: Science Edition - PHARMACOLOGY & PHARMACY
Impact index in year of publication: 6.321
Journal in the top 25%: Yes
Position of publication: 39
No. of journals in the cat.: 279

Relevant results: Sustained release of antiretroviral drugs is currently the most encouraging strategy for the prevention of the sexual transmission of HIV. Vaginal tablets based on hydrophilic gelling polymers are an interesting dosage form for this purpose, since they can be developed to modify the release of the drug depending on the tablet swelling. Tenofovir is a drug with proven activity in the prevention of HIV-1 infection, and it is possible to have it loaded in the surface of γ-aminopropyl trimethoxy silane-functionalized oxycarbide particles. These particles can be incorporated into the tablets, thus providing a sustained release of the drug. Moreover, the presence of the particles modifies the microstructure of the gel formed, as observed in scanning electron microscopy and Hg porosimetry studies, resulting into a gel with a narrow pore size distribution between 10 and 100 μm. This implies a lower volume of fluid incorporated into the gel during swelling studies, and therefore improved mucoadhesion times in ex vivo test. The coating of the formulations with Eudragit® RS modifies the swelling behavior of the tablets, which not only is decreased in magnitude but also extended in time, and as consequence the drug release is also prolonged for up to 7 days.

Relevant publication: No

18 O. Ruiz; A. Tamayo; J. Rubio; F. Rubio; S. Burgui; R. Bueno; J. Palomares. Estudio de la influencia del entorno vítreo en la propiedad bactericida de esmaltes cerámicos. Proceedings of The World Congress on Ceramic Tile Quality. 21/06/2022.

Type of production: Scientific paper
Format: Book
Corresponding author: No

19 Araceli Martin-Illana; Raúl Cazorla-Luna; Fernando Notario-Pérez; Juan Rubio; Roberto Ruiz-Caro; Aitana Tamayo; Maria Dolores Veiga-Ochoa. Eudragit® L100/chitosan composite thin bilayer films for intravaginal pH-responsive release of Tenofovir. International Journal of Pharmaceutics. 616, pp. 121554. Elsevier, 25/03/2022.

DOI: 10.1016/j.ijpharm.2022.121554

Type of production: Scientific paper

Position of signature: 6
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 7
Corresponding author: No
Impact source: ISI
Category: Science Edition - PHARMACOLOGY & PHARMACY
Impact index in year of publication: 5.875
Journal in the top 25%: Yes
Position of publication: 32
No. of journals in the cat.: 276

Relevant results: Eudragit® L100/chitosan blend forms bilayer films in 2-propanol after evaporation. Higher Eudragit® L100 and plasticizer content improves the mechanical properties. Mucoadhesion is not influenced by the amount of Eudragit® L100 or plasticizers. The pH-responsive drug release is explained by the layer based on Eudragit® L100. Higher Eudragit® L100 and plasticizer content allows a more controlled release.
Relevant publication: No

20 Aitana Tamayo; MªAngeles Rodriguez; Fausto Rubio; Juan Rubio. Cobalt-catalyzed tunable carbon microstructures from halogenated SiC preceramic precursors. Journal of the American Ceramic Society. Wiley Periodicals LLC, 05/03/2022.
DOI: 10.1111/jace.18436
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 3.784
Journal in the top 25%: Yes
Position of publication: 4
No. of journals in the cat.: 29

Relevant results: Carbide-derived carbons (CDCs) with highly graphitized domains, linear, oval-shaped, and barrel-like structures have been prepared from a silicon carbide preceramic precursor containing catalytic amounts of cobalt. The chlorination temperature as well as the amount of catalysts will determine the specific surface area, pore size, and morphology of the obtained carbons. At low chlorination temperature, an amorphous network with significant amount of double or single oxygenated bonds was obtained. At 700 and 800°C both linear graphitic domains and barrel-like carbon dominate the microstructure with an increased presence of microporosity. There barrel-like structures provided increased specific capacitance, although the high anisotropy of the structure compromises the energy density of the device. At 900°C, despite the disappearance of this cropped surface, the hierarchical pore distribution and low O content also induce an increase of the specific capacitance of the CDC samples regardless of their high percentage of micropores.

21 Huang Zhang; Andreea Ionita; Pilar F. Seriñan; Maria Luisa Ferrer; Mª Angeles Rodriguez; Aitana Tamayo; Fausto Rubio; Francisco del Monte; Maria Concepcion Gutierrez. Easy and efficient recovery of EMIMCl from cellulose solutions by addition of acetic acid and the transition from the original ionic liquid to a eutectic mixture. Molecules. 27 - 3, pp. 987. MDPI, 01/02/2022.
DOI: 10.3390/molecules27030987
Type of production: Scientific paper
Format: Journal
Position of signature: 6
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 9
Corresponding author: No
Impact source: ISI
Category: Science Edition - CHEMISTRY, MULTIDISCIPLINARY
Impact index in year of publication: 4.412
Journal in the top 25%: No
Position of publication: 62
No. of journals in the cat.: 178

Relevant results: Ionic liquids (ILs) and deep eutectic solvents (DESs) are the two most widely used neoteric solvents. Recently, our group described how the simple addition of acetic acid (AcOH) to 1-Ethyl-3-methylimidazolium chloride (EMIMCl) could promote the transition from the original IL to an eutectic

mixture of EMIMCl and AcOH. Herein, we studied how cellulose regeneration and EMIMCl recovery from EMIMCl solutions of cellulose could be benefited by the significant differences existing between EMIMCl- and EMIMCl·AcOH-based mixtures and the easy switching from one to the other. Finally, we also demonstrated that the transition could also be accomplished by addition of acetic anhydride and water so that the process could be eventually useful for the achievement of highly acetylated cellulose.
Relevant publication: No

22 Maria Alejandra Mazo; Maria Teresa Colomer; Aitana Tamayo; Juan Rubio. Hierarchical porous fluorine-doped silicon oxycarbide derived materials: Physicochemical characterization and electrochemical behavior. Microporous and Mesoporous Materials. 330, pp. 111604. Elsevier, 05/01/2022.
DOI: 10.1016/j.micromeso.2021.111604
Type of production: Scientific paper
Format: Journal
Position of signature: 3
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4
Corresponding author: No
Impact source: ISI
Category: Science Edition - CHEMISTRY, APPLIED
Impact index in year of publication: 5.455
Journal in the top 25%: Yes
Position of publication: 12
No. of journals in the cat.: 74

Relevant results: Hierarchical micro-meso-macroporous F-doped SiOC-DC were obtained at R.T. F is grafted into silicon oxycarbide (SiO(F)) and Cfree (C–F semi-ionic and covalent). Functionalization (F,O) and meso-macropores explain the good electrochemical response. The functionalities (F, O) increase the wettability and promotes Faradaic processes. The presence of bigger slit-shape meso-macro channels enhances Cs values.
Relevant publication: No

23 Aitana Tamayo; Roberto Perez; Leticia Saiz; Juan Rubio. Preparation and properties of sustainable brake pads with recycled end-of-life tire rubber particles. Polymers. 13 - 19, pp. 3371. MDPI, 26/10/2021.
DOI: 10.3390/polym13193371
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - POLYMER SCIENCE
Impact index in year of publication: 4.329
Journal in the top 25%: Yes
Position of publication: 18
No. of journals in the cat.: 88

Relevant results: Sustainable composite brake pads were processed by employing recycled end-of-life tire (ELT) rubber particles obtained by means of cryogenic grinding and ambient grinding. The effect of the grinding mechanism and concentration of ELT rubber particles was then reported. From the friction result test, better behavior in terms of coefficient of friction (COF) was obtained when 3% of ELT rubber particles were introduced into the composite. It was demonstrated that the size of the particles is not as determinant as the friction mechanism in the wear properties of the sustainable brake pads. Whereas, while increasing the ELT rubber particle size acts as detrimental to the COF either in the ambient or cryogenic grinding, at high friction distances, the better adhesion of the particles because of the rough surface of the particles subjected to ambient grinding enhances the long-life behavior of the composite brake pads.
Relevant publication: No

24 Maria Alejandra Mazo; Teresa Colomer; Aitana Tamayo; Juan Rubio. Microstructure-Electrochemical behavior relationships of hierarchically micro-mesoporous silicon oxycarbide derived materials obtained by the pyrolysis of trietoxysilane/dimethyldiphenylsiloxane hybrids. Journal of Alloys and Compounds. 870, pp. 159427. Elsevier, 25/07/2021. ISSN 09258388
DOI: 10.1016/j.jallcom.2021.159427
Type of production: Scientific paper
Format: Journal
Position of signature: 3

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4
Corresponding author: No
Impact source: ISI
Category: Science Edition - METALLURGY & METALLURGICAL ENGINEERING
Impact index in year of publication: 4.650
Journal in the top 25%: Yes
Position of publication: 35
No. of journals in the cat.: 160

Relevant results: Hierarchically micro/mesoporous silicon oxycarbide derived carbon (SiOC-DC) materials have been successfully prepared by HF selective removing of silica nano-domains present in SiOC. Dense carbon enriched SiOC materials are obtained by pyrolysis from 1100 to 1400 °C of novel sol-gel hybrids which contain both Si–H and Si-Ph bonds. The pyrolysis temperature deeply affects the etching process, major differences are observed between the sample pyrolyzed at 1100 °C and at higher temperatures. Those differences are directly associated to the evolution of the phase separation of SiOC into SiO2 and SiC, which facilitates the selective extraction of silica nano-domains and the formation of micro/mesoporous SiOC-DC materials with high specific surface areas (SSAs) and high pore volumes. The SiOC-DC sample pyrolyzed at 1200 °C displays very promising results of specific capacitance (90–100 Fg−1 at 40 Ag−1), relatively high energy density (28 W h Kg−1) at a low power density (0.10 kW kg−1), and a significant performance at high power density (10 W h Kg−1 at 49 kW kg−1), taking into account the low potential window of inorganic liquid electrolyte used (0.9 V). We have found that the presence of micropores but even more, the presence of slit-shape mesopores (Dmeso 3–10 nm) is crucial in order to explain the electrochemical response of these materials.
Relevant publication: No

25 Aitana Tamayo; Juan Rubio; Fausto Rubio; MªAngeles Rodriguez. Insights into the microstructural evolution occurring during pyrolysis of metal-modified ceramers studied through selective SiO2 removal. Materials. 14 - 12, pp. 3276. MDPI, 14/06/2021.
DOI: doi.org/10.3390/ma14123276
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - METALLURGY & METALLURGICAL ENGINEERING
Impact index in year of publication: 3.623
Journal in the top 25%: Yes
Position of publication: 3
No. of journals in the cat.: 29

Relevant results: Silicon oxycarbide ceramers containing 5% aluminum, zirconium, and cobalt with respect to the total Si amount are prepared from a commercial polysiloxane and molecular precursors and pyrolyzed at temperatures ranging from 500 to 1000 °C. HF etching is carried out to partially digest the silica phase, thus revealing structural characteristics of the materials, which depend upon the incorporated heteroatom. From the structural and textural characterization, it was deduced that when Al enters into the ceramer structure, the crosslinking degree is increased, leading to lower carbon domain size and carbon incorporation as well. On the contrary, the substitution by Zr induced a phase-separated SiO2-ZrO2 network with some degree of mesoporosity even at high pyrolysis temperatures. Co, however, forms small carbidic crystallites, which strongly modifies the carbonaceous phase in such a way that even when it is added in a small amount and in combination with other heteroatoms, this transient metal dominates the structural characteristics of the ceramer material. This systematic study of the ceramer compounds allows the identification of the ultimate properties of the polymer-derived ceramic composites
Relevant publication: No

26 Araceli Martin; Raul Cazorla; Fernando Notario; Luis Miguel Bedoya; Juan Rubio; Aitana Tamayo; Roberto Ruiz; Maria Dolores Veiga-Ochoa. Smart vaginal bilayer films of Tenofovir based on Eudragit® L100/natural polymer for the prevention of the sexual transmission of HIV. International Journal of Pharmaceutics. 602, pp. 120665. Elsevier, 01/06/2021. ISSN 03785173
DOI: 10.1016/j.ijpharm.2021.120665

Type of production: Scientific paper
Format: Journal
Position of signature: 6
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 8
Corresponding author: No
Impact source: ISI
Category: Science Edition - PHARMACOLOGY & PHARMACY
Impact index in year of publication: 5.875
Journal in the top 25%: Yes
Position of publication: 36
No. of journals in the cat.: 575

Relevant results: In the absence of an effective vaccine, vaginal microbicides are essential for preventing the sexual transmission of HIV to women. Antiretroviral vaginal films have emerged as promising choices, especially those offering mucoadhesivity and controlled drug release. Tenofovir-loaded bilayer films based on Eudragit® L100 (EL100) and a biopolymer – gum arabic, karaya gum, pectin or tragacanth gum – were developed in a single-stage process. Cytotoxicity studies in three human cell lines indicated no toxicity of the excipients at the concentrations tested. Raman spectroscopy and SEM confirmed the formation of the two layers and their anchoring. Texture analysis showed no major differences between the batches. The swelling of the film is conditioned by its biopolymer nature and by the amount of EL100, which acts as structuring agent thus enhancing swelling. Tragacanth gum-based batches showed high mucoadhesion regardless the amount of EL100. The controlled release of Tenofovir in simulated vaginal fluid was faster in the presence of simulated seminal fluid due to the dissolution of EL100. Films containing 400 mg of EL100 and tragacanth gum are promising candidates for future studies, as they could sexually safeguard women from HIV for at least one week and ensure greater protection during intercourse.

27 Juan Carlos Rendon-Angeles; R Quiñones-Gurrola; J Lopez-Cuevas; L Gonzalez; Z Matamoros; E Matamoros; K Yanagisawa; Aitana Tamayo; Juan Rubio. Rapid one-pot hydrothermal reaction for preparing BaCu2Si2O7 fine particles with controlled blue colour tonality. Ceramics International. 47 - 7, pp. 9354 - 9365. Elsevier, 01/04/2021. ISSN 02728842

DOI: 10.1016/j.ceramint.2020.12.066

Type of production: Scientific paper
Format: Journal
Position of signature: 8
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 9
Corresponding author: No
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 4.527
Journal in the top 25%: Yes
Position of publication: 3
No. of journals in the cat.: 29

Relevant publication: No

28 Maria Alejandra Mazo; Isabel Padilla; Aurora Lopez; Aitana Tamayo; Juan Rubio. Silicon oxycarbide and silicon oxycarbonitride materials under concentrated solar radiation. Materials. 14 - 4, pp. 1 - 19. MDPI, 02/02/2021. ISSN 19961944

DOI: 10.3390/ma14041013

Type of production: Scientific paper
Format: Journal
Position of signature: 4
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: No
Impact source: ISI
Category: Science Edition - METALLURGY & METALLURGICAL ENGINEERING
Impact index in year of publication: 3.623
Journal in the top 25%: Yes
Position of publication: 17
No. of journals in the cat.: 80

Relevant publication: No

29 Juan Carlos Rendon-Angeles; Z Matamoros-Veloza; J Rodríguez-Galicia; G Seong; K Yanagisawa; Aitana Tamayo; Juan Rubio; L.A. Anaya-Chavaria. One-pot hydrothermal synthesis of Victorian green (Ca3Cr2Si3O12) nanoparticles in alkaline fluids and its colour hue characterisation. Nanomaterials. 11 - 2, pp. 1 - 15. MDPI, 01/02/2021. ISSN 20794991

DOI: 10.3390/nano11020521

Type of production: Scientific paper
Format: Journal
Position of signature: 6
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 8
Corresponding author: No
Impact source: ISI
Category: Science Edition - PHYSICS, APPLIED
Impact index in year of publication: 5.076
Journal in the top 25%: Yes
Position of publication: 35
No. of journals in the cat.: 160

Relevant publication: No

30 Hossem Taallah; Abdallah Chorfa; Aitana Tamayo; Fausto Rubio; Juan Rubio. Investigating the effect of WO3 on the crystallization behavior of SiO2, B2O3, Al2O3, Na2O, CaO, and ZnO high VIS-NIR reflecting glazes. Ceramics International. Elsevier, 2021. ISSN 02728842

DOI: 10.1016/j.ceramint.2021.06.087

Type of production: Scientific paper
Format: Journal
Position of signature: 3
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 4.527
Journal in the top 25%: Yes
Position of publication: 3
No. of journals in the cat.: 29

Relevant results: White glass enamels with high solar reflectance and containing different WO3 concentrations have been prepared and characterized with regard to their optical, mechanical and microstructural characteristics. Upon addition of WO3 to a glass containing SiO2, B2O3, Al2O3, Na2O, CaO, and ZnO, the crystallization of scheelite follows a crystallization mechanism of bulk type where scheelite grows in one-dimension in a patterned morphology dominated by the heating rate and the concentration of WO3. Octahedral bipyramids and arrow-like crystals appeared in enamels containing WO3 concentration above 6%. The presence of scheelite crystals with different orientations also leads to slight variations in hardness and Young modulus thus obtaining Hv values between 8 and 8.8 GPa and E values between 72 and 83 GPa. Similarly, the optical properties such as whiteness, brightness and solar reflectance increase with the presence of scheelite, and the highest solar reflectance occurs for the enamel containing arrow-like and bipyramidal crystals

31 Abdellaziz Gahmousse; Khouider Ferria; Juan Rubio; Nilo Cornejo; Aitana Tamayo. Influence of Fe2O3 on the structure and near-infrared emissivity of aluminosilicate glass coatings. Applied Physics A-MATERIALS SCIENCE & PROCESSING. 25/08/2020.

DOI: 10.1007/s00339-020-03921-8

Type of production: Scientific paper
Format: Journal
Position of signature: 5
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: No
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, MULTIDISCIPLINARY
Impact index in year of publication: 1.810
Journal in the top 25%: No
Position of publication: 213
No. of journals in the cat.: 314

Relevant results: The present paper reports on the development of a vitreous material with high near-infrared (NIR) emissivity. Silica-based glasses (SiO2, Na2O, Al2O3, K2O) with different Fe2O3 (hematite) contents are deposited on ceramic tiles as coatings and annealed at 1250 °C. Using the indirect radiometric measurement

method, the emissivity of the materials was determined at room temperature, where the spectral directional reflectance of the coatings was measured. The samples possessing high emissivity values of 0.78–0.80 in the near-infrared are those with the highest Fe2O3 contents. Colorimetric test (L*a*b*), has revealed that the glass coating goes darker red by adding more amount of Fe2O3. XRD analysis has shown the magnetite, hematite, and nepheline crystallization phases in the glasses with Fe2O3 contents above 30 wt%. Readable aspects of FTIR absorbance spectra were found, which gave information about the structure variations of these glasses as a function of Fe2O3 content, also, SEM photographs displayed morphology of the prepared glass coatings.

32 Khalissa Ariane; Aitana Tamayo; Abdellah Chorfa; Fausto Rubio; Juan Rubio. Effect of P2O5 and Al2O3 on crystallization, structure, microstructure and properties of Li2O- MgO-Al2O3-SiO2-TiO2-ZrO2 glass ceramics. Boletin de la Sociedad Española de Cerámica y Vidrio. 25/08/2020.

DOI: 10.1016/j.bsecv.2020.08.004

Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 2.517
Journal in the top 25%: No
Position of publication: 8
No. of journals in the cat.: 28

Relevant results: The structure, microstructure, thermal and mechanical properties of glasses and glass-ceramics in the LMAS (Li2O, MgO, Al2O3, SiO2) system and the effect of P2O5 and Al2O3 additives have been studied. The transition temperatures of both glasses and glass-ceramics increase with the P2O5 and Al2O3 concentration, but at high temperatures the melt viscosity decreases. The main crystalline phases formed are lithium aluminium silicate, enstatite and β-spodumene, being the growth of β-spodumene favoured by fluorine ions, P2O5 and the heat treatment temperature as well. Raman and FT-IR spectroscopies have shown the formation a silica-rich glass phase which acts as a matrix of the crystallites containing Al2O3 and P2O5 in its composition. The shape and aspect ratio of the crystallites depend on the Al2O3 concentration. For low Al2O3 concentration a variety of tubular, granular and plate-like crystals appear, while for high Al2O3 concentration the main shape of the crystals is spherical or globular. Hv, E and CTE properties are related to the crystalline phases formed during the crystallization treatment, and their variations are in accordance with the increase of the crystal aspect ratio. The CTE values of the GCs decrease as the P2O5 content increases up to 3%, while for the Al2O3 concentration of 16% the minimum CTE value is obtained. Hv and E values of the GCs are higher than those corresponding to their respective parent glasses. According to these values, these glasses and glass-ceramics are not appropriate for machining.

