



Manuel Monasterio Jaqueti

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Summary of CV

This section describes briefly a summary of your career in science, academic and research; the main scientific and technological achievements and goals in your line of research in the medium -and long- term. It also includes other important aspects or peculiarities.

I am Manuel Monasterio and I have a Physics PhD, on Nanostructures and Advanced Materials.

During my bachelor, I did a Physics degree, specialized in Materials.

In my master thesis, in Universidad Politécnica de Madrid, I specialize myself in cleaning room working, employing a LP-CVD and other techniques, as lithography or spin coatings. I performed by myself more than 100 hours of SEM. The main point of my Master Thesis was the growing of SiGe heterostructured nanowires, studying their electric resistance using dielectrophoresis in a needle station. Here, I either had my first contact with an AFM.

Further, during my PhD in the Material Physics Center in San Sebastian, we analyzed the water dynamic in porous materials, concretely, porous structures generated within cement pastes after the hydration. I got my first contacts with nanoadditives and with characterization devices, as XRD, TGA or FT-IR. All the work about water dynamics and the bulk of my PhD were performed with Broadband Dielectric Spectroscopy, a device able to extract information about the inner structure of the materials, provided by the rotation of polar molecules, in this case, water molecules.

Besides, I have worked 3 months in Chalmers University of Technology, in Gothenburg, in civil engineering building, employing Green cements. There, I employed a XRD to obtain information about possible crystalline structures obtained by the alkali activation of slag by waterglass and sodium hydroxide.

In my three years postdoctoral position in Shenzhen University, China, I continued the research realized during my PhD, focusing in the nanomaterials, such as carbon nanotubes, graphene oxide or silica nanoparticles, on cement pastes or C-S-H gels. The work was focused in this nanomaterials and their implication in the structures generated by them. Moreover, a new nanotechnology lab was built, with the last technology, including cleaning rooms. Besides, I participated in all the trainings for devices laboratory, where in some of them, I was the direct responsible, as TEM, NMR, XPS, Raman Spectroscopy, PE-CVD, Nanoprofiler, Nanoindentation, AFM, NanoXCT and STEM. Additionally, employing the PE-CVD, we obtained different nanomaterial combinations, as graphene oxide covered by nanosilica or carbon fiber with carbon nanotubes.

Nowadays, I am working in the Instituto Eduardo Torroja of Construction Science, in the recycle materials department, researching the addition of demolition materials to cement pastes, and possible changes in the microstructure.



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.

Statistics from Scopus:

Total Articles in Publication List:	15
Articles with Citation Data:	246
Sum of the Times Cited:	228
h-index:	7



Manuel Monasterio Jaqueti

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Current professional situation

Employing entity: Consejo Superior de Investigaciones Científicas
Type of entity: State agency
Department: Reciclado de materiales, Instituto Eduardo Torroja de Ciencias de la Construcción
Professional category: Post-doctoral position
Start date: 15/01/2020
Type of contract: Temporary employment contract
Dedication regime: Full time

Previous positions and activities

	Employing entity	Professional category	Start date
1	Shenzhen University	Postdoctoral Researcher	11/04/2016
2	CENTRO DE FISICA DE MATERIALES	Predocctoral Researcher	09/01/2012
3	Sgenia	Scholar	01/03/2009
4	Accenture	Scholar	01/09/2008

1 **Employing entity:** Shenzhen University
City employing entity: Shenzhen, China
Type of entity: University
Professional category: Postdoctoral Researcher
Educational Management (Yes/No): No
Start-End date: 11/04/2016 - 11/04/2019
Duration: 3 years
Type of contract: Grant-assisted student (pre or post-doctoral, others)
Field of management activity: General State Administration

2 **Employing entity:** CENTRO DE FISICA DE MATERIALES
Type of entity: State agency
Professional category: Predocctoral Researcher
Start-End date: 09/01/2012 - 27/04/2015
Duration: 3 years - 3 months - 18 days

3



Employing entity: Sgenia
Professional category: Scholar
Start-End date: 01/03/2009 - 01/09/2009
Type of contract: Grant-assisted student (pre or post-doctoral, others)
Performed tasks: Consultor in solar cell technology
Field of management activity: Public Research Body

Type of entity: Business
Educational Management (Yes/No): No
Duration: 6 months

4 **Employing entity:** Accenture
Professional category: Scholar
Start-End date: 01/09/2008 - 01/02/2009
Type of contract: Grant-assisted student (pre or post-doctoral, others)
Performed tasks: Data science in a Movistar project
Field of management activity: Public Research Body

Type of entity: Business
Educational Management (Yes/No): No
Duration: 6 months



Education

University education

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

University degree: Higher degree

Name of qualification: Licenciado en Ciencias Físicas Especialidad Física de Materiales

Degree awarding entity: Universidad Complutense de Madrid **Type of entity:** University

Date of qualification: 22/09/2010

Doctorates

Doctorate programme: Programa Oficial de Doctorado en Física de Nanoestructuras y Materiales Avanzados

Degree awarding entity: CENTRO DE FISICA DE MATERIALES **Type of entity:** State agency

Date of degree: 27/04/2015

Other postgraduate university studies

Type of education: Masters

Postgraduate qualification: Máster en nanociencia y nanotecnología molecular

Degree awarding entity: Universidad Autónoma de Madrid **Type of entity:** University

Date of qualification: 01/06/2012

Obtained qualification: B+

Attended advanced, improvement and innovative teacher training and new technology courses and seminars focused on improving teaching

- Title of course/seminar:** Standard & Alternative Lithographies
Goals of the course/seminar: Update techniques of photo- and nano-lithographies
Organising entity: International nanotechnology laboratory
Duration in hours: 9 hours
Start-End date: 02/12/2020 - 03/02/2021
- Title of course/seminar:** Application seminary and training course of photoelectron spectrometer
Goals of the course/seminar: Improve the knowledge and use of X-ray photoelectron spectrometer
Organising entity: Tsinghua university **Type of entity:** University
Faculty, institute or centre: Shenzhen Campus
Duration in hours: 12 hours
Start-End date: 31/03/2017 - 01/04/2017



- 3 Title of course/seminar:** Seminario de caracterización de materiales mediante técnicas de análisis térmico (DSC, MDSC, TGA, SDT)
Goals of the course/seminar: Improve the methodology and analysis of thermal techniques
Organising entity: TA Instruments
Duration in hours: 8 hours
Start-End date: 19/06/2012 - 19/06/2012
- 4 Title of course/seminar:** 3rd Laboratory course on dielectric spectroscopy
Goals of the course/seminar: Understand the dielectric spectroscopy measurements and their analysis
Organising entity: Material Physics Center
Duration in hours: 40 hours
Start-End date: 21/05/2012 - 25/05/2012
- 5 Title of course/seminar:** Alto y Ultra-Alto Vacío para Procesos de Investigación
Goals of the course/seminar: Improve the knowledge of vacuum techniques
Organising entity: Oerlikon Leybold Vacuum
Duration in hours: 4 hours
Start-End date: 09/05/2012 - 09/05/2012
- 6 Title of course/seminar:** Cement Chemistry
City organizing entity: Madrid, Community of Madrid, Spain
Organising entity: Instituto de Ciencias de la Construcción Eduardo Torroja
Type of entity: State agency
Duration in hours: 35 hours
Start-End date: 06/02/2012 - 10/02/2012
Aims of the stay: Doctorate
- 7 Title of course/seminar:** MATLAB Programming and Problem Solving
Goals of the course/seminar: Matlab course applied to science
Duration in hours: 4 hours
- 8 Title of course/seminar:** Python Fundamentals
Goals of the course/seminar: Understand the basic functions of Python
Duration in hours: 4 hours
- 9 Title of course/seminar:** Python for Finance: Investment Fundamentals and Data Analytics
Goals of the course/seminar: Data science and data manipulation by Python
Duration in hours: 4 hours
- 10 Title of course/seminar:** Statistics and Data Science in R Course
Goals of the course/seminar: Data science employing R
Duration in hours: 4 hours



Language skills

Language	Listening skills	Reading skills	Spoken interaction	Speaking skills	Writing skills
English	A1	A1	A1	A2	A2

Teaching experience

Experience supervising doctoral thesis and/or final year projects

Project title: Implementing construction and demolition waste in the synthesis of eco-efficient cement

Co-director of thesis: Ana Jiménez-Rivero; Moisés Frías Rojas; Manuel Monasterio Jaqueti

Entity: Universidad Politécnica de Madrid

Type of entity: University

City of entity: Madrid, Community of Madrid, Spain

Student: Galal Sayed Galal

Obtained qualification: 8.5

Date of reading: 30/09/2021

European doctorate: No

Quality recognition: No

Scientific and technological experience

Scientific or technological activities

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

Name of the project: Basic research about the graphene oxide effect on cement paste mechanical properties and durability.