Relevant publication: No

33 Thais Cleofé Linares; Cecilio Juio Alberto Schaeffer; Wilfredo More; Nilo Felipe Cornejo; Aitana Tamayo; Juan Rubio. Teoría del Funcional de la Densidad en cristales de silicato de potasio. Aplicación al cálculo de propiedades mecánicas y microdureza Vickers en vidrios. Boletin de la Sociedad Española de Ceramica y Vidrio. 25/08/2020.

DOI: 10.1016/j.bsecv.2020.08.001

Type of production: Scientific paper
Format: Journal
Position of signature: 5
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 6
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 2.517
Journal in the top 25%: No
Position of publication: 8
No. of journals in the cat.: 28

Relevant results: In this work, a study is presented in which the density functional theory (DFT) is applied, using the CASTEP software, for crystals of silicate (K2SiO3, K2Si2O5 and K2Si4O9) and of silicon oxide (quartz). The Density of State (DOS) of these silicates shows that the two types of oxygen atoms, bridging (BO) and

non-bridging (NBO), have a significantly different electron distribution in the 2p and 2s orbitals, due to a different and close chemical environment. This leads to a displacement to lower energies (around 2 eV) of the s and p valence bands of the partial density state (PDOS) of the NBO regarding the PDOS of the BO. In the crystal with the lowest K2O concentration (K2Si4O9), the covalent Si-O bonds are increased due to the electronic charge transfer of the 4s orbital from the potassium atom to the NBO, and from this NBO to the silicon atom and, finally, to all the atoms of the tetrahedron, which allows to improve the bond strength of the whole system. This fact results in the final material having a higher mechanical resistance. On the other hand, in K2Si2O5 (which has one NBO per tetrahedron) the Si-O bond is weaker compared to K2Si4O9, a tendency that is highlighted in K2SiO3 (which has two NBOs per tetrahedron). This same trend follows the theoretically calculated Vickers hardness. This study has been applied to experimentally obtained potassium silicate glasses and several mechanical properties have been compared with the theoretical properties of the respective crystals of similar chemical composition. The NBO of both crystals and glasses have been quantified from the Qn structural units. It has been observed that the glass mechanical properties cannot be only explained by the contributions of the free tetrahedral joined by the vertice and characterized by their BO and NBO as a function of the concentration in K2O, that is by Qn. This is because CASTEP's DFT theory for crystalline systems considers every order of interaction. Therefore, it is necessary to use intermediate-range structures called rigid structural units (RSUs). The contribution of free tetrahedral has been calculated using the Vickers hardness of the crystal and a screening factor for the loss of medium and long range interactions. This work explains the behaviour of the Vickers hardness and Young's modulus of SiO2-K2O glasses in a wide range of molar compositions.

Relevant publication: No

34 Juan Rubio; Assia Belbali; Kamel Loucif; Aitana Tamayo; Fausto Rubio. Influence of heating temperatures on structure and microstructure of chamotte-carbon composites. Boletín de la Sociedad Española de Cerámica y Vidrio. (Spain): 05/08/2020.

DOI: 10.1016/j.bsecv.2020.07.001

Type of production: Scientific paper
Format: Journal
Position of signature: 3
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 2.517
Journal in the top 25%: No
Position of publication: 8
No. of journals in the cat.: 28

Relevant results: The reaction between chamotte and active carbon at high temperature and low oxygen partial pressure conditions has been investigated. Both components react at temperatures above 1400 °C where cristobalite is reduced by the carbon while increases the mullite content. At 1600 °C mullite tends to disappear due to the reduction reaction leading to the formation of alumina. The reaction between chamotte and active carbon in these conditions produces the reduction of silica and mullite. This process increases with the reaction time although not all the active carbon is consumed. The graphite nanodomain size of the active carbon tends to decrease with respect to the original size with both the temperature and the reaction time. The microstructures of the obtained materials present a glassy phase due to the inherent presence of impurities in chamotte, and where small particles, pores and mullite needles are also observed. The presence of this glassy phase becomes more pronounced with the treating temperature while solid particles and pores tend to disappear, moreover, the formation of the glassy phase occurs in a less extent due to the higher concentration of active carbon. The presence of the liquid glassy phase also favours the formation of the long-needle like mullite crystals.

Relevant publication: No

35 Edison Mauricio Pacheco; Roberto Ruiz-Caro; Juan Rubio; Aitana Tamayo; Maria Dolores Veiga-Ochoa. Carrageenan-based Acyclovir Mucoadhesive Vaginal Tablets for Prevention of Genital Herpes. Marine Drugs. 18 - 5, pp. 249. MDPI, 11/05/2020.

DOI: 10.3390/md18050249

Type of production: Scientific paper
Format: Journal
Position of signature: 4
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: No

Impact source: ISI
Category: Science Edition - CHEMISTRY, MEDICINAL
Impact index in year of publication: 4.073
Position of publication: 16
No. of journals in the cat.: 61

Relevant results: Women are the most affected by genital herpes, which is one of the most common sexually transmitted infections, affecting more than 400 million people worldwide. The application of vaginal microbicides could provide a safe method of protection. Acyclovir is a safe and effective medication for vaginal administration, and numerous benefits have been observed in the treatment of primary or recurrent lesions due to genital herpes. Vaginal tablets based on a combination of the polymers iota-carrageenan and hydroxypropyl methylcellulose were developed for the controlled release of acyclovir. Swelling, mucoadhesion and drug release studies were carried out in simulated vaginal fluid. The tablets, containing a combination of iota-carrageenan and hydroxypropyl methylcellulose, have an adequate uptake of the medium that allows them to develop the precise consistency and volume of gel for the controlled release of acyclovir. Its high mucoadhesive capacity also allows the formulation to remain in the vaginal area long enough to ensure the complete release of acyclovir. These promising formulations for the prevention of genital herpes deserve further evaluation.
Relevant publication: No

36 Raul Cazorla-Luna; Araceli Martin-Illana; Fernando Notario; Roberto Ruiz-Caro; Luis Miguel Bedoya; Aitana Tamayo; Juan Rubio; Maria Dolores Veiga-Ochoa. Development and in vitro/ex vivo characterization of vaginal mucoadhesive bilayer films based on ethylcellulose and biopolymers for vaginal sustained release of Tenofovir. Biomacromolecules. 21 - 6, pp. 2309. (Spain): 08/04/2020.
DOI: 10.1021/acs.biomac.0c00249
Type of production: Scientific paper
Format: Journal
Position of signature: 6
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 8
Corresponding author: No
Impact source: ISI
Category: Science Edition - BIOCHEMISTRY & MOLECULAR BIOLOGY
Impact index in year of publication: 6.092
Journal in the top 25%: Yes
Position of publication: 42
No. of journals in the cat.: 297

Relevant results: Young women in sub-Saharan Africa have the highest risk of human immunodeficiency virus (HIV) acquisition through sexual contact of all groups. Vaginal controlled release of antiretrovirals is a priority option for the prevention of sexual transmission of the virus in women. In this manuscript, bilayer films were prepared based on ethylcellulose and a natural polymer (xanthan or tragacanth gum) plasticized with glycerol and tributylcitrate for tenofovir-controlled release. The mechanical properties and microstructure of the blank films were characterized by texture analysis, Fourier transform infrared spectroscopy, and scanning electron microscopy. The loaded films were evaluated in simulated vaginal fluid through release and swelling studies and ex vivo mucoadhesion assessments. The results show that the preparation method produced bilayer films with adequate mechanical properties. The contribution of both layers allowed the sustained release of tenofovir and a mucoadhesion time of up to 360 h. The toxicity of the materials was evaluated in three cell lines of vaginal origin. The films constituted by ethylcellulose and xanthan gum in a 2:1 proportion (EX2-D) showed the longest mucoadhesion time, with 15 days of tenofovir-controlled release, zero toxicity, and optimal mechanical properties. These films are therefore a promising option for offering women a means of self-protection against the sexual transmission of HIV.
Relevant publication: No

37 Fernando Notario; Araceli Martin-Illana; Raul Cazorla-Luna; Roberto Ruiz-Caro; Aitana Tamayo; Juan Rubio; Maria Dolores Veiga-Ochoa. Mucoadhesive Vaginal Discs based on Cyclodextrin and Surfactants for the Controlled Release of Antiretroviral Drugs to Prevent the Sexual Transmission of HIV. Pharmaceutics. 12 - 4, pp. 321. (Spain): 02/04/2020.
DOI: 10.3390/pharmaceutics12040321
Type of production: Scientific paper
Format: Journal
Position of signature: 5
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 7
Corresponding author: No
Impact source: ISI
Category: Science Edition - PHARMACOLOGY & PHARMACY
Impact index in year of publication: 4.421
Journal in the top 25%: Yes
Position of publication: 44
No. of journals in the cat.: 270

Relevant results: The strategies for developing vaginal microbicides to protect women against human immunodeficiency virus (HIV) sexual transmission are constantly changing. Although the initial dosage forms required daily administration to offer effective protection, the trend then moved towards sustained-release dosage forms that require less frequency of administration in order to improve women's compliance with the treatment. Nevertheless, another possible strategy is to design on-demand products that can be used in a coitally-dependent manner and only need to be administered immediately before intercourse to offer protection. Vaginal discs based on freeze-dried hydroxypropylmethyl cellulose gels have been developed for this purpose, containing two surfactants, i.e., sodium dodecyl sulphate and polysorbate 60, alone or in combination with 2-hydroxypropyl-β-cyclodextrin, to achieve a formulation capable of incorporating both hydrophilic and lipophilic drugs. Several studies have been carried out to evaluate how the inclusion of these substances modifies the structure of gels (viscosity and consistency studies) and the porosimetry of the freeze-dried discs (scanning electron microscopy micrographs, mechanical properties, swelling behaviour). The drug release and mucoadhesive properties of the discs have also been evaluated with a view to their clinical application. The systems combining sodium dodecyl sulphate and 2-hydroxypropyl-β-cyclodextrin were found to be adequate for the vaginal administration of both Tenofovir and Dapivirine and also offer excellent mucoadhesion to vaginal tissue; these discs could therefore be an interesting option for a coitally-dependent administration to protect women against HIV transmission.
Relevant publication: No

38 Raul Cazorla-Luna; Araceli Martin-Illana; Fernando Notario; Luis Miguel Bedoya; Aitana Tamayo; Fausto Rubio; Roberto Ruiz-Caro; Juan Rubio; Maria Dolores Veiga-Ochoa. Vaginal polyelectrolyte layer-by-layer films based on chitosan derivatives and Eudragit® S100 for pH responsive release of Tenofovir. Marine Drugs. 18 - 1, pp. 44 - 65. (Spain): MDPI, 09/01/2020.
DOI: 10.3390/md18010044
Type of production: Scientific paper
Format: Journal
Position of signature: 5
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 8
Corresponding author: No
Impact source: ISI
Category: Science Edition - CHEMISTRY, MEDICINAL
Impact index in year of publication: 4.073
Journal in the top 25%: No
Position of publication: 16
No. of journals in the cat.: 61

Relevant results: Women are still at high risk of contracting the human immunodeficiency virus (HIV) virus due to the lack of protection methods under their control, especially in sub-Saharan countries. Polyelectrolyte multilayer smart vaginal films based on chitosan derivatives (chitosan lactate, chitosan tartate, and chitosan citrate) and Eudragit® S100 were developed for the pH-sensitive release of Tenofovir. Films were characterized through texture analysis and scanning electron microscopy (SEM). Swelling and drug release studies were carried out in simulated vaginal fluid and a mixture of simulated vaginal and seminal fluids. Ex vivo mucoadhesion was evaluated in bovine vaginal mucosa. SEM micrographs revealed the formation of multilayer films. According to texture analysis, chitosan citrate was the most flexible compared to chitosan tartrate and lactate. The swelling studies showed a moderate water uptake (<300% in all cases), leading to the sustained release of Tenofovir in simulated vaginal fluid (up to 120 h), which was accelerated in the simulated fluid mixture (4-6 h). The films had high mucoadhesion in bovine vaginal mucosa. The multilayer films formed by a mixture of chitosan citrate and Eudragit® S100 proved to be the most promising, with zero toxicity, excellent mechanical properties, moderate swelling (<100%), high mucoadhesion capacity, and Tenofovir release of 120 h and 4 h in vaginal fluid and the simulated fluid mixture respectively.
Relevant publication: No

39 A. Tamayo; MªA. Rodriguez; M.T. Colomer; E. Sanchez; M.A. Mazo; J. Rubio; F. Rubio. Structural, textural and electrochemical relationships in HF etched Co-silicon oxycarbides. Ceramics International. Elsevier, 24/12/2019.
DOI: 10.1016/j.ceramint.2019.12.197
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 7
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 3.45
Journal in the top 25%: Yes
Position of publication: 2
No. of journals in the cat.: 28

Relevant results: Cobalt-silicon oxycarbide materials (Co–SiOC) have been produced through the polymer-derived ceramic route by incorporating Cobalt acetate in different proportions. HF etching of the obtained materials leads to obtaining C-rich Co–SiOC materials where the constituent phases present different characteristics. The SiO2 units that were the most vulnerable to the chemical attack were the most tensioned ones which are connected at the edges of the graphitic planes. The carbonaceous nanostructures in the HF-etched materials present a different ordering degree which is related with the microstructural characteristics of the pyrolyzed precursors. In addition, the electrochemical performance turns out to be dependent not solely on the Co content but also to the graphitization degree of the carbonaceous phase.

40 K. Ariane; A. Tamayo; A. Chorfa; F. Rubio; J. Rubio. Kinetic study on the effect of adding P2O5 to the LMAS glass-ceramic. Boletin de la Sociedad Española de Ceramica y Vidrio. 19/12/2019.
DOI: 10.1016/j.bsecv.2019.11.003
Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 1.633
Journal in the top 25%: No
Position of publication: 10
No. of journals in the cat.: 28

Relevant results: Glasses in the LMAS (Li2O, MgO, Al2O3, SiO2) system containing F, CaO, ZrO2, and TiO2 were subjected to crystallization by incorporating P2O5. The glass stability, glass forming ability, and crystallization kinetics have been determined. Crystals of Lithium Aluminum Silicate (LixAlxSi1−xO2), Enstatite (MgSi2O6) and β-spodumene (LiAlSi2O6) were detected in the samples containing F, but β-spodumene was not observed in the glass-ceramic in its absence. Glasses containing F show a dependence of the activation with the addition of P2O5 with energy values ranging from 426 kJ mol−1 to 483 kJ mol−1, being this maximum found for P2O5 amounts up to 3 mol%. High concentrations of P2O5 and Al2O3 improve the glass stability and increase the crystallization temperature. The most common crystallization mechanism is of bulk type with a constant number of nuclei. Two- and three-dimensional growth of crystals was observed in glasses containing F but in its absence and at high Al2O3 concentration bulk crystallization with two- and one-dimensional growth is observed.
Relevant publication: No

41 M.A. Mazo; A. Tamayo; J. Rubio. Highly Micro- and mesoporous oxycarbide derived materials from HF etching of silicon oxycarbide materials. Microporous and Mesoporous Materials. pp. 109614. Elsevier, 15/11/2019.
DOI: 10.1016/j.micromeso.2019.109614
Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 3
Impact source: ISI
Category: Science Edition - CHEMISTRY, APPLIED
Impact index in year of publication: 4.182
Journal in the top 25%: Yes

Position of publication: 12 **No. of journals in the cat.:** 71

Relevant results: The use of PDMS porogen and HF etching generate highly micro-mesoporous SiOC-DC. PDMS MW and pyrolysis temperature are determinant in achieving micro-mesoporosity. SiOC-DC is composed by a SiO2 matrix with SiC and C (graphene/turbostratic) phases. HR-TEM shows a relation of micro-mesopores and the organization of graphene layers.
Relevant publication: No

42 D.A. Corona-Martinez; J.C. Rendon-Angeles; L.A. Gonzalez; Z. Matamoros-Veloza; K. Yanagisawa; Aitana Tamayo; Juan Rubio. Controllable synthesis of BaCuSi2O6 fine particles via a one-pot hydrothermal reaction with enhanced violet colour hue. Advanced Powder Technology. 30 - 8, pp. 1473 - 1483. Elsevier, 01/08/2019.
DOI: 10.1016/j.apt.2019.04.023
Type of production: Scientific paper **Format:** Journal
Position of signature: 6 **Degree of contribution:** Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 7 **Corresponding author:** No
Impact source: ISI **Category:** Science Edition - ENGINEERING, CHEMICAL
Impact index in year of publication: 3.250 **Journal in the top 25%:** No
Position of publication: 41 **No. of journals in the cat.:** 138

Relevant results: A one-pot hydrothermal reaction synthesised Han purple BaCuSi2O6 pigment. The crystallisation of BaCuSi2O6 free of by-products occurred at 240□°C for 24□h. Hierarchical cast-like shaped were crystallised in solutions bearing NO3− ions. Rietveld refinement revealed distortions in the crystalline structure of BaCuSi2O6. Purple colour hue variation depends on the BaCuSi2O6 particle size and morphology.
Relevant publication: No

43 L.Z. Guan; J. Patiño; C. Cuadrado-Collados; M.C. Gutierrez; M.L. Ferrer; J. Silvestre-Albero; F. del Monte. Carbon −GO Composites with Preferential Water versus Ethanol Uptake. ACS Applied Materials & Interfaces. 11, pp. 24493 - 24503. ACS Publications, 14/06/2019.
DOI: 10.1021/acsami.9b02745
Type of production: Scientific paper **Format:** Journal
Position of signature: 4 **Degree of contribution:** Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 8 **Corresponding author:** No
Impact source: ISI **Category:** Science Edition - NANOSCIENCE & NANOTECHNOLOGY
Impact index in year of publication: 8.456 **Journal in the top 25%:** Yes
Position of publication: 16 **No. of journals in the cat.:** 94

Relevant results: The elimination of small amounts of water from alcohols is by no means a trivial issue in many practical applications like, for instance, the dehumidification of biocombustibles. The use of carbonaceous materials as sorbents has been far less explored than that of other materials because their hydrophobic character has typically limited their water uptake. Herein, we designed a synthetic process based on the use of eutectic mixtures that allowed the homogeneous dispersion of graphene oxide (GO) in the liquid containing the carbon precursor, e.g., furfuryl alcohol. Thus, after polymerization and a subsequent carbonization process, we were able to obtain porous carbon−GO composites where the combination of pore diameter and surface hydrophilicity provided a remarkable capacity for water uptake but extremely low methanol and ethanol uptake along the entire range of relative pressures evaluated in this work. Both the neat water uptake and the uptake difference between water and either methanol or ethanol of our carbon−GO composites were similar or eventually better than the uptake previously reported for other materials, also exhibiting preferential water-to-alcohol adsorption, e.g., porous coordination polymers, metal−organic frameworks, polyoxometalates, and covalent two-dimensional nanosheets embedded in a polymer matrix. Moreover, water versus alcohol uptake was particularly remarkable at low partial pressures in our carbon−GO composites
Relevant publication: No

44 Raul Cazorla-Luna; Fernando Notario; Araceli Martin-Illana; Roberto Ruiz-Caro; Aitana Tamayo; Juan Rubio; Maria Dolores Veiga-Ochoa. Chitosan-based mucoadhesive vaginal tablets for controlled release of the anti-HIV drug tenofovir. Pharmaceutics. 11 - 1, pp. 20 - 39. MDPI, 05/01/2019.

Type of production: Scientific paper
Format: Journal
Position of signature: 5
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 7
Corresponding author: No
Impact source: ISI
Category: Science Edition - PHARMACOLOGY & PHARMACY
Impact index in year of publication: 3.741
Journal in the top 25%: Yes
Position of publication: 52
No. of journals in the cat.: 261

Relevant results: Vaginal microbicides have the potential to give women at high risk of contracting HIV the option of self-protection by preventing the sexual transmission of the virus. In this paper, mucoadhesive vaginal tablets based on chitosan, alone and in combination with pectin and locust bean gum, were developed for the sustained release of tenofovir (an antiretroviral drug). The formulations were placed in simulant vaginal fluid (SVF) to swell, and Hg porosity and SEM microscopy were used for the microstructural characterization of the swelling witnesses. The results show that the association of pectin and chitosan generated polyelectrolyte complexes and produced a robust system able to maintain its structure during the swelling process, when small pores are formed. Drug release and bovine vaginal mucoadhesion studies were performed in SVF showing that tenofovir-controlled dissolution profiles and adhesion to the mucosa were conditioned by the swelling processes of the polymer/s in each formulation. Tablets based on chitosan/pectin have the most homogeneous tenofovir dissolution profiles and last up to 96 h, remaining attached to the vaginal mucosa for the same period. These formulations can therefore be considered a good option for the self-protection of women from the sexual transmission of HIV.
Relevant publication: No

45 Maite Colomer; Sofia Diaz-Moreno; Aitana Tamayo; Angel Ortiz; Jesus Chaboy. Interplay between electronic and structural effects on the photoluminescence decay mechanisms in LaPO4·nH2O:Tb3+ and LaPO4:Tb3+ single-crystal nanorods. Journal of Materials Chemistry C. 6, pp. 12643 - 12651. Royal Society of Chemistry, 22/10/2018.

DOI: 10.1039/C8TC03187H
Type of production: Scientific paper
Format: Journal
Position of signature: 3
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 6
Corresponding author: No
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, MULTIDISCIPLINARY
Impact index in year of publication: 5.976
Journal in the top 25%: Yes
Position of publication: 42
No. of journals in the cat.: 285

Relevant results: A novel High Energy Resolution Fluorescence Detected X-ray Absorption Spectroscopy (HERFD-XAS) study at the Tb L3-edge for the rhabdophane-type LaPO4·nH2O:Tb3+ and the monazite-type LaTbPO4:Tb3+ nanorods is reported. We have observed that the changes in the white-line intensity follow a similar trend to that previously observed in the photoluminescence behaviour of these materials. Those changes have been assigned to the localization of the terbium 5d states and the modification induced by the hybridization with the next neighbours as the terbium content is varied. The interplay between electronic (d-state localization) and structural (local disorder) effects is used to explain the different optical behaviour between the two series of nanorods. The XAS results indicate that the local ordering is a key factor influencing the different emission efficiencies, quenching effects and decay lifetimes observed experimentally for both series of nanorods. The present results indicate that the long lifetime decay process is accounted within a standard single Tb3+ ion scenario, where the structural disorder, favoured by the presence of water molecules in the structure, aids the non-radiative recombination processes. Implications for future use of the white-line intensity in the HERFD-XAS spectra in characterizing other luminescent materials are also discussed.
Relevant publication: No

46 M. Alejandra Mazo; Aitana Tamayo; Amador Caballero; Juan Rubio. Enhanced electrical and thermal conductivities of silicon oxycarbide nanocomposites containing carbon nanofibers. Carbon. 138, pp. 42 - 51. 01/10/2018.

Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4
Corresponding author: No
Impact source: ISI
Category: Materials Science - Multidisciplinary
Impact index in year of publication: 7.082
Journal in the top 25%: Yes
Position of publication: 25
No. of journals in the cat.: 146

Relevant results: Novel silicon oxycarbide-carbon enriched composites (SiOC-C) were prepared from mixtures of SiOC and different amounts of carbon nanofibers (CNF) (0–10%) sintered through spark plasma sintering at 1500?°C. During sintering, the SiOC matrix experiences a rearrangement to SiO2, SiC and C, and the growth of SiC wires within the material which produce epitaxial graphene-like carbon flakes with AB stacking. Small additions of CNFs (0.5–1%) promote the generation of large amounts of ?-SiC which produce more graphene-like carbon. When large amounts of CNFs are added graphene-like carbon and also huge entanglements of turbostratic carbon are formed widespread all over the SiOC-C material. These facts deeply influenced the observed properties. Small additions of CNFs (0.5–1%) produce an improvement of the thermal conductivity of 30% and an enhancement of three orders of magnitude in the electrical conductivity (2.44?×?10?3 to 1.82 Sm-1) mainly due to a great increase in both the crystallite size and structural order of SiC and also the presence of graphene-like carbon homogenously dispersed within the SiOC matrix. Further additions of CNFs (10%) continue increasing both thermal and electrical conductivities (40% and 100 Sm-1, respectively) but such increases are less effectively by the presence of entanglements of turbostratic carbon.
Relevant publication: No

47 M.A. Mazo; I. Padilla; A. Tamayo; J.I. Robla; A. López-Delgado; J. Rubio. Evaluation of thermal shock resistance of silicon oxycarbide materials for high-temperature receiver applications. Solar Energy. 173, pp. 256 - 267. 01/10/2018.
DOI: 10.1016/j.solener.2018.07.080

Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 6
Corresponding author: Yes
Impact source: ISI
Category: Energy & Fuels
Impact index in year of publication: 4.374
Journal in the top 25%: Yes
Position of publication: 23
No. of journals in the cat.: 97

Relevant results: Materials used as solar receivers in concentrated solar power technology must withstand severe operational conditions caused by concentrated solar radiation. For this solar technology several ceramic material candidates (silicon carbide, porous and dense silicon oxycarbide) have been subjected to thermal shock resistance test by using Fresnel lens, the equipment available, that concentrates the solar radiation more than 2600 times. Fast heating (37?°C?s?1) and cooling rates (28?°C?s?1) from 100 to 1200?°C and dwelling time of 10?min are employed. The evolution of materials surface has been evaluated during test by spectroscopic methods and both confocal and electronic microscopies. It has been obtained the surface map of each analyzed sample in order to evaluate the effect of the concentrated solar radiation on the surface and the relationship with their durability. The absorptance values were also determined before and after the ageing test using normal direction between 400 and 1100?nm. Concentrated solar radiation facilitates the decomposition of tested materials producing the formation of gaseous species (mainly CO and CO2) and a dense SiO2 layer which is formed over the material surface. SiC and porous silicon oxycarbide materials fail the thermal shock resistance test. SiC experiences a catastrophic break and in the case of porous silicon oxycarbide, gases generated can evolve easily through the pores producing a severe degradation of the material surface. However, dense silicon oxycarbide resists 100 cycles at 1200?°C due to the formation of a protective SiO2 layer over the material surface and its dense microstructure that slow down the diffusion of the gases preventing bulk material from being degraded. The surface studies confirm the formation of a crystalline SiO2 phase all over the surface. Furthermore, the very similar coefficients of thermal

expansion of silicon oxycarbide and silica (?0.4?×?10?6?°C), protects material against catastrophic failure. Finally, the absorptance values remain fairly constant before and after thermal shock test (94.78 to 95.96–96.09%). The high resistance of dense silicon oxycarbide materials to thermal shock under concentrated solar radiation makes these materials suitable candidates of being used as high temperature solar receivers.
Relevant publication: No

48 Aitana Tamayo; Fausto Rubio; M. Alejandra Mazo; Juan Rubio. Further characterization of the surface properties of the SiC particles through complementarity of XPS and IGC-ID techniques. Boletin de la Sociedad Española de Ceramica y Vidrio. In Press, 05/05/2018.
DOI: 10.1016/j.bsecv.2018.04.003
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4
Corresponding author: Yes
Impact source: ISI
Category: Materials Science - Ceramics
Impact index in year of publication: 1.049
Journal in the top 25%: No
Position of publication: 13
No. of journals in the cat.: 27

Relevant results: In this work we demonstrated the necessity to complement the techniques XPS and IGC-ID to evaluate the surface properties of the SiC materials. We have studied four SiC materials with different particles sizes being 3 of them of a Si/C ratio close to the stoichiometry whereas for the fourth one, this ratio is 0.7, indicating an excess of C in the surface of the particles. The dispersive energy, , of these materials is 77.5, 64.0, 40.5 and 44.5 for the SiC sized 0.7, 1, 7 and 10 ?m, respectively. The lowest values are found for the SiC than in XPS presented an excess of surface carbon. The acid constants kA are close to unity and in the case of the base constant kB, they are found to be 1.1, 1.0, 0.4 and 1.1 for each above mentioned particle sized, being again the sample that presented the lowest kB value the sample that presented a particle size of 0.7. The SiC with an excess of surface C presents the lowest kB/kA ratio indicating that most part of the active sites are blocked by carbon atoms.
Relevant publication: No

49 Aitana Tamayo; Rosa de la Torre; Pablo Lozano; M. Alejandra Mazo; Juan Rubio. Application of a glass fertilizer in sustainable tomato plant crops. Journal of the Science of Food and Agriculture. 48 - 12, pp. 4625 - 4633. 14/04/2018.
DOI: 10.1002/jsfa.8992
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: Yes
Impact source: ISI
Category: Agriculture, Multidisciplinary
Impact index in year of publication: 2.379
Journal in the top 25%: Yes
Position of publication: 8
No. of journals in the cat.: 56

Relevant results: Glass frits with a P2 O5 /K2 O ratio equal to 0.65 and different concentrations of SiO2 (6.5-56.0?wt%), CaO (0-5.1?wt%) and Al2 O3 (0-14.6?wt%) have been prepared and analysed as potential glass fertilizers (GF). P2 O5 and K2 O were leached primarily within the first 5?days but the total amount was dependent on the SiO2 /Al2 O3 ratio of the glass frit. Sustained P2 O5 and K2 O leaching for more than 40?days could be obtained if the glass frit contained more than 7% Al2 O3 . A final glass frit composition (29% SiO2 , 5% CaO, 7% Al2 O3 , 30% P2 O5 , 25% K2 O) was selected and used in an experimental tomato crop of 1?ha area, where one half was fertilized with an NPK conventional fertilizer and the other half with the GF fertilizer. After harvesting the tomato crops, the GF fertilizer was found to result in a higher yield than the NPK conventional fertilizer: 59980? kg and 74?360?kg for NKP and GF, respectively. The general characteristics of the harvested tomato fruits and leaves were similar in the two cases and the differences fell within statistical error. No differences in any of the soil characteristics were detected as a result of the use of GF. © 2018 Society of Chemical Industry.
Relevant publication: No

50 Fernando Notario-Pérez; Raúl Cazorla-luna; Araceli Martín-Illana; Roberto Ruiz-Caro; Aitana Tamayo; Juan Rubio; Maria-Dolores Veiga. Optimization of tenofovir release from mucoadhesive vaginal tablets by polymer combination to prevent sexual transmission of HIV. Carbohydrate Polymers. 179, pp. 305 - 316. ELSEVIER SCI LTD, THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD OX5 1GB, OXON, ENGLAND, 01/01/2018.

DOI: 10.1016/j.carbpol.2017.10.001

Type of production: Scientific paper
Format: Journal
Position of signature: 5
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 7
Corresponding author: No
Impact source: ISI
Category: Chemistry, Applied
Impact index in year of publication: 4.811
Journal in the top 25%: Yes
Position of publication: 4
No. of journals in the cat.: 72

Relevant results: Different polymers (hydroxypropylmethyl cellulose (HPMC), chitosan, guar gum and Eudragit (R) RS) have proven some good features for this purpose. At this work, these polymers have been combined in pairs in different proportions to enhance the advantages offered by each one individually. The in vitro release of tenofovir from the matrices, ex vivo mucoadhesive capacity (evaluated on vaginal mucosa) and the degree of swelling in simulated vaginal fluid have been assessed. A multimodal pore size distribution is observed in porosimetry studies -carried out with swelling witnesses-, due to the contribution of polymers with different swelling behaviour to the pore formation, and it is corroborated by scanning electron microscopy. X-ray diffraction technique confirms the changes in crystallinity of the formulation after swelling. We can report that the combination of HPMC and chitosan in the same formulation may be useful for the prevention of sexual transmission of HIV, since tablets can be obtained that remain adhered to the vaginal mucosa for 96 h, so the drug is released in a sustained manner for 72 h. When the formulation contains more chitosan than HPMC the swelling is moderate, making it more comfortable for women to apply.

51 Juan Rubio; Maria Alejandra Mazo; Araceli Martín-Illana; Aitana Tamayo. FT-IR study of the hydrolysis and condensation of 3-(2-amino-ethylamino)propyl-trimethoxysilane. Boletín de la Sociedad Española de Cerámica y Vidrio. 57, pp. 160 - 168. ELSEVIER, 15/12/2017.

DOI: 10.1016/j.bsecv.2017.11.003

Type of production: Scientific paper
Format: Journal
Position of signature: 4
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4
Corresponding author: Yes
Impact source: ISI
Category: Materials Science, Ceramics
Impact index in year of publication: 0.56
Journal in the top 25%: No
Position of publication: 19
No. of journals in the cat.: 26

Relevant results: The hydrolysis and self-condensation reactions of 3-(2-amino-ethylamino)propyl-trimethoxy silane have been studied by means FT-IR spectroscopy for different water and ethanol concentrations. The hydrolysis of 3-(2-amino-ethylamino)propyl-trimethoxy silane occurs at a high rate and depends if the water concentration is lower or higher than the stoichiometric one for hydrolysing all the hydrolysable groups. The presence of ethanol delays the hydrolysis reaction. The hydrolysis of 3-(2-amino-ethylamino)propyl-trimethoxy silane gives hydroxyl groups (Si–OH) that self-condense to form Si–O–Si bonds in linear and cyclic structures. For high water and low ethanol concentrations not all Si–OH groups self-condense, whereas for low water or high ethanol concentrations the major part of the Si–OH groups self-condense and tends to disappear in the gel state.

Relevant publication: No

52 Maria Alejandra Mazo; Javier Sanguino; Aitana Tamayo; Juan Rubio. Carbon nanofibers grown in situ on porous glass. Journal of Nano Research. 50, Trans Tech Publications, 15/11/2017. ISSN 1662-5250

DOI: 10.4028/www.scientific.net/JNanoR.50.1

Type of production: Scientific paper
Format: Journal
Position of signature: 3
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4

Impact source: ISI
Category: Materials Science, Multidisciplinary
Impact index in year of publication: 0.511
Journal in the top 25%: No
Position of publication: 247
No. of journals in the cat.: 275

53 Sandra Mazo; Aitana Tamayo; Amador Caballero; Juan Rubio. Electrical and thermal response of silicon oxycarbide materials obtained by spark plasma sintering. Journal of the European Ceramic Society. 37 - 5, pp. 2011 - 2020. 01/05/2017.
DOI: 10.1016/j.jeurceramsoc.2017.01.003
Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4
Corresponding author: No
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 2.993
Journal in the top 25%: Yes
Position of publication: 1
No. of journals in the cat.: 27
Source of citations: WOS
Citations: 1

Relevant results: Silicon oxycarbide ceramic materials were processed through Spark plasma Sintering method. The electrical properties as well as the thermal conductivity of the obtained materials depend upon the maximum temperature reached during sintering. These properties are well correlated with the growth of b-SiC nanocrystals into the ceramic matrix

54 Fernando Notario Perez; Araceli Martín-Illana; Roberto Cazorla-Luna; Roberto Ruiz-Caro; Luis Miguel Bedoya; Aitana Tamayo; Juan Rubio; Maria Dolores Veiga. Influence of chitosan swelling behavior on controlled release of tenofovir from mucoadhesive vaginal systems for prevention of sexual transmission of HIV. Marine Drugs. 15 - 2, pp. 50. 21/02/2017.
DOI: 10.3390/md15020050
Type of production: Scientific paper
Format: Journal
Position of signature: 6
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 8
Impact source: ISI
Category: Science Edition - CHEMISTRY, MEDICINAL
Impact index in year of publication: 3.345
Journal in the top 25%: Yes
Position of publication: 13
No. of journals in the cat.: 59

Relevant results: It has been evaluated the swelling behaviour of different tablets prepared from Tenofovir and different commercial polymers. The tables were intended to be used in vaginal formulations. The drug release mechanism has been also evaluated and fitted to the corresponding kinetic model

55 Daniela Sanchez Téllez; Lucía Téllez; Luis María Rodríguez Lorenzo; María Alejandra Mazo; Juan Rubio; Aitana Tamayo. Surface effects on the degradation mechanism of bioactive PDMS-SiO2-CaO-P2O5 hybrid materials intended for bone regeneration. Ceramics International. 43 - 1, pp. 476 - 483. ELSEVIER SCI LTD, 01/01/2017.
DOI: 10.1016/j.ceramint.2016.09.182
Type of production: Scientific paper
Format: Journal
Position of signature: 6
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 6
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 2.758
Journal in the top 25%: Yes
Position of publication: 3
No. of journals in the cat.: 27

Relevant results: Fractal analysis has been applied to determine the dissolution mechanism of bioactive materials

56 Aitana Tamayo; Raquel Peña-Alonso; Maria Alejandra Mazo; Fausto Rubio; Juan Rubio. Combined pyrolysis-ammonolysis treatment to retain C during nitridation of SiBOCN ceramics. Journal of the Ceramic Society of Japan. 124 - 10, pp. 996 - 1002. 01/11/2016.

DOI: 10.2109/jcersj2.124.P10-1

Type of production: Scientific paper **Format:** Journal

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: ISI **Category:** Science Edition - MATERIALS SCIENCE, CERAMICS

Impact index in year of publication: 0.828 **Journal in the top 25%:** No

Position of publication: 13 **No. of journals in the cat.:** 27

Relevant results: Two sets of sol–gel derived glass materials have been prepared and subjected to different thermal treatments. Pyrolysis in inert atmosphere lead to the formation of amorphous Si(B)CO ceramics whereas if the inert atmosphere is changed to NH3 once the carbon substituents of the preceramic hybrid material transform to a glassy network, the nitrogen is incorporated efficiently while the carbon is retained into the structure, as revealed by 29Si NMR analysis. Raman spectra show a less graphitized structure in the case of B-rich materials because of the reduced mobility of the C atoms due to the formation of mixed (B)CN bonds.

57 M. Alejandra Mazo; Aitana Tamayo; Juan Rubio. Advanced silicon oxycarbide-carbon composites for high temperature resistant friction systems. Journal of the European Ceramic Society. 36 - 10, pp. 2443 - 2452. 01/08/2016.

DOI: 10.1016/j.jeurceramsoc.2016.03.012

Type of production: Scientific paper

Position of signature: 2 **Degree of contribution:** Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 3 **Corresponding author:** No

Impact source: ISI **Category:** Science Edition - MATERIALS SCIENCE, CERAMICS

Impact index in year of publication: 2.993 **Journal in the top 25%:** Yes

Position of publication: 1 **No. of journals in the cat.:** 27

Source of citations: WOS **Citations:** 6

Relevant results: Highly densified bulk silicon oxycarbide—carbon composites (SiOC-C) reinforced with carbon black (CB), active carbon (AC) or graphite (GR) have been obtained through spark plasma sintering. Structural, mechanical, tribological and thermal properties of SiOC-C composites were researched. The SiOC-C composites reinforced with GR and CB tended to give ?-SiC. Wear behavior at room temperature under dry conditions was determined by using a ball on plate configuration and stainless steel balls as counter bodies. The coefficient of friction of the composites decreases down to 40% and the wear rate is also reduced by 1 in the order of magnitude when compared to SiOC. A graphite-like carbon tribolayer is probably formed in the composites; this layer could be responsible for the observed enhancement of such tribological properties. These SiOC-C composites are promising candidates for use in harsh enviroments where an adequate tribological response is required at high temperatures

58 N. López-Salas; Daniel Carriazo; Maria C Gutierrez; M.L. Ferrer; C.O. Ania; Fausto Rubio; Aitana Tamayo; J.L G. Fierro; Francisco del Monte. Tailoring the textural properties of hierarchical porous carbons using deep eutectic solvents. J. Mater. Chem. A. 23 - 4, pp. 9146 - 9159. 11/05/2016.