Entity where project took place: Shenzhen University

Type of entity: University

City of entity: Shenzhen, China

Name principal investigator (PI, Co-PI...): Manuel Monasterio Jaqueti; LianLian Wu; Haibin Yang; Xiaoxiao Xu

Nº of researchers: 4

Funding entity or bodies:

National Natural Science Foundation

Type of entity: State agency

City funding entity: Shenzhen, China

Start-End date: 01/01/2018 - 01/12/2020

Total amount: 33.484,88 €

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

Name of the project: Characterization study of eco-cements prepared with slag from incinerator urban residues

Degree of contribution: Technician

Name principal investigator (PI, Co-PI....): Manuel Monasterio; Laura Caneda; Moises Frias

Nº of researchers: 3

Funding entity or bodies:

Urbaser S.A.

Type of entity: Foundation

City funding entity: Spain

Instituto Eduardo Torroja de Ciencias de la Construcción (CSIC)

Type of entity: R&D Centre

City funding entity: Madrid, Spain

Start date: 15/01/2020

Duration: 7 months

Scientific and technological activities**Scientific production**

H index: 7

Date of application: 19/10/2021

Fuente de Índice H: SCOPUS

Publications, scientific and technical documents

- Dapeng Zheng; Manuel Monasterio; Weipeng Feng; Waiching Tang; Hongzhi Cui; Zhijun Dong. Hydration Characteristics of Tricalcium Aluminate in the Presence of Nano-Silica. Nanomaterials. 11 - 199, 14/01/2021.

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

Position of signature: 2

Total no. authors: 6 **Corresponding author:** No

Impact source: SCOPUS

Impact index in year of publication: 2.7

Source of citations: SCOPUS **Citations:** 2
- Laura Caneda-Martínez; Manuel Monasterio; Jaime Moreno; Sagrario Martínez-Ramírez; Rosario García; Moisés Frías. Behaviour and properties of eco-cement pastes elaborated with recycled concrete fine fraction from construction and demolition wastes. Materials. MDPI, 2021.

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

Corresponding author: No

Source of citations: SCOPUS **Citations:** 5
- Haibin Yang; Manuel Monasterio; Dapeng Zheng; Hongzhi Cui; Waiching Tang; Xiaohua Bao; Xiangsheng Chen. Effects of nano silica on the properties of cement-based materials : A comprehensive review. Construction and Building Materials. 282, pp. 122715. Elsevier, 2021.



Type of production: Scientific paper
Corresponding author: No
Impact source: SCOPUS
Impact index in year of publication: 1.491

Format: Journal

Source of citations: SCOPUS

Citations: 5

- 4 Ningning Shao; Xuankun Wei; Manuel Monasterio; Zhijun Dong; Zuotai Zhang. Performance and mechanism of mold-pressing geopolymers from MSWI fly ash for its heavy metals solidification. Waste Management. Elsevier, 2021.

Type of production: Scientific paper
Corresponding author: No

Format: Journal

- 5 Xiantong Yan; Dapeng Zheng; Haibin Yang; Hongzhi Cui; Manuel Monasterio; Yiu Lo. Study of optimizing graphene oxide dispersion and properties of the resulting cement mortars. Construction and Building Materials. 257 - 119477, Elsevier, 10/10/2020.

DOI: 10.1016/j.conbuildmat.2020.119477

Type of production: Scientific paper
Position of signature: 5
Corresponding author: No

Format: Journal

Degree of contribution: Author or co-author of review

Impact source: SCOPUS
Impact index in year of publication: 1.491

Source of citations: SCOPUS

Citations: 4

- 6 Ding; Liu; Tang; Jiang; Li; Xiao; Yao; Manuel Monasterio; Wu; Liu. Enhanced electrochemical performance of iron-manganese based cathode by Li doping for sodium ion batteries. Electrochimica Acta. 292, pp. 871 - 878. Elsevier, 01/12/2018.

DOI: 10.1016/j.electacta.2018.09.192

Type of production: Scientific paper
Position of signature: 8

Format: Journal

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

Corresponding author: No

Total no. authors: 10

Impact source: SCOPUS

Category: Chemical Engineering (miscellaneous)

Impact index in year of publication: 1.467

Journal in the top 25%: Yes

Source of citations: SCOPUS

Citations: 7

- 7 Hongzhi Cui; Xiantong Yan; Manuel Monasterio; Xing. Effects of various surfactants on the dispersion of MWCNTs-OH in aqueous solution. Nanomaterials. 7, pp. 262 - 276. MDPI, 06/09/2017.

DOI: 10.3390/nano7090262

Type of production: Scientific paper
Position of signature: 3

Format: Journal

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

Corresponding author: No

Total no. authors: 4

Impact source: SCOPUS

Category: Materials Science (miscellaneous)

Impact index in year of publication: 0.858

Journal in the top 25%: Yes

Source of citations: SCOPUS

Citations: 37

- 8** Guido Goracci; Manuel Monasterio Jaqueti; Helen Jansson; Silvina Cerveny. Dynamics of nano-confined water in Portland cement - comparison with synthetic C-S-H gel and other silicate materials. Scientific reports. 7, pp. 8258 - 8268. Nature, 15/08/2017.
DOI: 10.1038/s41598-017-08645-z
Type of production: Scientific paper
Position of signature: 2
Total no. authors: 4
Impact source: SCOPUS
Impact index in year of publication: 1.341
Source of citations: SCOPUS
Format: Journal
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: No
Category: Multidisciplinary
Journal in the top 25%: Yes
Citations: 15
- 9** Haibin Yang; Manuel Monasterio; Hongzhi Cui; Ningxu Han. Experimental study of the effects of graphene oxide on microstructure and properties of cement paste composite. Composites Part A: Applied Science and Manufacturing. 102, pp. 263 - 272. Elsevier, 21/07/2017.
DOI: 10.1016/j.compositesa.2017.07.022 JCOMA 4742
Type of production: Scientific paper
Position of signature: 2
Total no. authors: 4
Impact source: SCOPUS
Impact index in year of publication: 1.83
Source of citations: SCOPUS
Format: Journal
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: No
Category: Mechanics of Materials
Journal in the top 25%: Yes
Citations: 97
- 10** Manuel Monasterio Jaqueti; Juan Jose Gaitero; Hegoi Manzano; Jorge Dolado; Silvina Cerveny. Effect of chemical environment on the dynamics of water confined in calcium silicate minerals - natural and synthetic tobermorite. Langmuir. 31, pp. 4964 - 4972. ACS Publications, 13/04/2015.
DOI: 10.1021/acs.langmuir.5b00614
Type of production: Scientific paper
Position of signature: 1
Total no. authors: 5
Impact source: SCOPUS
Impact index in year of publication: 1.088
Source of citations: SCOPUS
Format: Journal
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: No
Category: Electrochemistry
Journal in the top 25%: Yes
Citations: 10
- 11** Manuel Monasterio; Juan Jose Gaitero; Edurne Erkizia; Ana Guerrero Bustos; Luis Alejandro Miccio; Jorge Dolado; Silvina Cerveny. Effect of addition of silica- and amine functionalized silica-nanoparticles on the microstructure of calcium silicate hydrate (C-S-H) gel. Journal of Colloid and Interface Science. 450, pp. 109 - 118. Elsevier, 07/03/2015.
DOI: 10.1016/j.jcis.2015.02.066
Type of production: Scientific paper
Position of signature: 1
Total no. authors: 7
Impact source: SCOPUS
Impact index in year of publication: 1.45
Source of citations: SCOPUS
Format: Journal
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: No
Category: Colloid and Surface Chemistry
Journal in the top 25%: Yes
Citations: 44



- 12** Manuel Monasterio; Helen Jansson; Juan Jose Gaitero; Jorge Dolado; Silvina Cervený. Cause of the fragile-to-strong transition observed in water confined in C-S-H gel. *Journal of Chemical Physics*. 139 - 164714, pp. 1 - 8. AIP Publishing LLC, 31/10/2013.
DOI: 10.1063/1.4826638
Type of production: Scientific paper
Position of signature: 1
Total no. authors: 5
Impact source: ISI
Impact index in year of publication: 1.047
Source of citations: SCOPUS
Format: Journal
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: No
Category: Physical and Theoretical Chemistry
Journal in the top 25%: Yes
Citations: 19
- 13** Yang Haibin; Hongzhi Cui; Tang Luping; Manuel Monasterio Jaqueti; Waiching; Ningxu Han. In-situ prepared GO@SiO₂ hybrid and its application in the alkali-activated slag. On revision.
Type of production: Scientific paper
- 14** Manuel Monasterio Jaqueti; Yang Haibin; Hongzhi Cui; Waiching; Ningxu Han. Preparation of GO/nano-SiO₂ composites with various morphologies and the evolution of pure CSH gel when it is used as additive. On revision.
Type of production: Scientific paper
- 15** Xiangton Yan; Manuel Monasterio Jaqueti; Hongzhi Cui; Feng Xing. The effect of MWCNTs-OH on the mechanical properties of cement paste: from macro to micro perspective. On revision.
Type of production: Scientific paper
- 16** Yu Jin; Weipeng Feng; Zhijun Dong; Manuel Monasterio; Mingyu Li. Research Progress on the Glass Structure of Supplementary Cementitious Materials with Relation to Their Hydraulic Reactivity. *Materials Reports*. 35 - 3, pp. 03016 - 03020. Cailiao Daobaoshe/ Materials Review, 10/02/2021.
Type of production: Review
Format: Journal
Corresponding author: No