DOI: 10.1039/c6ta02704k

Type of production: Scientific paper

Position of signature: 7

Total no. authors: 9

Impact source: ISI

Category: Science Edition - MATERIALS SCIENCE, MULTIDISCIPLINARY
Impact index in year of publication: 7.443
Journal in the top 25%: Yes
Position of publication: 21
No. of journals in the cat.: 271

Source of citations: WOS
Citations: 4

Relevant results: Soft-template approaches have been frequently applied for the preparation of porous carbons. Most of these processes proved highly effective for the preparation of mesoporous carbons with pore diameters below 10 nm but less explored has been the preparation of carbons with mesopores larger than 10 nm. The lack of syntheses providing large and well-interconnected mesopores is by no means a trivial issue because it limits the achievement of materials suitable for applications where pore surface accessibility is crucial – e.g. electrodes in supercapacitors or adsorbents in flow-through systems, among others. In this work, we have used deep eutectic solvents (DESs, a sort of ionic liquid, that are obtained by complexation of quaternary ammonium salts with hydrogen-bond donors) composed of resorcinol, urea and choline chloride for the preparation – via formaldehyde polycondensation and subsequent carbonization – of hierarchical porous carbons with micropores and large mesopores within the 10 to 20 nm range. The formation of large mesopores took place at the polycondensation stage via a spinodal decomposition process where some components forming the DES acted as precursors of the polymer phase, while some other ones were segregated into a polymer depleted phase. Thus, the ultimate dimension of the mesopores was controlled by the mass ratio between the segregated and condensed phases, and this mass ratio by the molar ratio of the components forming the original DES. We have finally demonstrated that carbons with larger mesopores exhibited better performance as electrodes in supercapacitor cells.

59 Pedro Blazquez; Aitana Tamayo; Maria Alejandra Mazo; Fausto Rubio; Juan Rubio. Influence of temperature on the porosity generated in clay-PWTP sludge biscuits. Proceedings XIII Word Congress on Ceramic Tile Quality. QUALICER 2016. 01/02/2016. ISBN 978-84-95931-26-9

Type of production: Scientific paper
Format: Scientific and technical document or report
Position of signature: 2
Degree of contribution: Author or co-author of chapter in book

Total no. authors: 5

60 Maria Alejandra Mazo; Aitana Tamayo; Juan Rubio. Stable highly porous silicon oxycarbide glasses from pre-ceramic hybrids. Journal of Materials Chemistry - A. 46 - 3, pp. 23220 - 23229. Royal Society of Chemistry, 20/10/2015.

DOI: 10.1039/C5TA05656J
Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 3

Impact source: ISI
Category: MATERIALS SCIENCE, MULTIDISCIPLINARY
Impact index in year of publication: 7.443
Journal in the top 25%: Yes
Position of publication: 5
No. of journals in the cat.: 89

Relevant results: The fractal analysis revealed the surface changes in the micro-nanostructure of the material during the ceramization of a preceramic hybrid material. The introduction of Si-H bonds instead of conventional Si-OH functionalities leaded to a specific conversion path with the creation fo micropores tending to the dissapearance as the pyrolysis temperature increases.

61 Aitana Tamayo; Roberto Ruiz Caro; Maria Alejandra Mazo; Maria Dolores Veiga Ochoa; Juan Rubio. Chemical oxidation of silicon oxycarbide ceramics for advanced drug delivery systems. Journal of Materials Science. 51 - 3, pp. 1382 - 1391. Springer, 25/09/2015. ISSN 1573-4803

DOI: 10.1007/s10853-015-9457-3
Type of production: Scientific paper
Format: Journal
Position of signature: 1

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 5
Corresponding author: Yes

Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, MULTIDISCIPLINARY

Impact index in year of publication: 2.371
Journal in the top 25%: Yes

Position of publication: 63
No. of journals in the cat.: 260

Relevant results: For the first time, the chemical oxidation of silicon oxycarbide ceramics has been carried out, This novel functionalization strategy provides a highly modified surface with donor-acceptor groups capable of interacting with drug molecules. The adsorption-release capabilities of the chemically oxidized silicon oxycarbide materials were determined and correlated with the uptake-release mechanisms based on donor-acceptor interactions.

62 Maria Pilar Sanchez Sanchez; Araceli Martín Illana; Roberto Ruiz Caro; Paulina Bermejo; Maria José Abad; Rubén Carro; Luis Miguel Bedoya; Aitana Tamayo; Juan Rubio; Anxo Fernandez Ferreiro; Francisco Otero Espinar; Maria Dolores Veiga. Chitosan and Kappa-Carrageenan Vaginal Acyclovir Formulations for Prevention of Genital Herpes. In Vitro and Ex Vivo Evaluation. Marine Drugs. 13 - 9, pp. 5976 - 5992. MDPI AG, POSTFACH, CH-4005 BASEL, SWITZERLAND, 15/09/2015. ISSN 1660-3397

DOI: 10.3390/md13095976

Type of production: Scientific paper
Format: Journal

Position of signature: 8
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 12

Impact source: ISI
Category: Science Edition - CHEMISTRY, MEDICINAL

Impact index in year of publication: 2.853
Journal in the top 25%: No

Position of publication: 22
No. of journals in the cat.: 59

Source of citations: WOS
Citations: 4

Relevant results: Drug release studies were carried out in two media: simulated vaginal fluid and simulated vaginal fluid/simulated seminal fluid mixture. The bioadhesive capacity and permanence time of the bioadhesion, the prepared compacts, and compacted granules were determined ex vivo using bovine vaginal mucosa as substrate. Swelling processes were quantified to confirm the release data. Biocompatibility was evaluated through in vitro cellular toxicity assays, and the results showed that acyclovir and the rest of the materials had no cytotoxicity at the maximum concentration tested.

63 Natalia Grabska; Aitana Tamayo; Maria Alejandra Mazo; Luis Pascual; Juan Rubio. Evaluation of glass leaching as nutrient source for microalgae growth. Boletin de la Sociedad Española de Cerámica y Vidrio. 54 - 4, pp. 166 - 174. Elsevier, 15/07/2015.

DOI: 10.1016/j.bsecv.2015.05.001

Type of production: Scientific paper
Format: Journal

Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 5
Corresponding author: Yes

Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS

Impact index in year of publication: 0.290
Journal in the top 25%: No

Position of publication: 22
No. of journals in the cat.: 26

Relevant results: Three glasses with an elemental composition similar to the nutrient ratio required for Spirulina platensis growth and with different SiO2 content have been prepared. The glasses were crushed and sieved into 2 different fractions and the effect of the particle size has been studied in terms of the leaching kinetics of each element. The chemical analysis of the leaching water was used for obtaining the dissolution rate curves for each element taking part of the glass composition. From the calculation of the leaching rate constant and the exponential constant of the lixiviation reaction, it has been evaluated the Spirulina platensis growth in ambient

normal conditions of light, temperature and pH of the growing media. It has been concluded that, either from the modification of the chemical composition of the glass or its particle size, it is possible to tune the delivery of the nutrients to match the growth rate of Spirulina platensis

64 Fabienne Sallaberry; A. Garcia de Jalon; Fritz Saversky; Alfonso Vazquez; Aurora Lopez-Delgado; Aitana Tamayo; M Alejandra Mazo. Towards standard testing materials for high temperature solar receivers. Energy Procedia. Elsevier, 05/06/2015.

DOI: 10.1016/j.egypro.2015.03.062

Type of production: Scientific paper
Format: Journal
Position of signature: 6
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 7
Corresponding author: No
Source of citations: WOS
Citations: 2

Relevant results: It has been stablished the standard test to estimate the suitability of different materials for being used as solar volumetric receivers

65 Antonio Aires Trapote; Aitana Tamayo; Juan Rubio; Angel Rumbero; Maria Jose Hernaiz. Sustainable Synthesis of N-acetyllactosamine using an Immobilized ß-Galactosidase on a Tailor Made Porous Polymer. RSC Advances. 5, pp. 40375 - 40383. Royal Society of Chemistry, 21/04/2015.

DOI: 10.1039/C5RA03527A

Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Impact source: ISI
Category: Science Edition - CHEMISTRY, MULTIDISCIPLINARY
Impact index in year of publication: 3.840
Journal in the top 25%: Yes
Position of publication: 33
No. of journals in the cat.: 157
Source of citations: WOS
Citations: 3

Relevant results: Porous polymer particles containing surface epoxy groups were synthesized for immobilizing ?-galactosidase from Bacillus circulans. Enzyme immobilization was achieved by covalent attachment to a custom made porous polymer and the biocatalyst was characterized in terms of optimal pH and thermal stability, and its catalytic efficiency evaluated for synthesizing N-acetyllactosamine (Gal-?-(1 ? 4)-GlcNAc) in different solvents

66 Francisco José García Castillo; Margarita Amado; J. Sanchís; M. Bartolomé; J. Cabero; A. Castilo; Juan Rubio; Aitana Tamayo. Elimination of organic compounds in drinking water from Fenton-Photocatalytic processes (Original title in spanish: Eliminación de compuestos orgánicos en agua potable a partir de procesos mixtos Fenton-Fotocatalíticos). Proceedings XXXIII Jornadas técnicas AEAS. 01/04/2015.

Type of production: Scientific paper
Format: Book
Degree of contribution: Author or co-author of chapter in book
Total no. authors: 8

67 Antonio Aires; Pilar Hoyos; Andrés R. Alcántara; Aitana Tamayo; Juan Rubio; Angel Rumbero; Maria J. Hernáiz. Covalent Immobilization of Pseudomonas stuzeri lipase on a porous polymer: an efficient biocatalyst for a scalable production of enantiopure benzoins esters under sustainable conditions. Organic Process Research & Development. ACS Publications, 06/02/2015.

DOI: 10.1021/op500326k

Type of production: Scientific paper
Position of signature: 4
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 7
Corresponding author: No

Impact source: ISI
Category: Science Edition - CHEMISTRY, APPLIED
Impact index in year of publication: 2.528
Journal in the top 25%: Yes
Position of publication: 13
No. of journals in the cat.: 72

Source of citations: WOS
Citations: 1

Relevant results: The immobilization of lipase from Pseudomonas stutzeri (lipase TL) by covalent bonding to a porous polymer is described for the first time. The immobilized enzyme was characterized in terms of optimal pH and thermal stability, and its catalytic efficiency was tested in the kinetic resolution (KR) of symmetrical and unsymmetrical benzoins (1,2-diaryl-2-hydroxyethanone structures). Reactions were performed in the green solvent 2-MeTHF, reaching maximum conversion and enantiomeric excess, with a significant increase of productivity due to the possibility of reuse of the catalyst. Moreover, the immobilization allowed the development of an adequate scaling up of this KR process permitting a further rise in the catalytic efficiency. Finally, the dynamic kinetic resolution of benzoin (DKR) was carried out by the combination of the immobilized lipase and a ruthenium catalyst (Shvo's catalyst) in 2-MeTHF, reaching conversions up to 90%, maintaining its excellent enantioselectivity during six catalytic cycles.

68 Nieves Lopez-Salas; Francisco del Monte; Aitana Tamayo; Jose Luis G Fierro; Antonio L de Lacey; M Luisa Ferrer; Maria Gutierrez. Sulfur-doped carbons prepared from Eutectic Mixtures containing Hydroxymethyltiophene as metal-free oxygen reduction catalyst. ChemSusChem. 7 - 12, pp. 3347 - 3355. WILEY-V C H VERLAG GMBH, BOSCHSTRASSE 12, D-69469 WEINHEIM, GERMANY, 15/12/2014.
DOI: 10.1002/cssc.201402753
Type of production: Scientific paper
Format: Journal
Position of signature: 3
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee

Impact source: ISI
Category: Science Edition - CHEMISTRY, MULTIDISCIPLINARY
Impact index in year of publication: 7,117
Journal in the top 25%: Yes
Position of publication: 17
No. of journals in the cat.: 148

Relevant results: Porous carbons were prepared though deep eutectic solvent assisted methodology. the pyrolysis temperature lead to the obtaining of different surfce area, composition and electrical properties. It was established the optimal conditions for obtaining free standing sulfur doped porous carbons with similar properties to other carbons containing different doping elements such as nitrogen.

69 Fritz Zaversky; Fabienne Sallaberry; Alfonso Vazquez; David Morris; Maria Alejandra Mazo; Aitana Tamayo; R. Casasola; J.A. Rodriguez-Cortés. Innovative and advanced materials research for high temperature solar receivers. Proceedings Eurosun 2014.03/12/2014.
DOI: 10.18086/eurosun.2014.12.03
Type of production: Scientific paper
Format: Scientific and technical document or report

70 Aitana Tamayo; Antonio Aires-Trapote; Fausto Rubio; Maria J Hernaiz; Angel Rumbero; Juan Rubio. Effect of the surface parameters on the interaction of epoxy polymer supports with a lipase enzyme. Polymer Bulletin. 72 - 2, pp. 194 - 218. Springer, 31/10/2014.
DOI: 10.1007/s00289-014-1267-2
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee

Corresponding author: Yes

Impact source: ISI
Category: Science Edition - POLYMER SCIENCE
Impact index in year of publication: 1,491
Journal in the top 25%: No
Position of publication: 42
No. of journals in the cat.: 82

Relevant results: It has been characterized the surface topology of substrate polymers used for enzyme immobilization. The surface parameters have been obtained through Inverse Gas chromatogrpahy at Infinite Dilution and the results have been compared with the kinetics of enzyme adsorption and desorption. The acid-to-base ratio and the surface roughness were dependent on the number of functional groups contained on the monomer used for the synthesis and the crosslinker as well.

71 Aitana Tamayo; M Alejandra Mazo; Fausto Rubio; Juan Rubio. Structure properties relationship in silicon oxycarbide glasses obtained by spark plasma sintering. Ceramics International. 40 - 7, pp. 11351 - 11358. ELSEVIER SCI LTD, THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD OX5 1GB, OXON, ENGLAND, 15/08/2014. ISSN 0272-8842

DOI: 10.1016/j.ceramint.2014.03.111

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 1,789
Journal in the top 25%: Yes
Position of publication: 3
No. of journals in the cat.: 25
Source of citations: WOS
Citations: 3

Relevant results: Nanocomposites of silicon oxycarbide reinforced with SiC, siO2 and al2O3 nanoparticles were sintered by using the Park Plasma sintering technology. The structural characterization along the sintering process allowed to determine the reactions involved during the sintering. It turned out that the stoichiometry of the matrix phase was only determinant when the composition of the nanocomposite included a phase similar to the matrix but when the reinforcing elements are of a different nature, new phases are expected due to the reactions in the interphase.

72 Aitana Tamayo; Lucia Tellez; Marlene Rodriguez-Reyes; M Alejandra Mazo; Fausto Rubio; Juan Rubio. Surface properties of bioactive TEOS-PDMS-TiO2-CaO Ormosils. Journal of Materials Science. 49 - 13, pp. 4656 - 4669. SPRINGER, 233 SPRING ST, NEW YORK, NY 10013 USA, 15/07/2014.

DOI: 10.1007/s10853-014-8169-4

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, MULTIDISCIPLINARY
Impact index in year of publication: 2,163
Journal in the top 25%: Yes
Position of publication: 58
No. of journals in the cat.: 251
Source of citations: WOS
Citations: 7

Relevant results: Several surface properties such as specific surface area, porosity, fractality, dispersive and polar surface energies were determined by means of Inverse Gas Chromatography at Infinite Dilution and gas adsorption techniques and related with their in-vitro bioactivity. It was concluded that in vitro bioactivity was related with the polar surface characteristics of the materials. The presence of a highly polar surface with intermediate base/acid ratio and specific roughness was found to be necessary to exhibit the bioactive character.

73 Maria C Serrano; J. Patiño; C. Garcia-Rama; Maria L Ferrer; Jose Luis G Fierro; Aitana Tamayo; Jorge Eduardo Collazos-Castro; Francisco del Monte; Maria C Gutierez. 3D free-standing porous scaffolds made of graphene oxide as substrates for neutral cell growth. Journal of Materials Chemistry B. 2 - 34, pp. 5698 - 5706. 27/06/2014.

DOI: 10.1039/c4tb00652f

Type of production: Scientific paper
Format: Journal
Position of signature: 6
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, MULTIDISCIPLINARY
Impact index in year of publication: 6,626
Journal in the top 25%: Yes
Position of publication: 22
No. of journals in the cat.: 251
Source of citations: WOS
Citations: 26

74 M Alejandra Mazo; Aitana Tamayo; Fausto Rubio; David Soriano; Juan Rubio. Effect of processing on the structural characteristics of sintered silicon oxycarbide materials. Journal of Non-Crystalline Solids. 391, pp. 23 - 31. ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS, 01/05/2014. ISSN 0022-3093
DOI: 10.1016/j.jnoncryso1.2014.03.006
Type of production: Scientific paper
Position of signature: 2
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 1,716
Journal in the top 25%: Yes
Position of publication: 4
No. of journals in the cat.: 25
Source of citations: WOS
Citations: 10

Relevant results: It was studied the effect of using different sintering coadyuvants and pressing conditions during the sintering of the silicon oxycarbide. Isostatic pressing and uniaxial pressing were spplied and differerent polymeric binders were used as well. Isomorphous materials were obtained only in selected conditions.

75 Nilo Cornejo; Maria Alejandra Mazo; Aitana Tamayo; Luis Pascual; Fausto Rubio; Juan Rubio. Effect of the use of glass from mining waste on glaze properties. Proceedings XIII Word Congress on Ceramic Tile Quality. QUALICER 2014. Cámara de Comercio de Castellón, 01/02/2014. ISBN 978-84-95931-25-2
Type of production: Scientific paper
Position of signature: 3
Degree of contribution: Author or co-author of chapter in book
Total no. authors: 6
Corresponding author: No
Relevant publication: No

76 Aitana Tamayo Hernando; Fausto Rubio Alonso; Jose Luis Oteo Mazo; Juan Rubio Alonso. Influence of milling in the surface energy of enamel glass frits (Original title in spanish: Influencia de la molienda en la energía superficial de fritas para esmaltes). Boletín de la Sociedad Española de Cerámica y Vidrio. 52, pp. 55 - 62. Sociedad Española de Cerámica y Vidrio, 01/03/2013.
DOI: 10.3989/cyv.72013
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 0,404
Journal in the top 25%: No
Position of publication: 16
No. of journals in the cat.: 27

Relevant results: Dry and wet milling has been compared in frits with different amount of boron-soluble species. The surface characteristics have been analyzed by means of inverse gas chromatography. Soluble compounds present in the glass frit compositions will dramatically affect the surface energy of the frit and thus, the application for decorative purposes.

77 Maria Rosario Elvira Lavilla; Maria Alejandra Mazo Fernandez; Aitana Tamayo Hernando; Fausto Rubio Alonso; Juan Rubio Alonso; Jose Luis Oteo Mazo. Study and characterization of organically modified silica-zirconia antigraffiti coatings obtained by sol-gel. Journal of Chemistry and Chemical Engineering. 7 - 2, pp. 120 - 131. David Hui Publishing, 25/02/2013.

Type of production: Scientific paper
Format: Journal
Position of signature: 3
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee

Relevant results: The effect of reaction temperature was studied in silica-zirconia transparent coatings. The evolution of the crosslinking reaction was followed though infrared spectroscopy. The final composition and the presence of cracks was also evaluated. The antigraffiti porperties were tested and it turned out that the average efficiency of the coatings was around 90% efectiveness in surface cleaning.

78 Aitana Tamayo; Fausto Rubio; Juan Rubio; Jose Luis Oteo. Surface and structural modification of nanostructured mesoporous silicon oxycarbide glasses obtained from preceramic hybrids aged in NH4OH. Journal of the American Ceramic Society. 1-8 - 2012, pp. 323 - 330. The American Ceramic Society, 16/10/2012. ISSN 0002-7820

DOI: 10.1111/jace.12000
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 2,169
Journal in the top 25%: Yes
Position of publication: 2
No. of journals in the cat.: 27

Source of citations: WOS
Citations: 7

Relevant results: Aging hybrid gels in ammonia not only induces structural modifications in the structural characteristics of the ceramics obtained thereof but also, the surface properties, determined by inverse gas chromatography at infinite dilution such as surface energy and the relative proportion of acid (silanol) and base (carbon) sites are strongly dependent on the aging conditions.