Works submitted to national or international conferences

- 1** **Title of the work:** Nuevos cementos eco-eficientes elaborados con la fracción fina de hormigón reciclado para futuras aplicaciones ingenieriles
Name of the conference: XVI Congreso Latinoamericano de Patología de la Construcción
Corresponding author: Yes
City of event: Rio Grande Do Sul, Brazil
Date of event: 18/10/2021
End date: 21/10/2021
Organising entity: CONPAT
Manuel Monasterio; Moisés Frías; García; Raquel Vigil de la Villa; Sagrario Martínez; Lucia Fernandez; Eduardo Lahoz; Iñigo Vegas; Jaime Moreno.
- 2** **Title of the work:** The influence of water glass modulus on the structure development of alkali-activated slag
Name of the conference: 14th International Congress on the Chemistry of Cement (ICCC)
Corresponding author: No
City of event: Beijing, China
Date of event: 13/10/2015



End date: 16/10/2015

Manuel Monasterio; Shuping Wang; Silvina Cerveny; Helen Jansson. "Proceedings of the 14th International Congress on the Chemistry of Cement (ICCC), Beijing, China".

- 3 Title of the work:** Structural and Dynamical Studies of C-S-H Gel Synthesized with Nano-Silica Particles and Amine Functionalized Silica Nanoparticles

Name of the conference: International Conference on Mechanics and Physics of Creep, Shrinkage, and Durability of Concrete and Concrete Structures

Type of event: Conference

Type of participation: Participatory - oral communication

Corresponding author: No

City of event: Viena, Austria

Date of event: 21/09/2015

End date: 23/09/2015

Type of contribution: Scientific paper

Silvina Cerveny; Juan Jose Gaitero; Edurne Erkizia; Manuel Monasterio; Jorge Dolado. "Structural and Dynamical Studies of C-S-H Gel Synthesized with Nano-Silica Particles and Amine Functionalized Silica Nanoparticles". En: Proceedings of the 10th International Conference on Mechanics and Physics of Creep, Shrinkage, and Durability of Concrete and Concrete Structures.

- 4 Title of the work:** Dielectric properties of Portland cement at different water cement ratio

Name of the conference: International Discussion Meeting on Relaxation in Complex Systems

Corresponding author: Yes

City of event: Barcelona, Catalonia, Spain

Date of event: 21/07/2013

End date: 26/07/2013

Manuel Monasterio Jaqueti. "Dielectric properties of Portland cement at different water cement ratio".

- 5 Title of the work:** Individualization and Electrical Characterization of SiGe Nanowires

Name of the conference: Material Research Society

Corresponding author: No

City of event: Boston, United States of America

Date of event: 25/11/2011

End date: 30/11/2011

Manuel Monasterio Jaqueti; Andres Rodriguez Menendez; Tomas Rodriguez; Carmen Ballesteros. "Individualization and Electrical Characterization of SiGe Nanowires".

- 6 Title of the work:** SiGe Nanowires Grown by LPCVD using Ga-Au Catalysts

Name of the conference: Material Research Society

Corresponding author: No

City of event: Boston, United States of America

Date of event: 25/11/2011

End date: 30/11/2011

Manuel Monasterio Jaqueti; Andres Rodriguez Menendez; Tomas Rodriguez; Carmen Ballesteros. "SiGe Nanowires Grown by LPCVD using Ga-Au Catalysts".

- 7 Title of the work:** SiGe nanowires grown by the VLS method using Au-Ga bi-layer catalysts

Name of the conference: International Conference on Nanostructures Materials

Corresponding author: No

City of event: Rome, Italy

Date of event: 13/09/2010

End date: 17/09/2010



Manuel Monasterio Jaqueti; Andres Rodriguez Menendez; Tomas Rodriguez. "SiGe nanowires grown by the VLS method using Au-Ga bi-layer catalysts".

Other achievements

Stays in public or private R&D centres

Entity: Chalmers University of Technology
Faculty, institute or centre: Civil Engineering
City of entity: Göteborg, Sweden
Start-End date: 01/04/2013 - 01/07/2013
Goals of the stay: Doctorate
Provable tasks: Research

Type of entity: University

Duration: 3 months

Obtained grants and scholarships

Name of the grant: Baskrete initiative
Aims: Pre-doctoral
Duration: 3 years