79 Nilo Cornejo; Luis Pascual; Aitana Tamayo; Fausto Rubio; Maria Angeles Rodriguez; Juan Rubio. Crystallization mechanism of glass-ceramics prepared from Ni-Cu-O mining wastes. Journal of Non-Crystalline Solids. 358 - 22, pp. 3028 - 3025. Elsevier, 23/08/2012. ISSN 0022-3093

DOI: 10.1016/j.jnoncrysol.2012.07.038
Type of production: Scientific paper
Position of signature: 3
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 1,492
Journal in the top 25%: Yes
Position of publication: 5
No. of journals in the cat.: 25

Source of citations: WOS
Citations: 3

Relevant results: Crystallization kinetics of iron-rich glasses obtained from mining waste revealed that the crystallization mechanism starts on the surface of the glasses. Moreove, when compared with a lab-synthesized

glass, without traces of minor imponents inherently present of the mining wastes, the higher viscosity of the natural glass induces a decrease in the crystallization temperature

80 Jose Luis Oteo; Aitana Tamayo; Fausto Rubio; Juan Rubio. Effect of Ti on the pyrolysis process of silicon oxycarbide materials. Proceedings. The Twentieth Annual Conference on Composites or Nano-engineering. ICCE-20. Materials Chemistry Simposium. Inorganic Composites.David Hui, 01/07/2012.

Type of production: Scientific paper
Format: Book
Corresponding author: Yes

81 Aitana Tamayo; Maria Alejandra Mazo; Fausto Rubio; Santiago Sanchez Cortés; Javier Sanguino; Juan Rubio. Study of the effect of the size and composition of insoluble particles in the interaction with glass frits for glass enamels development. Proceedings XII Word Congress on Ceramic Tile Quality. QUALICER 2012. Cámara de Comercio de Castellón, 01/02/2012.

Type of production: Scientific paper
Position of signature: 1
Degree of contribution: Author or co-author of chapter in book
Total no. authors: 6

82 Aitana Tamayo; Raquel Peña-Alonso; Fausto Rubio; Juan Rubio; Jose Luis Oteo. Synthesis and characterization of boron silicon oxycarbide glass fibers. Journal of Non-Crystalline Solids. 358 - 2, pp. 155 - 162. Elsevier, 15/01/2012. ISSN 0022-3093

DOI: 10.1016/j.jnoncrysol.2011.09.002
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 1,492
Journal in the top 25%: Yes
Position of publication: 5
No. of journals in the cat.: 25
Source of citations: WOS
Citations: 11

Relevant results: Different amounts of boron is incorporated into the silicon oxycarbide network and depend on the preceramic precursors. That incorporation of boron atoms leads to larger phase separation with the increase of the number of borosiloxane bridges and thus, an increase of the carbon nanodomain size.

83 Aitana Tamayo; Joanna Kyziol-Komosinska; Maria Jesus Sánchez; Pio Callejas; Juan Rubio; Maria Flora Barba. Characterization and properties of treated smectites. Journal of the European Ceramic Society. 32 - 11, pp. 2831 - 2841. Elsevier, 28/12/2011. ISSN 0955-2219

DOI: 10.1016/j.jeurceramsoc.2011.12.029
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 2,575
Journal in the top 25%: Yes
Position of publication: 1
No. of journals in the cat.: 25
Source of citations: WOS
Citations: 10

Relevant results: Surface properties of smectites subjected to acid and basic treatments have been studied by means of gas chromatography at inifinite dilution. These studies concluded that the cationic exchange capacity of

the clays was dependent on the acidity of the surface. Moreover, their content in quartz affects the nanoroughness leading to rougher surfaces with the increase of the quartz content of the smectite.

84 Aitana Tamayo; Raquel Peña-Alonso; Juan Rubio; Rishi Raj; Gian Domenico Soraru; Jose Luis Oteo. Surface Energy of Sol Gel-Derived Silicon Oxycarbide Glasses. Journal of the American Ceramic Society. 94 - 12, pp. 4523 - 4533. The American Ceramic Society, 16/09/2011. ISSN 0002-7820

DOI: 10.1111/j.1551-2916.2011.04810.x

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 2,169
Journal in the top 25%: Yes
Position of publication: 2
No. of journals in the cat.: 27
Source of citations: WOS
Citations: 9

Relevant results: The surface characterization through inverse gas chromatography of silicon oxycarbide glasses before and after HF etching evidenced that the different carbon content of the samples not only affects the relative proportion of the acid (silica-rich) and basic (carbon-rich) sites but also the surface roughness. Etched samples present layer-like structure, similar to graphite whereas unetched samples are smoother, similar to vitreous silica. The results were corroborated by Raman and DRIFT spectroscopies.

85 María Gutiérrez; Daniel Carriazo; Aitana Tamayo; Ricardo Jiménez; Fernando Picó; José María Rojo; Luisa Ferrer; Francisco del Monte. Deep-Eutectic-Solvent-Assisted synthesis of hierarchical carbon electrodes exhibiting capacitance retention at high current densities. Chemistry - A European Journal. 17 - 38, pp. 10533 - 10537. ChemPubSoc Europe, 17/08/2011. ISSN 1521-3765

DOI: 10.1002/chem.201101679

Type of production: Scientific paper
Format: Journal
Position of signature: 3
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Category: Science Edition - CHEMISTRY, MULTIDISCIPLINARY
Impact index in year of publication: 5,925
Journal in the top 25%: Yes
Position of publication: 20
No. of journals in the cat.: 154
Source of citations: WOS
Citations: 41

Relevant results: Hierarchical composite materials containing carbon nanotubes (MWCNT) present high conductivity and high surface area. The specific characteristics of prepared porous monoliths such as pore size and capacitance, make them especially suitable for being used as electrodes for supercapacitors.

86 Ascensión Murciego; Esther Álvarez-Ayuso; Encarnación Pellitero; Maria Angeles Rodríguez; Antonio García-Sánchez; Aitana Tamayo; Juan Rubio; Fausto Rubio; Javier Rubin. Study of Arsenopyrite weathering products in mine wastes from abandoned tungsten and tin exploitations. Journal of Hazardous materials. 186 - 1, pp. 590 - 601. Elsevier, 15/02/2011. ISSN 0304-3894

DOI: 10.1016/j.jhazmat.2010.11.033

Type of production: Scientific paper
Format: Journal
Position of signature: 6
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Category: Science Edition - ENVIRONMENTAL SCIENCES
Impact index in year of publication: 3,723
Journal in the top 25%: Yes
Position of publication: 18
No. of journals in the cat.: 193

Impact source: ISI
Impact index in year of publication: 3,723
Position of publication: 2
Category: Science Edition - ENGINEERING, CIVIL
Journal in the top 25%: Yes
No. of journals in the cat.: 115

Impact source: ISI
Impact index in year of publication: 3,723
Position of publication: 6
Category: Science Edition - ENGINEERING, ENVIRONMENTAL
Journal in the top 25%: Yes
No. of journals in the cat.: 45

Source of citations: WOS
Citations: 27

Relevant results: The significant content in arsenopyrite of the mining wastes from abandoned tin and tungsten exploitations lead to a large amount of As release to the environment. However, it was found that the secondary phases formed in the surrounding media (goethite and hydrous ferric oxide) display high solubility of the toxic component, that reduces the potential environmental risk of the residues generated in this industry.

87 Aitana Tamayo; Juan Rubio. Structure modification by solvent addition into TEOS/PDMS hybrid materials. Journal of Non-Crystalline Solids. 356 - 33-34, pp. 1742 - 1748. Elsevier, 16/04/2010. ISSN 0022-3093
DOI: 10.1016/j.jnoncrysol.2010.04.025
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: Yes
Impact source: ISI
Impact index in year of publication: 1,492
Position of publication: 4
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Journal in the top 25%: Yes
No. of journals in the cat.: 27
Source of citations: WOS
Citations: 8

Relevant results: It was highlighted the importance of the aging process in the structure and textural properties of the hybrid materials obtained through the sol-gel method. The hydrolysis and condensation reactions occur in a larger extent when the mobility of the molecules is increased because of the solvent addition. The different ratings in the polycondensation reactions are strongly dependent on the polarity of the solvents.

88 Aitana Tamayo; Lucia Tellez; Juan Rubio; Fausto Rubio; Jose Luis Oteo. Effect of Reaction Conditions on Surface Properties of TEOS-TBOT-PDMS Hybrid Materials. Journal of Sol-Gel Science and Technology. 55 - 1, pp. 94 - 104. Springer, 09/04/2010. ISSN 1573-4846
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Impact index in year of publication: 1,525
Position of publication: 3
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Journal in the top 25%: Yes
No. of journals in the cat.: 25
Source of citations: WOS
Citations: 3

Relevant results: The surface properties of Si- and Ti- containing hybrid materials analyzed by inverse gas chromatography at infinite dilution turns out to be dependent on the gelling time and Ti content. Whereas the dispersive component of the surface energy is influenced by the amount of PDMS incorporated into the hybrid network, the presence of Ti induces a variation on the acid and base parameters with respect to the corresponding Si-hybrid materials.

89 Lucía Téllez; Aitana Tamayo; María Alejandra Mazo; Fausto Rubio; Juan Rubio. Preparation and characterization of mixed silicon oxycarbide materials (Original title in spanish: Preparación y caracterización de materiales de oxicarburo de silicio mixtos). Boletin de la Sociedad Española de Ceramica y Vidrio. 49 - 2, pp. 105 - 112. Sociedad Española de Ceramica y Vidrio, 01/03/2010. ISSN 0366-3175

DOI: 10.1007/s10971-010-2220-y

Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 0,204
Journal in the top 25%: No
Position of publication: 20
No. of journals in the cat.: 20
Source of citations: WOS
Citations: 4

Relevant results: The sol gel method makes possible the obtaining of mixed silicon oxycarbides containing titanium, zirconium and aluminum atoms. After pyrolysis at temperatures over 1000 C, small crystals of b-SiC starts to appear in the materials with Zr and Al but not in the pure silicon oxycarbide or in the glasses where the Ti is present. However, when the pyrolysis temperature goes beyond 1300 C the appearance of b-SiC units is the most significant in the Ti-containing silicon oxycarbide glasses.

90 Juan Rubio; Aitana Tamayo; Fausto Rubio; Maria Alejandra Mazo; Sofía Pérez Villar; José Luis Oteo. Analysis of the Fictive Temperature of Glass Frits by means of Raman Spectroscopy. Proceedings XI Word Congress on Ceramic Tile Quality. QUALICER 2010. Cámara de Comercio de Castellón, 01/02/2010.

Type of production: Scientific paper
Position of signature: 2
Degree of contribution: Author or co-author of chapter in book
Total no. authors: 6

91 Aitana Tamayo; Fausto Rubio; Cristin Palencia; José Luis Oteo; Juan Rubio. Interaction between the carbon nanofibres and glass particles during glass matrix composites processing (Original title in spanish: Interacción entre nanofibras de carbono y partículas de vidrio en la preparación de composites de matriz vítrea). Actas del VIII Congreso Nacional de Materiales Compuestos. A. Güemes, 01/10/2009.

Type of production: Scientific paper
Format: Book

92 Aitana Tamayo; Lucía Téllez; Raquel Peña-Alonso; Fausto Rubio; Juan Rubio. Surface changes during pyrolitic conversion of hybrid materials to oxycarbide glasses. Journal of Materials Science. 44 - 21, pp. 5743 - 5753. Springer, 11/08/2009.

DOI: 10.1007/s10853-009-3805-0

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, MULTIDISCIPLINARY
Impact index in year of publication: 1,667
Journal in the top 25%: No
Position of publication: 72
No. of journals in the cat.: 192
Source of citations: WOS
Citations: 5

Relevant results: The values of the surface energy of Si and Ti containing hybrid materials pyrolyzed at different temperatures, from 400 0C to 1000 0C can be determined by Inverse Gas Chromatography at Infinite Dilution. It turned out that the presence of micropores at the intermediate pyrolysis temperatures are none the sole responsible of the observed increase in the surface energy but the presence of intermediate species such as hydroxyl groups bonded to Si and Ti atoms.

93 Aitana Tamayo; Sofia Perez-Villar; Fausto Rubio; Miguel Angel Rodriguez; Juan Rubio; Jose Luis Oteo. Structural characterization of glasses in the system SiO2 - B2O3- Na2O by Raman and IR spectroscopies (Original title in spanish: Caracterización estructural de vidrios del sistema SiO2- B2O3-Na2O mediante espectroscopías IR y Raman). Boletin de la Sociedad Española de Ceramica y Vidrio. 48 - 59, pp. 237 - 243. Sociedad Española de Ceramica y Vidrio, 28/07/2009. ISSN 0366-3175

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 0,350
Journal in the top 25%: No
Position of publication: 17
No. of journals in the cat.: 17
Source of citations: WOS
Citations: 5

Relevant results: The TO mode of the Si-O-Si bond in sodium silicoborate glasses is shifted to different position depending on the boron content of the glasses. Moreover, the number of Q units is also modified because of the substitution of Si atoms for B atoms in the glass network. According to these results, it was concluded that the polymerization index of the glass structure increases when the boron amount does except in the case of the glasses with the lowest boron amount.

94 Sofía Pérez-Villar; Aitana Tamayo; Maria Alejandra Mazo; Fausto Rubio; Juan Rubio. Application of the Raman and IR/ATR spectroscopies to the study of the glasses upon grinding (Original title inspanish: Aplicación de las espectroscopías IR/ATR y Raman al estudio de la superficie de vidrios sometidos a molturación). Boletin de la Sociedad Española de Ceramica y Vidrio. 47 - 2, pp. 89 - 94. Sociedad Española de Ceramica y Vidrio, 03/03/2008. ISSN 0366-3175

Handle: http://hdl.handle.net/10261/3748
Type of production: Scientific paper
Format: Journal
Position of signature: 3
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 0,531
Journal in the top 25%: No
Position of publication: 11
No. of journals in the cat.: 24
Source of citations: WOS
Citations: 4

Relevant results: Particle size influences the polymerization index of silica glass, as concluded from the position of the LO and TO modes of the Si-O-Si vibration in the Infrared spectra. The Raman spectra show a shift in the band corresponding to Qx units because of the dispersion of the Raman signal in the lowest particle size.

95 Juan Rubio; José Luis Oteo; Santiago Sanchez Cortés; Aitana Tamayo; Fausto Rubio. The use of Raman and FT-IR spectroscopies to study glass enamels. Proceedings X Word Congress on Ceramic Tile Quality. QUALICER 2008. Cámara de Comercio de Castellón, 01/02/2008.

Type of production: Scientific paper
Position of signature: 1
Degree of contribution: Author or co-author of chapter in book
Total no. authors: 6

96 Aitana Tamayo; Raquel Peña Alonso; Juan Rubio; Fausto Rubio; José Luis Oteo. Preparation of new boron-silicon oxycarbide fibres (Original title in spanish: Preparación de nuevas fibras de boro - silicio). Actas del VII Congreso Nacional de Materiales Compuestos. pp. 287 - 294. A. Güemes, 01/10/2007.

Type of production: Scientific paper
Format: Book

97 Raquel Peña-Alonso; Lucia Tellez; Aitana Tamayo; Fausto Rubio; Juan Rubio; Jose Luis Oteo. Silicon–titanium oxycarbide glasses as bimodal porous inorganic membranes. Journal of the European Ceramic Society. 27 - 2-3, pp. 969 - 973. Elsevier, 05/06/2006. ISSN 0955-2219

DOI: 10.1016/j.jeurceramsoc.2006.04.130

Type of production: Scientific paper
Format: Journal
Position of signature: 3
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 1.592
Journal in the top 25%: Yes
Position of publication: 2
No. of journals in the cat.: 28
Source of citations: WOS
Citations: 12

Relevant results: The Ti diffusivity along Si and Ti hybrid membranes is dependent on the Ti amount in the starting composition. The different diffusivity is originated by the pore size distribution in which the mesopore volume increases with the Ti content. There is also found some differences in the number of silicon oxycarbide units attributed to the presence of Ti in the network.

98 Pedro Franco; C. Concepción; Aitana Tamayo; José Vicente Corts; Juan Rubio; Raquel Peña Alonso; Fausto Rubio. Theoretical Approximation of Glaze Mechanical Strength from Infrared Spectroscopy Measurements. Proceedings IX Word Congress on Ceramic Tile Quality. QUALICER 2006. pp. 15 - 18. 01/02/2006.

Type of production: Scientific paper
Format: Scientific and technical document or report
Position of signature: 3
Degree of contribution: Author or co-author of chapter in book
Total no. authors: 7

99 Aitana Tamayo; Raquel Peña Alonso; Concepción Merino; José Luis Oteo; Fausto Rubio; Juan Rubio. An Initial Study of the Processing of Carbon Nanofibers-Silicon Oxycarbide Glass Matrix Composites for High Temperature Applications. Proceedings VI National Congress on Composite Materials. pp. 389 - 396. Valencia Polytech. University, 01/06/2005. ISBN 84-9705-821-6

Type of production: Scientific paper
Format: Book
Position of signature: 1
Total no. authors: 6

100 Juan Rubio; Fausto Rubio; Maria Alejandra Mazo; Raquel Peña Alonso; David Soriano; Aitana Tamayo; José Luis Oteo. Hybrid Nanocomposites. New Materials of Low Density and High Thermal Resistance. Proceedings VI National Congress on Composite Materials. pp. 1030 - 1040. Valencia Polytech. University, 01/06/2005. ISBN 84-9705-821-6

Type of production: Scientific paper
Format: Book
Position of signature: 5
Total no. authors: 5

101 Raquel Peña-Alonso; Aitana Tamayo; Fausto Rubio; Juan Rubio. Influence of boron concentration on the surface properties of TEOS-PDMS hybrid materials. Journal of Sol-Gel Science and Technology. 36, pp. 113 - 124. Springer, 25/05/2005. ISSN 1573-4846

DOI: 10.1007/s10971-005-2498-3

Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, CERAMICS
Impact index in year of publication: 1.219
Journal in the top 25%: Yes
Position of publication: 4
No. of journals in the cat.: 25

Source of citations: WOS **Citations:** 6

Relevant results: The surface energy, studied by inverse gas chromatography at infinite dilution, pore size dstribution and specific surface area, determined by mercury intrusion porosimetry and nitrogen adsorption measurements, respectively are directly dependent on the concentration of triethyl borate added during the synthesis of TEOS/PDMS hybrid materials. The B is not fully incorporated into the hybrid network and forms small precipitates in the surface that strongly affects the surface properties of the obtained hybrids.

102 Mª Angeles Rodriguez; Lucía Salvador; Fausto Rubio; Carmen Arroyo; Aitana Tamayo. Lotus flower biomimetics: Design of self-cleaning surfaces. Development of new nanometric coatings (Original title in spanish: Biomimética de la flor de loto: diseño de superficies autolimpiables. Desarrollo de nuevos recubrimientos nanométricos). pp. 1 - 112. Editorial Académica Española, 06/05/2017. ISBN 978-3-659-65253-0

Type of production: Scientific book or monograph **Format:** Book
Degree of contribution: Author or co-author of entire book
Corresponding author: No
Relevant publication: No

103 Mª Angeles Rodríguez; Aitana Tamayo; Carmen Arroyo; Sara García; Fausto Rubio. Design of new materials for construction sector. Ornamental rock waste recycling (Original title in spanish: Diseño de nuevos materiales en el sector de la construcción. Reciclado de residuos de roca ornamental). pp. 1 - 85. Editorial Académica Española, 17/02/2017. ISBN 978-620-2-11954-2

Type of production: Scientific book or monograph **Format:** Book
Degree of contribution: Author or co-author of entire book
Corresponding author: No

104 Mª Angeles Rodríguez; Carmen Arroyo; Aitana Tamayo; Fausto Rubio; Alejandro Oreja. New materials for solar receivers (Original title in Spanish: Nuevos materiales para receptores solares). pp. 1 - 96. Editorial Académica Española, 17/02/2017. ISBN 978-3-8417-5888-0

Type of production: Scientific book or monograph **Format:** Book
Degree of contribution: Author or co-author of entire book
Corresponding author: No

105 Mª Angeles Rodríguez; Carmen Arroyo; Fausto Rubio; Aitana Tamayo; A. Martorán. Pigmentation of reinforced polymers with rock residues (Original title in Spanish: Pigmentación de polímeros reforzados con residuos pétreos). pp. 1 - 71. Editorial Académica Española, 03/10/2016. ISBN 978-3-639-60231-9

Type of production: Scientific book or monograph **Format:** Book
Degree of contribution: Author or co-author of entire book
Corresponding author: No

106 Araceli Martin; Fernando Notario; Raul Cazorla; Roberto Ruiz; Cristina Bonferoni; Aitana Tamayo; M. Dolores Veiga. Bigels as Drug Delivery Systems: from their Components to their Application. Drug Discovery Today. In Press, Elsevier, 20/12/2021.

DOI: 10.1016/j.drudis.2021.12.011
Type of production: Review **Format:** Journal
Position of signature: 6 **Degree of contribution:** Author or co-author of review
Total no. authors: 7 **Corresponding author:** No
Impact source: ISI **Category:** Science Edition - PHARMACOLOGY & PHARMACY
Impact index in year of publication: 7.851 **Journal in the top 25%:** Yes
Position of publication: 12 **No. of journals in the cat.:** 276

Relevant results: Bigels are systems that usually result from mixing a hydrogel and an organogel: the aqueous phase is commonly formed by a hydrophilic biopolymer, whereas the organic phase comprises a gelled vegetable

oil because of the presence of an organogelator. The proportion of the corresponding gelling agent in each phase, the organogel/hydrogel ratio, and the mixing temperature and speed all need to be taken into consideration for bigel manufacturing. Bigels, which are particularly useful drug delivery systems, have already been formulated for transdermal, buccal, and vaginal routes. Mechanical assessments and microscopy are the most reported characterization techniques. As we review here, their composition and unique structure confer promising drug delivery attributes, such as mucoadhesion, the ability to control drug release, and the possibility of including both hydrophilic and lipophilic drugs in the same system.
Relevant publication: No

107 Aitana Tamayo. Análisis de las interacciones barniz-pintura acrílica. 2016.
Type of production: Scientific-technical report **Format:** Scientific and technical document or report
Degree of contribution: Author or co-author of reserved scientific or technical document
Relevant results: It was studied the influence of the hardener on the surface of paints before and after aplying the varnishes

108 Aitana Tamayo. Análisis de tarros de vidrio para conservas. 2016.
Type of production: Scientific-technical report **Format:** Scientific and technical document or report
Degree of contribution: Author or co-author of reserved scientific or technical document
Relevant results: It was analyzed the cause of failures in glass containers

109 Aitana Tamayo. Anti-freezing and anti-icing tests of different products in rolling parts of train vehicles (Original title in spanish; Ensayos de productos para deshielo y anti-hielo en rodadura con cambio de ancho). 2014.
Type of production: Scientific-technical report
Degree of contribution: Author or co-author of scientific or technical document for the general public
Relevant results: Different commercially available products with potential functionalities as anti-icing and de-icing properties were tested. A batch of test was defined to simulate different icing conditions at temperatures ranged from 0 to -40 C

110 Aitana Tamayo. Sand blast abrasion test in glass surfaces. 2014.
Type of production: Scientific-technical report **Format:** Scientific and technical document or report
Degree of contribution: Author or co-author of reserved scientific or technical document
Relevant results: Glass surfaces and transparent coatings in glass windows were subjected to sand blasting tests. It was studied the effect of varying impact angle of the sand granules and its impact force as well.

111 Aitana Tamayo. Characterization of carbon used in drinking water treatment plant (Original title in spanish: Caracterización de Carbones utilizados en estaciones de tratamiento de agua potable). 2011.
Type of production: Scientific-technical report **Format:** Scientific and technical document or report
Degree of contribution: Author or co-author of reserved scientific or technical document
Relevant results: Different carbons used in drinking water treatment plants in Madrid (Spain) were analyzed. The results of the structural characterization, particle size analysis and surface properties were included in the report.

Works submitted to national or international conferences

1 **Title of the work:** Advances in carbide and oxycarbide derived carbons obtained from preceramic polymers
Name of the conference: XVIII Conference & Exhibition of the European Ceramic Society
Corresponding author: Yes
City of event: Lyon, France
Date of event: 02/07/2023
End date: 06/07/2023
Organising entity: The European Ceramic Society
A. Tamayo; M.A. Mazo; MªA. Rodriguez; F. Rubio; J. Rubio.

2 **Title of the work:** PROCESO FENTON CON VIDRIOS OBTENIDOS A PARTIR DE LODOS DE ETAP
Name of the conference: X Simposio Iberoamericano de Ingeniería de Residuos
Corresponding author: Yes
City of event: Castellón, Valencian Community, Spain
Date of event: 20/06/2023
End date: 22/06/2023
Organising entity: Universitat Jaume I
M. Amado; Z. Martínez; J.A. Casas; J. Rubio; A. Tamayo. "Conference Proceedings".

3 **Title of the work:** Polymer Derived Ceramic particles capped with hyaluronic acid nanogates for the smart release of antiviral drugs
Name of the conference: 47h International Conference and Exposition on Advanced Ceramics and Composites
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Daytona beach, United States of America
Date of event: 22/01/2023
End date: 27/01/2023
Organising entity: The American Ceramic Society
Type of entity: Administrative Body of the National Health System
With external admission assessment committee: Yes
Miryam Garcés; Araceli Martin Illana; Raul Cazorla Luna; Fernando Notario; Maria Dolores Veiga; Juan Rubio; Aitana Tamayo. En: Abstracts.

4 **Title of the work:** Study of the influence of the vitreous environment on the bactericidal property of ceramic glazes
Name of the conference: The World Congress on Ceramic Tile Quality
Corresponding author: No
City of event: Castellon, Spain
Date of event: 20/06/2022
End date: 22/06/2022
O. Ruiz; A. Tamayo; J. Rubio; F. Rubio; S. Burgui; R. Bueno; J. Palomares. "Proceedings of The World Congress on Ceramic Tile Quality".

5 **Title of the work:** Defective structure of nitrogen-doped carbons obtained through pyrolysis/ammonolysis of preceramic polymers
Name of the conference: 46th International Conference and Exposition on Advanced Ceramics and Composites
Type of event: Conference
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Daytona Beach (Virtual), United States of America
Date of event: 24/01/2022
End date: 28/01/2022
Organising entity: The American Ceramic Society
Aitana Tamayo; Berta Perez; Fausto Rubio; MªAngeles Rodriguez; Juan Rubio.

6 **Title of the work:** BRAKETYRE: Uso de polvo de caucho procedente de neumáticos en pastillas de freno
Name of the conference: Jornadas de Reciclaje de la Sociedad Lationamericana del Caucho
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Virtual, Argentina
Date of event: 10/11/2021
End date: 11/11/2021
Organising entity: Sociedad Lationamericana del Caucho
Type of entity: Associations and Groups
Publication in conference proceedings: Yes
With external admission assessment committee: Yes
Type of contribution: Scientific paper
Aitana Tamayo; Juan Rubio; Fausto Rubio; Roberto Perez Aparicio; Leticia Saiz Rodriguez. En: Proceedings.

7 **Title of the work:** Surface functionalization of highly porous ceramers with high loading and releasing capabilities of antiviral drugs to obtain a smart response in vaginal media
Name of the conference: 8th International Congress on Ceramics
Corresponding author: Yes
City of event: Virtual, Republic of Korea
Date of event: 25/04/2021
End date: 30/04/2021
Organising entity: Korean Ceramic Society
Type of entity: Associations and Groups
Aitana Tamayo; Araceli Martin; Raul Cazorla; Fernando Notario; Juan Rubio; Maria Dolores Veiga.

8 **Title of the work:** Micro-Mesoporous carbide derived carbon as electrodes in sweat-based supercapacitors for electronic textiles
Name of the conference: 45th International Conference and Exposition on Advanced Ceramics and Composites
Corresponding author: Yes
City of event: Virtual, United States of America
Date of event: 02/02/2021
End date: 08/02/2021
Organising entity: The American Ceramic Society
Type of entity: Associations and Groups
Aitana Tamayo; Berta Perez; Fausto Rubio; MªAngeles Rodriguez; Juan Rubio.

9 **Title of the work:** Structural and electrochemical characteristics of (OXY)CARBIDE DERIVED CARBONS obtained through wet and dry etching of polymer derived ceramics
Name of the conference: 44th International Conference and Exposition on Advanced Ceramics and Composites
Corresponding author: Yes
City of event: Daytona Beach, United States of America
Date of event: 26/01/2020
End date: 31/01/2020
Organising entity: The American Ceramic Society
Type of entity: Associations and Groups
Aitana Tamayo; Araceli Martin; Raul Cazorla; Fernando Notario; Juan Rubio; Maria Dolores Veiga.

10 **Title of the work:** Sustained release of antiviral drugs in surface functionalized organic-inorganic hybrid particles
Name of the conference: 44th International Conference and Exposition on Advanced Ceramics and Composites
Corresponding author: Yes
City of event: Daytona Beach, United States of America
Date of event: 26/01/2020
End date: 31/01/2020
Organising entity: The American Ceramic Society **Type of entity:** Associations and Groups
Aitana Tamayo; MªAngeles Rodriguez; María Alejandra Mazo; Fausto Rubio; Juan Rubio.

11 **Title of the work:** Sol-gel oxycarbide derived carbons developed through chemical and chlorine etching and their electrochemical characteristics
Name of the conference: 2nd Global fórum on Advanced Materials and Technologies for Sustainable Develompent
Type of event: Conference **Geographical area:** Non EU International
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
Corresponding author: Yes
City of event: Toronto, Canada
Date of event: 21/07/2019
End date: 26/07/2019
Organising entity: The American Ceramic Society **Type of entity:** Associations and Groups
A. Tamayo; J. Rubio; M.A. Mazo; F. Rubio.

12 **Title of the work:** Structural and electrochemical characterization of cobalt-containing carbons derived from carbides through chlorine etching
Name of the conference: XVI European Ceramic Society Conference
Type of event: Conference **Geographical area:** Non EU International
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
Corresponding author: Yes
City of event: Torino, Italy
Date of event: 16/06/2019
End date: 21/06/2019
Organising entity: European Ceramic Society
With external admission assessment committee: Yes
A. Tamayo; MªA. Rodriguez; M.A. Mazo; F. Rubio.

13 **Title of the work:** Revealing interface characteristics of sol-gel derived SiOC glasses through bulk and surface characterization
Name of the conference: 43rd International Conference and Exposition on Advanced Ceramics and Composites (ICACC 2019)
Type of event: Conference
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
City of event: Daytona Beach, United States of America
Date of event: 27/01/2019
End date: 01/02/2019
Organising entity: American Ceramic Society **Type of entity:** Associations and Groups
Aitana Tamayo; Fausto Rubio; Alejandra Mazo; Juan Rubio.

14 **Title of the work:** Performance of Co@CNOs prepared from Co-containing preceramic polymers as supercapacitor electrodes
Name of the conference: Materials Challenges in Alternative and Renewable Energy, MCARE 2018
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Vancouver, Canada
Date of event: 19/08/2018
End date: 23/08/2018
Organising entity: American Ceramic Society
Aitana Tamayo; Fausto Rubio; M. Teresa Colomer; MªAngeles Rodriguez.

15 **Title of the work:** CO2/H2O thermochemical splitting on porous SiOC nanocomposites decorated with 1D catalytic nanostructures
Name of the conference: 14th International Ceramics Congress, CIMTEC
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Perugia, Italy
Date of event: 04/06/2018
End date: 14/06/2018
Organising entity: Council World Academy of Ceramics
Aitana Tamayo; Eva Casado; Beatriz Garcia.

16 **Title of the work:** CO2/H2O thermochemical splitting on porous SiOC/LSMO nanocomposites
Name of the conference: 9th International conference on Advanced Nanomaterials
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Aveiro, Portugal
Date of event: 19/07/2017
End date: 21/07/2017
Organising entity: University of Aveiro
Type of entity: University
Aitana Tamayo; Beatriz Garcia; Eva Casado.

17 **Title of the work:** Thermochemical behavior of porous SiOC/LSMO nanocomposites with 1D nanostructures for syngas production
Name of the conference: 15th Conference & Exhibition of the European Ceramic Society
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Budapest, Hungary
Date of event: 09/07/2017
End date: 13/07/2017
Organising entity: European Ceramic Society
Aitana Tamayo; Eva Casado; Beatriz Garcia.

18 **Title of the work:** Coatings of solid pharmaceutical Tenofovir formulations based on silicon oxycarbide particles to prevent VIH transmission (Original title in Spanish: Recubrimiento de formas farmacéuticas sólidas de Tenofovir basadas en partículas de oxicarburo de silicio para prevenir la transmisión sexual de VIH)
Name of the conference: XIII Congreso de la sociedad Española de Farmacia Industrial y Galénica
Type of event: Conference
Geographical area: National
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: No
City of event: Alcalá de Henares, Community of Madrid, Spain
Date of event: 23/01/2017
End date: 25/01/2017
Organising entity: Sociedad Española de Farmacia Industrial y Galénica
Araceli Martín-Illana; Raúl Cazorla-Luna; Fernando Notario-Pérez; Roberto Ruiz-Caro; Aitana Tamayo; Maria Dolores Veiga-Ochoa.

19 **Title of the work:** Advanced glass-matrix nanocomposites as CO2 thermocatalysts (Original title in spanish: Nanocomposites avanzados de matriz vítrea para termocatálisis de CO2)
Name of the conference: LV Congreso Nacional de la SECV
Type of event: Conference
Geographical area: National
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Sevilla, Spain
Date of event: 05/10/2016
End date: 07/10/2016
Organising entity: SOCIEDAD ESPAÑOLA DE CERAMICA Y VIDRIO
With external admission assessment committee: Yes
A. Tamayo; E.Casado. "Abstracts".

20 **Title of the work:** Carbon nanofiber growth form methane over a porous glass containing nickel catalyst (original title in spanish: Crecimiento de nanofibras de carbono a partir de metano sobre un vidrio poroso que soporta el catalizador de níquel)
Name of the conference: LV Congreso Nacional de la SECV
Type of event: Conference
Geographical area: National
Type of participation: 'Participatory - poster
City of event: Sevilla, Spain
Date of event: 05/10/2016
End date: 07/10/2016
Organising entity: SOCIEDAD ESPAÑOLA DE CERAMICA Y VIDRIO
With external admission assessment committee: Yes
Maria Alejandra Mazo; Javier Sanguino; Aitana Tamayo; Juan Rubio.

21 **Title of the work:** Coated solid formulations for vaginal application based on silicon oxycarbide for HIV prevention (Original title in spanish: Formulaciones sólidas recubiertas de administración vaginal basadas en oxicarburo de silicio para la prevención del VIH)
Name of the conference: LV Congreso Nacional de la SECV
Type of event: Conference
Geographical area: National
Type of participation: 'Participatory - poster
City of event: Sevilla, Spain
Date of event: 05/10/2016
End date: 07/10/2016
Organising entity: SOCIEDAD ESPAÑOLA DE CERAMICA Y VIDRIO

With external admission assessment committee: Yes
Araceli Martín Illana; Fernando Notario Pérez; Raul Cazorla Luna; Aitana Tamayo; Juan Rubio; Roberto Ruiz Caro; Maria Dolores Veiga Ochoa.

22 **Title of the work:** Development of medicamentous films based on mesoporous silica for vadinal admisnitration of Tenofovir (Original title in spanish: Desarrollo de films medicamentosos basados en sílice mesoporosa para la administración vaginal de Tenofovir)
Name of the conference: LV Congreso Nacional de la SECV
Type of event: Conference **Geographical area:** National
Type of participation: 'Participatory - poster
City of event: Sevilla, Spain
Date of event: 05/10/2016
End date: 07/10/2016
Organising entity: SOCIEDAD ESPAÑOLA DE CERAMICA Y VIDRIO
With external admission assessment committee: Yes
Fernando Notario Pérez; Raul Cazorla Luna; Araceli Martín Illana; Aitana Tamayo; Juan Rubio; Roberto Ruiz Caro; Maria Dolores Veiga Ochoa.

23 **Title of the work:** Influence of the glass composition on the surface adsorption of spiruline (Original title in spanish: Influencia del tipo de vidrio en la adsorción de espirulina en su superficie)
Name of the conference: LV Congreso Nacional de la SECV
Type of event: Conference **Geographical area:** National
Type of participation: 'Participatory - poster
City of event: Sevilla, Spain
Date of event: 05/10/2016
End date: 07/10/2016
Organising entity: SOCIEDAD ESPAÑOLA DE CERAMICA Y VIDRIO
With external admission assessment committee: Yes
Daniel Calvo; Luis Pascual; Maria Alejandra Mazo; Aitana Tamayo; Juan Rubio.

24 **Title of the work:** Synthesis and characterization of thermochemical materials as thermal storage systems in solar plants (Original title in spanish: Síntesis y caracterización de materiales termoquímicos como sistemas de almacenamiento térmico en centrales solares)
Name of the conference: LV Congreso Nacional de la SECV
Type of event: Conference **Geographical area:** National
Type of participation: 'Participatory - poster
City of event: Sevilla, Spain
Date of event: 05/10/2016
End date: 07/10/2016
Organising entity: SOCIEDAD ESPAÑOLA DE CERAMICA Y VIDRIO
With external admission assessment committee: Yes
Maria Angeles Rodríguez; Aitana Tamayo; Maria Carmen Arroyo; Miguel Angel Hoyas; Juan Rubio; Fausto Rubio.

25 **Title of the work:** Tenofovir vaginal mucoadhesive matrix systems based on mesostructured silica for HIV prevention (original title in spanish: Sistemas matriciales mucoadhesivos vaginales de Tenofovir basados en sílice mesoestructurada para la prevención de la transmisión sexual del VIH)
Name of the conference: LV Congreso Nacional de la SECV
Type of event: Conference **Geographical area:** National
Type of participation: 'Participatory - poster
City of event: Sevilla, Spain
Date of event: 05/10/2016

End date: 07/10/2016
Organising entity: SOCIEDAD ESPAÑOLA DE CERAMICA Y VIDRIO
With external admission assessment committee: Yes
Raul Cazorla Luna; Araceli Martín Illana; Fernando Notario Pérez; Aitana Tamayo; Juan Rubio; Roberto Ruiz Caro; Maria Dolores Veiga Ochoa.

26 **Title of the work:** Evaluation of the thermal behavior of silicon oxycarbide receivers against concentrated solar radiation
Name of the conference: 9th International Conference on High Temperature Ceramic Matrix Composites
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Toronto, Canada
Date of event: 26/06/2016
End date: 01/07/2016
Organising entity: The American Ceramic Society
A. Tamayo; M.A. Mazo; A. Delgado; I. Padilla; F. Rubio; J. Rubio. "Abstracts".

27 **Title of the work:** Mesoporous Ce-containing silicon oxycarbonitride nanocomposite membranes for green fuel generation
Name of the conference: 9th International Conference on High Temperature Ceramic Matrix Composites
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Toronto, Canada
Date of event: 26/06/2016
End date: 01/07/2016
Organising entity: The American Ceramic Society
A. Tamayo; B. García-Sanchez. "Abstracts".

28 **Title of the work:** New Developments in silicon based ceramics for advanced solar receivers
Name of the conference: 2016 E-MRS Spring Meeting and Exhibit
Type of event: Conference
Type of participation: Participatory - invited/keynote talk
Reasons for participation: Upon invitation
Corresponding author: Yes
City of event: Lille, France
Date of event: 02/05/2016
End date: 06/05/2016
Organising entity: European Materials Research Society
A. Tamayo; M.A. Mazo; J. Rubio. "Abstracts".

29 **Title of the work:** Current status of women regarding HIV: Microbiocides as a tool for prevention (Original title in spanish: Situación actual de la mujer frente al VIH: Microbiocidas como herramienta de prevención de la transmisión)
Name of the conference: X Congreso Nacional de investigación para alumnos pregraduados en Ciencias de la Salud
Type of event: Conference
Geographical area: National
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Madrid,

Date of event: 23/04/2016
Organising entity: Universidad Complutense de Madrid
Type of entity: University
A. Martínez; M. Franco; M.A. Ballesteros; F. Notario.; Aitana Tamayo.

30 **Title of the work:** Development of vaginal formulations based on silicon oxycarbide for HIV prevention (Original title in spanish: Desarrollo y formulaciones vaginales basadas en oxicarburo de silicio para la prevención del VIH)
Name of the conference: X Congreso Nacional de investigación para alumnos pregraduados en Ciencias de la Salud
Type of event: Conference
Geographical area: National
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Madrid, Community of Madrid, Spain
Date of event: 23/04/2016
Organising entity: Universidad Complutense de Madrid
Type of entity: University
F. Notario; A. Martín-Illana; R. Cazorla.; Aitana Tamayo.

31 **Title of the work:** Silicon oxycarbide glass particles loaded with tenofovir for mucoadhesive vaginal formulations
Name of the conference: IX International Forum on Advances in Pharmaceutical Technology
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
Corresponding author: No
City of event: Santiago de Compostela, Galicia, Spain
Date of event: 05/11/2015
End date: 06/11/2015
Organising entity: CATEDRA IBEROAMERICANA-SUIZA DE DESARROLLO DE MEDICAMENTOS
Type of entity: Associations and Groups
Araceli Martin Illana; R Cazorla Luna; F Notario Perez; Aitana Tamayo; Maria Alejandra Mazo; Juan Rubio; Roberto Ruiz Caro; Maria Dolores Veiga Ochoa.

32 **Title of the work:** Eco-friendly laser assisted synthesis of SiOC glass nanoparticles used as drug controlled carriers
Name of the conference: 14th Conference of the European Ceramic Society. ECerS XIV
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Toledo, Castile-La Mancha, Spain
Date of event: 21/06/2015
End date: 25/06/2015
Organising entity: European Ceramic Society
Type of entity: Associations and Groups
With external admission assessment committee: Yes
Juan Rubio; Luis Pascual; Maria Alejandra Mazo; Maria Dolores Veiga Ochoa; Roberto Ruiz Caro; Aitana Tamayo.

33 **Title of the work:** High-temperature thermochemical ceramics for solar thermal storage systems
Name of the conference: 14th Conference of the European Ceramic Society. ECerS XIV
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Toledo, Castile-La Mancha, Spain
Date of event: 21/06/2015
End date: 25/06/2015
Organising entity: European Ceramic Society
Type of entity: Associations and Groups
With external admission assessment committee: Yes
Fausto Rubio; Maria Angeles Rodriguez; Aitana Tamayo.

34 **Title of the work:** New Glass Fertilisers for Tomato Crops that reduce the Environmental Impact
Name of the conference: 14th Conference of the European Ceramic Society. ECerS XIV
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Toledo, Castile-La Mancha, Spain
Date of event: 21/06/2015
End date: 25/06/2015
Organising entity: European Ceramic Society
Type of entity: Associations and Groups
With external admission assessment committee: Yes
Nilo Cornejo; Aitana Tamayo; Juan Rubio.

35 **Title of the work:** Porous ceramic solar heat absorbers of a SiOCN composition
Name of the conference: 14th Conference of the European Ceramic Society. ECerS XIV
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: No
City of event: Toledo, Castile-La Mancha, Spain
Date of event: 21/06/2015
End date: 25/06/2015
Organising entity: European Ceramic Society
Type of entity: Associations and Groups
With external admission assessment committee: Yes
Aitana Tamayo; Maria Alejandra Mazo; Nilo Cornejo; Juan Rubio.

36 **Title of the work:** Silicon oxycarbide glass particles as controlled release systems for drug mucoadhesive formulations
Name of the conference: 14th Conference of the European Ceramic Society. ECerS XIV
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
Corresponding author: No
City of event: Toledo, Castile-La Mancha, Spain
Date of event: 21/06/2015
End date: 25/06/2015
Organising entity: European Ceramic Society
Type of entity: Associations and Groups
With external admission assessment committee: Yes

Araceli Martín Illana; Maria Paulina Sanchez Sanchez; Roberto Ruiz Caro; Aitana Tamayo; Maria Alejandra Mazo; Juan Rubio; Maria Dolores Veiga Ochoa.

37 **Title of the work:** Carbon incorporation into the silicon oxycarbide glass matrix (original title in spanish: Incorporación de carbono en la red vítrea de vidrios de oxicarburo de silicio)
Name of the conference: LIV Congreso Anual de la Sociedad Española de Cerámica y Vidrio
Type of event: Conference
Geographical area: National
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Badajoz, Spain
Date of event: 19/11/2014
End date: 22/11/2014
Organising entity: SOCIEDAD ESPAÑOLA DE CERAMICA Y VIDRIO
Maria Alejandra Rodriguez; Aitana Tamayo; Fausto Rubio; Juan Rubio.

38 **Title of the work:** Elimination of water pollutants with tanin-TEOS based materials (Original title in spanish: Eliminación de contaminantes en agua a partir de materiales basados en taninos y TEOS)
Name of the conference: LIV Congreso Anual de la Sociedad Española de Cerámica y Vidrio
Type of event: Conference
Geographical area: National
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Badajoz, Spain
Date of event: 19/11/2014
End date: 22/11/2014
Organising entity: SOCIEDAD ESPAÑOLA DE CERAMICA Y VIDRIO
Maria Angeles Rodriguez; Aitana Tamayo; J. Beltrán-Heredia; J. Sánchez-Martín; Juan Rubio; Fausto Rubio.

39 **Title of the work:** Silicon oxycarbide glasses modified with silver for solar colector applications (Original title in spanish: Vidrios de oxicarburos de silicio modificados con plata para su utilización en colectores solares)
Name of the conference: LIV Congreso Anual de la Sociedad Española de Cerámica y Vidrio
Type of event: Conference
Geographical area: National
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Badajoz, Spain
Date of event: 19/11/2014
End date: 22/11/2014
Organising entity: SOCIEDAD ESPAÑOLA DE CERAMICA Y VIDRIO
Juan Rubio; Maria Angeles Rodriguez; Alejandro Oreja; Aitana Tamayo; Fausto Rubio.

40 **Title of the work:** Innovative and advanced materials research for high temperature solar receivers
Name of the conference: International Conference on Solar Energy and Buildings
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Aix-les-Bains, France
Date of event: 16/09/2014
End date: 19/09/2014
Organising entity: International Special Events Society
Type of entity: Business
Fritz Zaversky; Fabienne Sallaberry; David Morris; M Alejandra Mazo; Aitana Tamayo; R. Casasola-Rios; J.A. Rodriguez-Cortes.

41 **Title of the work:** Silicon oxycarbide nanoparticles as new drug delivery materials for infectious disease treatments
Name of the conference: NanoSD Security & Defense Congress
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Avila, Castile and León, Spain
Date of event: 16/09/2014
End date: 19/09/2014
Organising entity: FUNDACION PHANTOMS
Aitana Tamayo; Juan Rubio; Maria Dolores Veiga-Ochoa.

42 **Title of the work:** Towards standard testing materials for high temperature solar receivers
Name of the conference: SolarPACES 2014. Concentrating Solar Power and Chemical Energy Systems
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Beijing, China
Date of event: 16/09/2014
End date: 19/09/2014
Organising entity: Solar Power and Chemical Energy Systems
Type of entity: Associations and Groups
With external admission assessment committee: Yes
Type of contribution: Scientific paper
Fabienne Sallaberry; A. Garcia de Jalon; Fritz Saversky; Alfonso Vazquez; Aurora Lopez-Delgado; Aitana Tamayo; M Alejandra Mazo. "Towards standard testing materials for high temperature solar receivers". En: Energy Procedia. 2015.

43 **Title of the work:** Systematic characterization of prebetic flint from Serreta as primary raw lithic material in Middle Palaeolithic sites of El Salt and Abric del Pastor (Alicante, Spain)
Name of the conference: XVII World Union International de Sciences Prehistoriques et Protohistoriques (UISPP) Congress
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Burgos, Spain
Date of event: 01/09/2014
End date: 07/09/2014
Organising entity: Fundación Atapuerca
Type of entity: Foundation
Aitana Tamayo; Andoni Tarriño; Francisco Javier Molina; Jorge Machado; Cristo Manuel Hernandez; Bertila Galvan.

44 **Title of the work:** Porous silicon oxycarbonitride glasses for solar applications
Name of the conference: XXIII International Materials Research Congress
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Cancun, Mexico
Date of event: 17/08/2014
End date: 21/08/2014
Organising entity: Sociedad Mexicana de Materiales **Type of entity:** Associations and Groups

Jose Luis Oteo; Aitana Tamayo; M Alejandra Mazo; Juan Rubio.

45 **Title of the work:** Heat Exchange filters of silicon oxycarbonitride glasses
Name of the conference: 13th International Ceramics Congress
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Montecattini Terme, Italy
Date of event: 08/06/2014
End date: 13/06/2014
Organising entity: World Academy of Ceramics
Type of entity: Associations and Groups
Aitana Tamayo; M Alejandra Mazo; Lorena Vivanco; Juan Rubio; Fausto Rubio.

46 **Title of the work:** Effect of the use of glass from mining waste on glaze properties
Name of the conference: XIII World Congress on Ceramic Tile Quality. QUALICER 2014
Type of event: Conference
Geographical area: Non EU International
Reasons for participation: Review before acceptance
City of event: Castellón, Spain
Date of event: 17/02/2014
End date: 18/02/2014
Organising entity: Cámara de Comercio de Castellón
Nilo Felipe Cornejo; Maria Alejandra Mazo; Aitana Tamayo; Luis Pascual; Fausto Rubio; Juan Rubio.

47 **Title of the work:** Hybrid coatings for efficient reduction in the ice accretion on wind turbine blades
Name of the conference: International Sol-Gel Conference
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Madrid, Spain
Date of event: 25/08/2013
End date: 30/08/2013
Organising entity: International Sol-Gel Society
Type of entity: Associations and Groups
Aitana Tamayo; Raul Aguirre; Maria Alejandra Mazo; David Soriano; Lorena Vivancos; Fausto Rubio.

48 **Title of the work:** Micro and mesoporous SiTiOC and SiZrOC with enhanced thermal and mechanical properties
Name of the conference: 13th Conference of the European Ceramic Society. ECerS XIII
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Limoges, France
Date of event: 23/06/2013
End date: 27/06/2013
Organising entity: The European Ceramics Society
Aitana Tamayo; Maria Alejandra Mazo; David Soriano; Carmen Piñero; Fausto Rubio; Juan Rubio.

49 **Title of the work:** Silicon oxycarbide glasses as a wear protective materials
Name of the conference: 19th International Conference on Wear of Materials
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
City of event: Portland, United States of America

Date of event: 14/04/2013
End date: 18/04/2013
Organising entity: Elsevier **Type of entity:** Business
Maria Alejandra Mazo; Aitana Tamayo; Fausto Rubio; Juan Rubio; José Luis Oteo.

50 **Title of the work:** Synthesis and characterization of multifunctionalized silicon oxycarbide nanoparticles
Name of the conference: International Conference and Workshop on Nanostructured Ceramics and other Nanomaterials
Type of event: Conference **Geographical area:** Non EU International
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
City of event: Delhi, India
Date of event: 13/03/2013
Organising entity: University of Delhi **Type of entity:** University
City organizing entity: Delhi, India
Aitana Tamayo; Fausto Rubio; Juan Rubio; Jose L Oteo.

51 **Title of the work:** Effect of the composition and reaction conditions onthe surface modification of glass particles with coupling agents (Original title in spanish: Efecto de la composición y condiciones de reacción en la modificación superficial de vidrios con agentes de acoplamiento)
Name of the conference: LII Congreso anual de la Sociedad Española de Cerámica y Vidrio
Type of event: Conference **Geographical area:** National
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Burgos, Castile and León, Spain
Date of event: 03/10/2012
End date: 06/10/2012
Organising entity: SOCIEDAD ESPAÑOLA DE CERAMICA Y VIDRIO
Aitana Tamayo; Francisco Muñoz Muñiz; Carmen Piñero; Fausto Rubio; Juan Rubio.

52 **Title of the work:** Effect of Ti on the Pyrolysis Process of Silicon Oxycarbide Materials
Name of the conference: The Twentieth Annual International Conference on Composites / Nano Engineering
Type of event: Conference **Geographical area:** Non EU International
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
City of event: Beijing, China
Date of event: 22/07/2012
End date: 28/07/2012
Organising entity: Beijing University of Chemical Technology **Type of entity:** University
With external admission assessment committee: Yes
José Luis Oteo; Aitana Tamayo; Fausto Rubio; Juan Rubio. "Proceedings". En: Proceedings. The Twentieth Annual Conference on Composites or Nano-engineering. ICCE-20. Materials Chemistry Simposium. Inorganic Composites.

53 **Title of the work:** Study of the effect of the size and composition of insoluble particles in the interaction with glass frits for glass enamels development
Name of the conference: XII World Congress on Ceramic Tile Quality. QUALICER 2012
Type of event: Conference **Geographical area:** Non EU International
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance

City of event: Castellón, Valencian Community, Spain
Date of event: 13/02/2012
End date: 14/02/2012
Organising entity: Cámara de Comercio de Castellón
With external admission assessment committee: Yes
Aitana Tamayo; María Alejandra Mazo; Fausto Rubio; Santiago Sánchez-Cortés; Javier Sanguino; Juan Rubio. "Abstracts".

54 **Title of the work:** Silicon oxycarbide-based porous ceramics as volumetric air receivers
Name of the conference: Trento Innovation Conferences on Materials Engineering
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Trento, Italy
Date of event: 12/12/2011
End date: 14/12/2011
Organising entity: Università Degli Studi di Trento
Type of entity: University
City organizing entity: Trento, Italy
With external admission assessment committee: Yes
Aitana Tamayo; Fausto Rubio; José Luis Oteo; Juan Rubio. "Abstracts".

55 **Title of the work:** Oxidized silicon oxycarbide glasses as anodes in lithium ion batteries
Name of the conference: The 9th International meeting of Pacific rim ceramic societies
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Cairns, Australia
Date of event: 10/07/2011
End date: 14/07/2011
Organising entity: The Australian Ceramic Society
Type of entity: Associations and Groups
With external admission assessment committee: Yes
Aitana Tamayo; Juan Rubio; Mónica González; Fausto Rubio; José Luis Oteo. "Abstracts".

56 **Title of the work:** Characterization of the surface energy of montmorillonites
Name of the conference: 12th Conference of the European Ceramic Society. ECerS XII
Type of event: Conference
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Estocolmo, Sweden
Date of event: 19/06/2011
End date: 23/06/2011
Organising entity: The European Ceramic Society
With external admission assessment committee: Yes
Aitana Tamayo; Joanna Kyziol-Komosinska; María Jesús Sánchez; Pío Callejas; Juan Rubio; MªF. Barba. "Abstracts".

57 **Title of the work:** Surface characterization of porous silicon oxycarbide ceramics for biomedical applications
Name of the conference: 12th Conference of the European Ceramic Society. ECerS XII
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance

City of event: Estocolmo, Sweden
Date of event: 19/06/2011
End date: 23/06/2011
Organising entity: The European Ceramic Society **Type of entity:** Associations and Groups
Publication in conference proceedings: Yes **With external admission assessment committee:** Yes
Aitana Tamayo; Maria Jesús Sánchez; Fausto Rubio; Antonio Rumbero; Juan Rubio; J.L. Oteo.

58 **Title of the work:** Characterization of modified glass frit surfaces used for glass coatings
Name of the conference: 50 Congreso de la Sociedad Española de Cerámica y Vidrio
Type of event: Conference **Geographical area:** National
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
City of event: Madrid, Community of Madrid, Spain
Date of event: 27/10/2010
End date: 29/10/2010
Organising entity: SOCIEDAD ESPAÑOLA DE CERAMICA Y VIDRIO
Publication in conference proceedings: Yes **With external admission assessment committee:** Yes
Aitana Tamayo; Fausto Rubio; Juan Rubio; José Luis Oteo.

59 **Title of the work:** Recovering and recyclying of residues from extractive mining industries into new materials for building sector (Original title in spanish: Recuperación y reciclado de residuos de la industria extractiva en nuevos materiales para el sector de la construcción)
Name of the conference: 50 Congreso de la Sociedad Española de Cerámica y vidrio
Type of event: Conference **Geographical area:** National
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
City of event: Madrid, Community of Madrid, Spain
Date of event: 27/10/2010
End date: 29/10/2010
Organising entity: SOCIEDAD ESPAÑOLA DE CERAMICA Y VIDRIO
Publication in conference proceedings: Yes **With external admission assessment committee:** Yes
Maria Angeles Rodriguez; Sara García; Fausto Rubio; Aitana Tamayo; José Cabezas; L. Fernández.

60 **Title of the work:** Silicon Oxycarbide ceramics as catalyst supports for biomedical applications
Name of the conference: 50 Congreso de la Sociedad Española de Cerámica y Vidrio
Type of event: Conference
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Madrid, Community of Madrid, Spain
Date of event: 27/10/2010
End date: 29/10/2010
Organising entity: SOCIEDAD ESPAÑOLA DE CERAMICA Y VIDRIO
With external admission assessment committee: Yes
Aitana Tamayo; Fausto Rubio; Angel Rumbero; Juan Rubio; José Luis Oteo. "Abstracts".

61 **Title of the work:** Determination of the fictive frit temperature by Raman Spectroscopy
Name of the conference: XIth World Congress on Ceramic Tile Quality. QUALICER 2010
Type of event: Conference
Type of participation: 'Participatory - poster

Reasons for participation: Review before acceptance

City of event: Castellón, Valencian Community, Spain
Date of event: 10/02/2010
End date: 18/02/2010
Organising entity: Cámara de Comercio de Castellón
Type of entity: Associations and Groups
Publication in conference proceedings: Yes
Juan Rubio; Aitana Tamayo; Fausto Rubio; Maria Alejandra Mazo; Sofía Pérez-Villar; J. L. Oteo.

62 **Title of the work:** Interaction of carbon nanofibers and glass particles in the obtaining of glass matrix composites (Original title in spanish: Interacción entre nanofibras de carbono y partículas de vidrio en la preparación de composites de matriz vítrea)
Name of the conference: VIII Congreso Nacional de Materiales Compuestos
Type of event: Conference
Geographical area: National
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: San Sebastian, Basque Country, Spain
Date of event: 07/10/2009
End date: 09/10/2009
Organising entity: Asociación Española de Materiales Compuestos
Aitana Tamayo; Fausto Rubio; Cristina Palencia; Juan Rubio; José Luis Oteo; C. Merino.

63 **Title of the work:** Optical properties of thin film composite materials containing carbon nanofibers and glass particles (original title in spanish: Propiedades ópticas de láminas delgadas de composites preparados con nanofibras de carbono y partículas de vidrio)
Name of the conference: VIII Congreso Nacional de Materiales Compuestos
Type of event: Conference
Geographical area: National
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: San Sebastian, Basque Country, Spain
Date of event: 07/10/2009
End date: 09/10/2009
Organising entity: Asociación Española de Materiales Compuestos
Type of entity: Associations and Groups
Fausto Rubio; Cristina Palencia; Juan Rubio; José Luis Oteo; Aitana Tamayo; Concepción Merino.

64 **Title of the work:** SAXS Analysis of Nanostructured C-Rich SiCN Ceramics
Name of the conference: 13th IUPAC Conference in High Temperature Materials Chemistry
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Davis (California), United States of America
Date of event: 14/09/2009
End date: 18/09/2009
Organising entity: IUPAC
Publication in conference proceedings: Yes
With external admission assessment committee: Yes
Aitana Tamayo; Gabriela Mera; Hong Nguyen; Sabyasachi Sen; Ralf Riedel.

65 **Title of the work:** Structural Model of Carbon-Rich SiCN Ceramics by SAXS
Name of the conference: 8th Pacific Rim Conference on Ceramic and Glass Technology
Type of event: Conference
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Vancouver, Canada
Date of event: 31/05/2009
End date: 05/06/2009
Organising entity: The American Ceramic Society
Type of entity: Associations and Groups
Publication in conference proceedings: Yes
With external admission assessment committee: Yes
Aitana Tamayo; Gabriela Mera; Hong Nguyen; Ralf Riedel.

66 **Title of the work:** Raman and FT-IR spectroscopy in glass ceramics
Name of the conference: X Word Congress on Ceramic Tile Quality. QUALICER 2008
Type of event: Conference
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Castellón, Valencian Community, Spain
Date of event: 10/02/2008
End date: 13/02/2008
Organising entity: Cámara de Comercio de Castellón
Publication in conference proceedings: Yes
Aitana Tamayo; Raquel Peña-Alonso; Juan Rubio; Fausto Rubio; José Luis Oteo.

67 **Title of the work:** Modification of the porosity in hybrid materials (original title in spanish: Modificación de la porosidad de materiales hibridos mediante la extracción con disolventes)
Name of the conference: XLVII Congreso de la Sociedad Española de Cerámica y Vidrio
Type of event: Conference
Geographical area: National
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Toledo, Castile-La Mancha, Spain
Date of event: 24/10/2007
End date: 26/10/2007
Organising entity: SOCIEDAD ESPAÑOLA DE CERAMICA Y VIDRIO
Áitana Tamayo; Raquel Peña-Alonso; Fausto Rubio; Juan Rubio; José Luis Oteo.

68 **Title of the work:** Preparation of new Boron-Silicon oxycarbide glass fibers (Original title in spanish: Preparación de nuevas fibras de oxicarburo de Boro - Silicio)
Name of the conference: VII Congreso Nacional de Materiales Compuestos. AEMAC
Type of event: Conference
Geographical area: National
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Valladolid, Castile and León, Spain
Date of event: 19/09/2007
End date: 21/09/2007
Organising entity: Asociación Española de Materiales Compuestos
With external admission assessment committee: Yes
Type of contribution: Scientific book or monograph
Aitana Tamayo; Raquel Peña-Alonso; Juan Rubio; Fausto Rubio; José Luis Oteo. "New silicon – boron oxycarbide fibers synthesis". En: Proceedings VII Congreso Nacional de Materiales Compuestos. AEMAC.

69 **Title of the work:** Hybrid nanocomposites: Low-density and high thermal resistance materials (Original title in spanish: Nanocomposites híbridos. Materiales de baja densidad y elevada resistencia térmica)
Name of the conference: VI Congreso Nacional de Materiales Compuestos
Type of event: Conference
Geographical area: National
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Castellon, Valencian Community, Spain
Date of event: 27/06/2006
End date: 29/06/2006
Organising entity: Asociación Española de Materiales Compuestos
With external admission assessment committee: Yes
Type of contribution: Scientific book or monograph
Fausto Rubio; María Alejandra Mazo; Raquel Peña-Alonso; David Soriano; Aitana Tamayo; Juan Rubio; José Luis Oteo. "Hybrid Nanocomposites. New Materials of Low Density and High Thermal Resistance". En: Proccedings VI Congreso Nacional de Materiales Compuestos. AEMAC.. ISBN 84-9705-821-6

70 **Title of the work:** Initial studies for the development of carbon-silicon oxycarbide composites for high temperature applications (Original title in spanish: Estudio inicial del desarrollo de materiales compuestos carbono – oxicarburo de silicio para aplicaciones a altas temperaturas)
Name of the conference: VI Congreso Nacional de Materiales Compuestos. MATCOMP05
Type of event: Conference
Geographical area: National
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Castellon, Valencian Community, Spain
Date of event: 27/06/2006
End date: 29/06/2006
Organising entity: Asociación Española de Materiales Compuestos
Type of entity: Associations and Groups
Publication in conference proceedings: Yes
With external admission assessment committee: Yes
Type of contribution: Scientific paper
Aitana Tamayo; Raquel Peña-Alosno; José Luis Oteo; Fausto Rubio; Juan Rubio. "An Initial Study of the Processing of Carbon Nanofibers-Silicon Oxycarbide Glass Matrix Composites for High Temperature Applications". En: Proceedings VI Congreso Nacional de Materiales Compuestos. pp. 389 - 396. Universidad Politécnica de Valencia, ISBN 84-9705-821-6

71 **Title of the work:** Theoric approximation of the mechanic resistance of glass enamels from infrared spectroscopy measurements (original title in Spanish: Aproximación teórica de la resistencia mecánica de esmaltes a partir de medidas de espectroscopia infrarroja)
Name of the conference: IX Word Congress on Ceramic Tile Quality .QUALICER 2006
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Castellón, Valencian Community, Spain
Date of event: 12/02/2006
End date: 15/02/2006
Organising entity: Cámara de Comercio de Castellón
Type of contribution: Scientific paper
Pedro Franco; Carlos Concepcion; Aitana Tamayo; José Vicente Corts; Juan Rubio; R. Peña – Alonso; F. Rubio. "Theoretical Approximation of Glaze Mechanical Strength from Infrared Spectroscopy Measurements Proccedings IX Word Congress on Ceramic Tile Quality. QUALICER 2006 Ed. Cámara Comercio Castellón.

Feb 2006. Pp 15 – 18". En: Proccedings IX Word Congress on Ceramic Tile Quality. QUALICER 2006. pp. 15 - 18. Cámara de Comercio de Castellón,

72 **Title of the work:** Silicon-titanium oxycarbide glasses as bimodal porous inorganic membranes
Name of the conference: IX Conference & Exhibition of the European Ceramic Society.
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Portoz, Slovenia
Date of event: 19/06/2005
End date: 21/06/2005
Organising entity: The European Ceramic Society
Type of entity: Associations and Groups
Publication in conference proceedings: Yes
With external admission assessment committee: Yes
Type of contribution: Scientific paper
Raquel Peña-Alonso; Lucía Téllez; Aitana Tamayo; Fausto Rubio; Juan Rubio; J. L. Oteo. "Silicon – Titanium Oxycarbide Glasses as Bimodal Porous Inorganic Membranes". En: Journal of the European Ceramic Society. 27, pp. 969 - 973. Elsevier, ISSN 0955-2219

73 **Title of the work:** Study of the specific surface of hybrid materials obtained from TEOS-TEB-PDMS (Original title in spanish: Estudio de la superficie especifica de los materiales híbridos obtenidos a partir de TEOS – TEB – PDMS)
Name of the conference: XLIV Congreso de la Sociedad Española de Cerámica y Vidrio
Type of event: Conference
Geographical area: National
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Vigo, Spain
Date of event: 10/10/2004
End date: 13/10/2004
Organising entity: Sociedad Española de Cerámica y Vidrio
Type of entity: Scientifical Society
With external admission assessment committee: Yes
Type of contribution: Scientific book or monograph
Aitana Tamayo; Raquel Peña-Alonso; José Luis Oteo; Fausto Rubio; Juan Rubio. "Abstracts". 10/10/2004.

Works submitted to national or international seminars, workshops and/or courses

1 **Title of the work:** Structural and Electrochemical Characterization of (oxy)carbide derived carbons
Name of the event: 2nd PIRE – NSF Workshop on Polymer Derived Ceramic Fibres
Type of event: Workshop
Corresponding author: Yes
Reasons for participation: Upon invitation
City of event: Boulder, United States of America
Date of event: 15/07/2019
End date: 19/07/2019
Organising entity: Kansas State University
Type of entity: University
A. Tamayo.

2 **Title of the work:** New developments in silicon based ceramics for advanced solar receivers
Name of the event: Workshop on Materials for High Temperature Receivers. WP 12 Meeting Point Focusing STE Technologies
Type of event: Workshop

Corresponding author: Yes
Reasons for participation: Upon invitation
City of event: Sevilla, Andalusia, Spain
Date of event: 09/06/2015
End date: 10/06/2015
Organising entity: European Energy Research Alliance
Aitana Tamayo.

3 **Title of the work:** New developments in silicon based ceramics for advanced solar receivers
Name of the event: EERA Inter-JP cross-fertilization workshop on materials for energy applications and technologies
Type of event: Workshop
Corresponding author: Yes
Reasons for participation: Upon invitation
City of event: Brussles, Belgium
Date of event: 28/04/2015
End date: 29/04/2015
Organising entity: European Energy Research Alliance
Type of entity: Associations and Groups
Aitana Tamayo.

4 **Title of the work:** Caracterización de industria lítica prehistorica. Un estudio multidisciplinar para la comprensión de la actividad industrial en el paleolítico
Name of the event: Ciclo de seminarios del Instituto de Cerámica y Vidrio
Type of event: Seminar
Corresponding author: Yes
Reasons for participation: Upon invitation
Date of event: 13/11/2014
End date: 13/11/2014
Organising entity: Instituto de Cerámica y Vidrio
Type of entity: State agency
Aitana Tamayo.

5 **Title of the work:** Porous silicon oxycarbide glasses for biomedical applications
Name of the event: V International meeting on Polymer Derived Ceramics
Type of event: Workshop
Geographical area: Non EU International
City of event: Boulder, United States of America
Date of event: 31/07/2010
End date: 06/08/2010
Organising entity: The Polymer Derived Ceramic Society
Type of entity: Associations and Groups
Aitana Tamayo.

Other dissemination activities

1 **Title of the work:** Taller de Vidrio
Name of the event: Ciencia en el Barrio
Type of event: Fairs and exhibitions
City of event: Madrid, Spain
Date of event: 21/06/2022
Organising entity: Consejo Superior de Investigaciones Científicas
Type of entity: State agency

2 **Title of the work:** Taller de Vidrio
Name of the event: NocheEuropea de los Investigadores
Type of event: Fairs and exhibitions
City of event: Madrid, Spain
Date of event: 24/09/2021
Organising entity: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency

3 **Title of the work:** Taller de Vidrio
Name of the event: NocheEuropea de los Investigadores
Type of event: Fairs and exhibitions
City of event: Madrid, Spain
Date of event: 28/11/2020
Organising entity: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency

4 **Title of the work:** Taller. Experimentos demostrativos vidrio. Jornada de Puertas Abiertas
Name of the event: XIX Semana de la CIencia y la Innovación
City of event: Madrid, Community of Madrid, Spain
Date of event: 15/11/2019
Organising entity: Instituto de Cerámica y Vidrio **Type of entity:** State agency

5 **Title of the work:** Somos Cientificas, en directo
City of event: Miranda de Ebro, Community of Madrid, Spain
Date of event: 30/09/2019
Organising entity: Kialo Comunicacion **Type of entity:** Business

6 **Title of the work:** Talleres de Ciencia
Name of the event: Noche Europea de los Investigadores
City of event: Madrid, Community of Madrid, Spain
Date of event: 27/09/2019
Organising entity: Medialab-Prado

7 **Title of the work:** Taller de Ciencia
Name of the event: Jornadas de Divulgación Científica
City of event: La Lastrilla, Castile and León, Spain
Date of event: 10/04/2019
Organising entity: CRA Los Almendros

8 **Title of the work:** Taller de Ciencia
Name of the event: Jornadas de Divulgación Científica
City of event: Torrecaballeros, Castile and León, Spain
Date of event: 10/04/2019
Organising entity: CEIP Marques de Lozoya

9 **Title of the work:** Taller de Ciencia
Name of the event: Jornadas de Divulgación Científica
City of event: Segovia, Castile and León, Spain
Date of event: 19/03/2019
Organising entity: CEIP Villalpando Segovia

10 **Title of the work:** Taller de Ciencia
Name of the event: 50 Aniversario Colegio Aneja
City of event: Segovia, Castile and León, Spain
Date of event: 11/03/2019
Organising entity: CEIP Fray Juan de la Cruz Segovia

11 **Title of the work:** Taller de Ciencia
Name of the event: Jornadas de Divulgación Científica
City of event: Valverde del Majano, Castile and León, Spain
Date of event: 11/02/2019
Organising entity: 11defebrero.org

12 **Title of the work:** Somos Cientificos, en directo
City of event: Madrid, Community of Madrid, Spain
Date of event: 12/01/2019
Organising entity: Kialo Comunicacion **Type of entity:** Business

13 **Title of the work:** Climbing the ladder
Name of the event: Creating female roles
Type of event: Conferences given
City of event: Darmstadt, Darmstadt, Germany
Date of event: 23/11/2018
Organising entity: TU Darmstadt

14 **Title of the work:** Somos Cientificos
City of event: Spain
Date of event: 15/11/2018
Organising entity: Kialo Comunicacion

15 **Title of the work:** Taller de Ciencia
Name of the event: Jornadas de Divulgación Científica
City of event: Torrecaballeros, Castile and León, Spain
Date of event: 25/07/2018
Organising entity: Ayuntamiento de Torrecaballeros

16 **Title of the work:** Taller de Ciencia
Name of the event: Jornadas de Divulgación Científica
City of event: Navalmanzano, Castile and León, Spain
Date of event: 11/02/2018
Organising entity: 11defebrero.org

17 **Title of the work:** Taller de Ciencia
Name of the event: Jornadas de Divulgación Científica
City of event: Torrecaballeros, Castile and León, Spain
Date of event: 23/07/2017
Organising entity: Ayuntamiento de Torrecaballeros

18 **Title of the work:** Taller de introducción a la ciencia
Name of the event: Jornadas de divulgación científica
Type of event: Fairs and exhibitions
City of event: Torrecaballeros, Castile and León, Spain

Date of event: 20/07/2016
Organising entity: Ayuntamiento de Torrecaballeros

19 **Title of the work:** Dissemination Video 2 Call Comfuturo
Name of the event: Video
Organising entity: Fundación General CSIC

R&D management and participation in scientific committees

Organization of R&D activities

1 **Title of the activity:** MSE Congress
Type of activity: Conference
Geographical area: European Union
City of event: Darmstadt, Darmstadt, Germany
Convening entity: Deutsch Gesellschaft für Materialkunde
Type of entity: Foundation
City convening entity: Germany
Type of participation: Organiser
Start-End date: 26/09/2018 - 28/09/2018
Duration: 3 days

2 **Title of the activity:** Jornadas de Jóvenes Investigadores
Type of activity: Jornada Científica
Geographical area: National
City of event: Madrid, Community of Madrid, Spain
Convening entity: Instituto de Cerámica y Vidrio
Type of entity: State agency
Type of participation: Organiser
Nº assistants: 50
Start-End date: 28/06/2018 - 27/06/2018
Duration: 1 day

3 **Title of the activity:** Jornadas de Jóvenes Investigadores
Type of activity: Jornada Científica
Geographical area: National
City of event: Madrid, Community of Madrid, Spain
Convening entity: Instituto de Cerámica y Vidrio
Type of entity: State agency
Type of participation: Organiser
Nº assistants: 50
Start-End date: 28/06/2017 - 28/06/2017
Duration: 1 day

4 **Title of the activity:** 14th Confrence and Exhibition of the European Ceramic Society
Type of activity: Conference
Geographical area: Non EU International
City of event: Toledo, Castile-La Mancha, Spain
Convening entity: European Ceramic Society
Type of participation: Organiser
Start-End date: 21/06/2015 - 25/06/2017
Duration: 5 days

5 **Title of the activity:** Jornadas de Jóvenes Investigadores
Type of activity: Jornada Científica
Geographical area: National
City of event: Castellon, Valencian Community, Spain
Convening entity: Universidad Jaime I
Type of entity: University
Type of participation: Organiser
Nº assistants: 50

Start-End date: 08/03/2017 - 08/03/2017 **Duration:** 1 day

6 **Title of the activity:** Jornadas de Jóvenes Investigadores
Type of activity: Jornada Científica **Geographical area:** National
City of event: Madrid, Community of Madrid, Spain
Convening entity: Instituto de Cerámica y Vidrio **Type of entity:** State agency
Type of participation: Organiser
Nº assistants: 50
Start-End date: 05/07/2016 - 05/07/2016 **Duration:** 1 day

7 **Title of the activity:** Jornadas de Jóvenes Investigadores
Type of activity: Jornada Científica **Geographical area:** National
City of event: Madrid, Community of Madrid, Spain
Convening entity: Instituto de Cerámica y Vidrio **Type of entity:** State agency
Type of participation: Organiser
Nº assistants: 50
Start-End date: 09/07/2015 - 09/07/2015 **Duration:** 1 day

8 **Title of the activity:** Jornadas de Jóvenes Investigadores
Type of activity: Jornada Científica **Geographical area:** National
City of event: Madrid, Community of Madrid, Spain
Convening entity: Instituto de Cerámica y Vidrio **Type of entity:** State agency
Type of participation: Organiser
Nº assistants: 50
Start-End date: 25/07/2014 - 25/07/2012 **Duration:** 1 day

9 **Title of the activity:** Jornadas de Jóvenes Investigadores
Type of activity: Jornada Científica **Geographical area:** National
City of event: Madrid, Community of Madrid, Spain
Convening entity: Instituto de Cerámica y Vidrio **Type of entity:** State agency
Type of participation: Organiser
Nº assistants: 50
Start-End date: 05/07/2012 - 05/07/2012 **Duration:** 1 day

National and international forums and committees

1 **Name of the forum:** Comision Igualdad Intercentros Campus Excelencia CSIC
Organising entity: CSIC-UAM
Start date: 2019

2 **Name of the forum:** From Molecules to Manufacturing: Products Arising from Polymer Derived Ceramics
Organising entity: The American Ceramic Society

3 **Name of the forum:** Spanish Chapter of the American Ceramic Society
Professional category: Researcher
Organising entity: American Ceramic Society **Type of entity:** Associations and Groups
City organizing entity: United States of America

Other achievements

Stays in public or private R&D centres

1 **Entity:** Universidad Complutense de Madrid **Type of entity:** University
Faculty, institute or centre: Facultad de Farmacia
City of entity: Madrid, Community of Madrid, Spain
Start-End date: 12/04/2021 - 12/05/2021 **Duration:** 1 month
Goals of the stay: Guest
Provable tasks: Manufacturing of polymeric films

2 **Entity:** Universidad Complutense de Madrid **Type of entity:** University
Faculty, institute or centre: Facultad de Farmacia
City of entity: Madrid, Community of Madrid, Spain
Start-End date: 23/04/2019 - 23/06/2019 **Duration:** 2 months
Goals of the stay: Guest
Provable tasks: Manufacturing of polymeric inserts

3 **Entity:** COALBA ENERGIA, S.A. - CENER
City of entity: Pamplona, Foral Community of Navarre, Spain
Start-End date: 06/07/2015 - 31/08/2015 **Duration:** 1 month - 25 days
Goals of the stay: Contracted

4 **Entity:** Technische Universität Darmstadt **Type of entity:** University
Faculty, institute or centre: Material- und Geowissenschaft
City of entity: Darmstadt, Germany
Primary (UNESCO code): 331203 - Ceramics
Start-End date: 01/04/2008 - 31/12/2009 **Duration:** 1 year - 9 months
Goals of the stay: Post-doctoral
Relevant results: Development of a new microstructural model of polymer-derived ceramics based on Small Angle X-Ray Scattering (SAXS)

5 **Entity:** University of Colorado at Boulder **Type of entity:** University
Faculty, institute or centre: Engineering Center
City of entity: Boulder, United States of America
Primary (UNESCO code): 331203 - Ceramics
Start-End date: 15/02/2007 - 31/12/2007 **Duration:** 10 months - 15 days
Goals of the stay: Post-doctoral
Relevant results: Obtaining of boron-silicon oxycarbide fibres by spinning process. Development of polymer-derived ceramic papers with carbon nanotubes as anodes in lithium ion batteries

Obtained grants and scholarships

Name of the grant: JAEDoc
Aims: Post-doctoral
Awarding entity: Consejo Superior de Investigaciones Científicas
Type of entity: State agency
Conferral date: 16/03/2012
Duration: 3 years - 3 months - 18 days
End date: 04/07/2015
Entity where activity was carried out: Instituto de Cerámica y Vidrio

Prizes, mentions and distinctions

Description: Dissemination activity. Somos Cientificos 2018
Awarding entity: Kialo Comunicacion
Type of entity: Business
Conferral date: 16/11/2018
Recognition linked: Dissemination

Obtained accreditations/recognitions

1 **Description:** Profesor/a Ayudante Doctor/a
Accrediting entity: Agencia Nacional de Evaluación de la Calidad y Acreditación
Type of entity: Autonomous organism
City accrediting entity: Madrid, Community of Madrid, Spain
Date of recognition: 14/07/2021

2 **Description:** Profesor/a Contratado/a doctor/a
Accrediting entity: Agencia Nacional de Evaluación de la Calidad y Acreditación
Type of entity: Autonomous organism
City accrediting entity: Madrid, Community of Madrid, Spain
Date of recognition: 14/07/2021

3 **Description:** Profesor/a Universidad Privada
Accrediting entity: Agencia Nacional de Evaluación de la Calidad y Acreditación
Type of entity: Autonomous organism
City accrediting entity: Madrid, Community of Madrid, Spain
Date of recognition: 14/07/2021