



Hermann Suderow Rodriguez

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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 made my PhD in Grenoble (1997), with J. Flouquet and J.P. Brison. I performed the first thermal conductivity measurements at very low temperatures (15 mK) in the heavy fermion superconductor UPt₃. I discovered an increase in the electronic density of states when applying a magnetic field that is characteristic of nodal superconductors. This has been widely used since then to understand cuprates, pnictides or topological superconductors. In 1998 I obtained a Marie Curie fellowship and came to Madrid, to work in the low temperature laboratory with S. Vieira. I then obtained a Ramón y Cajal fellowship (2001) and won the national habilitation contest in 2004. I am “profesor titular” since 2006. I brought to Madrid the technology of helium³-helium⁴ dilution refrigeration and pioneered Scanning Tunneling Microscopy (STM) experiments at millikelvin temperatures. Millikelvin STM provides neat images without thermal broadening with which we directly visualize electronic correlations and atomic scale topography. Using this technique, I have studied numerous superconducting materials, often for the first time; I helped establishing two-band superconductivity, contributed significantly to understand how magnetism and charge order coexist with superconductivity in nickel borocarbides and in dichalcogenides or obtained the first STM tunnelling conductance results in a heavy fermion superconductor.

My contributions to vortex physics relate the structure of vortex cores to the superconducting gap and have unveiled how the vortex lattice behaves as a whole, obtaining the first visualization of thermal de-pinning, of the vortex liquid and observing the critical behaviour of the order-disorder transition.

I developed new STM techniques, to visualize electronic correlations under an applied current or in a three axis vector magnetic field. I have also made considerable contributions to instrumentation, building superconducting magnets for the student laboratory and for advanced experiments or setting up new lines, such as the measurement of the critical temperature of superconductors at extremely high pressures (30 GPa), with pressure cells built in Madrid. In 2011, I set-up, together with P.C. Canfield, a new basic lab for the synthesis of quantum materials. We have made several works where we synthesized and measured new materials in Madrid and sent these abroad to collaborate with other groups.

109 publications, H index of 24, more than 50 invited contributions to international meetings, among them keynote talks in major conferences. Co-directed 7 PhD thesis and have been part of more than 20 PhD juries all over Europe. PI or co-PI of 13 projects (2 ACI, 5 Plan Estatal), co-PI in 2 Marie Curie projects. 7 organized workshops or summer schools.

President of the physics panel of the Spanish national funding agency from 2015-18, coordinator of IFIMAC-Materials Science, Director of the Nicolás Cabrera Institute since 2011, member of commissions (ANEP, COST, IIF, GEFES, C5 of IUPAP) and referee of funding agencies (AEI, ERC, FET-Open, etc) and journals. Coordinator of COST program with participants from 27 countries. APS Fellow 2017.



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.

4 "sexenios de investigación", until 2017.

7 co-directed PhD (two in 2017, 2016, two in 2013, 2009 and 2006).

1845 cites, 1364 without self-cites (2517 in scholar).

158 cites/year average during past 5 years.

2 Nat Phys, 1 Nat Com, 2 Phys. Com, 9 PRL, 28 PRB, 4 NJP, 3 Superc Sci Tec. 1 perspective in Science.

h index of 24 (29 in scholar).



Hermann Suderow Rodriguez

Surname(s): **Suderow Rodriguez**
Name: **Hermann**
ORCID: **0000-0002-5902-1880**
ScopusID: **7003666360**
ResearcherID: **L-6612-2013**
Scholar: **<https://scholar.google.es/citations?user=Ei1OhusAAAAJ&hl=en>**
Date of birth: **02/09/1970**
Email: **hermann.suderow@uam.es**
Personal web page: **<http://www.uam.es/hermann.suderow>**

Current professional situation

Employing entity: Universidad Autónoma de Madrid

Department: Fisica de la Materia Condensada, Facultad de Ciencias

Professional category: Profesor Titular

Start date: 01/05/2006

Type of contract: Civil servant

Dedication regime: Full time

Primary (UNESCO code): 221127 - Superconductors

Secondary (UNESCO code): 220208 - Magnetism

Performed tasks: I am interested in the direct real space visualization of vortices in superconductors and other spatially varying features of low dimensional metals and magnets. I have designed and built scanning tunneling microscopes, which we operate at temperatures of 30 mK in helium3-helium4 dilution refrigerators and under magnetic fields. Using one of these microscopes, I measured the superconducting gap in a heavy fermion superconductor, pioneering scanning tunneling microscopy in dilution refrigerators. Our laboratory (lbtuam.es) runs now five of these machines. We study the vortex lattice of superconductors, the electronic properties of 2D and heavy fermion superconductors and nanostructured systems. Recently, we introduced crystal growth techniques to make samples for our own studies. Since a few years I am also charged of several organizational activities. Among others, I lead the N. Cabrera Institute and support UAM's technical staff in running our helium liquefier and recovery system, which serves many groups in the whole Campus.

Identify key words: Kondo models; Quantum criticality; Magnetism; Superconductors

Previous positions and activities

	Employing entity	Professional category	Start date
1	Universidad Autónoma de Madrid	Position as a lecturer qualified within program I3 of the spanish national science funding organization	2005
2	Universidad Autónoma de Madrid	"Ramon y Cajal" Fellow of the spanish national science funding organization	2001
3	Instituto de Ciencia de Materiales de Madrid	CSIC Postdoctoral fellow	2000
4	Universidad Autónoma de Madrid	Marie Curie Postdoctoral Fellow of the European Union	01/01/1998



	Employing entity	Professional category	Start date
5	CEA and CNRS	PhD Fellow (CEA grant)	01/01/1994
6	Uni Karlsruhe - CEA, Grenoble Francia	Diplomarbeit	01/01/1993

- 1** **Employing entity:** Universidad Autónoma de Madrid **Type of entity:** University
Professional category: Position as a lecturer qualified within program I3 of the spanish national science funding organization
Start-End date: 2005 - 2006
- 2** **Employing entity:** Universidad Autónoma de Madrid **Type of entity:** University
Professional category: "Ramon y Cajal" Fellow of the spanish national science funding organization
Start-End date: 2001 - 2005
- 3** **Employing entity:** Instituto de Ciencia de Materiales de Madrid **Type of entity:** State agency
Professional category: CSIC Postdoctoral fellow
Start-End date: 2000 - 2001 **Duration:** 1 year
- 4** **Employing entity:** Universidad Autónoma de Madrid **Type of entity:** University
Professional category: Marie Curie Postdoctoral Fellow of the European Union
Start-End date: 01/01/1998 - 31/12/1999 **Duration:** 2 years
- 5** **Employing entity:** CEA and CNRS
Professional category: PhD Fellow (CEA grant)
Start-End date: 01/01/1994 - 31/12/1998
- 6** **Employing entity:** Uni Karlsruhe - CEA, Grenoble Francia
Professional category: Diplomarbeit
Start-End date: 01/01/1993 - 01/12/1993



Education

University education

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

University degree: Doctorate

Name of qualification: Physics (Diplom-Physik equivalent to Master in Physics or Licenciado en Física)

City degree awarding entity: Germany

Degree awarding entity: Universität Karlsruhe

Type of entity: University

Date of qualification: 05/01/1994

Foreign qualification: Diplom Physik (Msc in Physics)

Doctorates

Degree awarding entity: Université Joseph Fourier **Type of entity:** University

City degree awarding entity: Grenoble, France

Date of degree: 05/11/1997

Thesis title: Conduction Thermique des phases supraconductrices de UPT3

Thesis director: Jacques Flouquet

Obtained qualification: Très Honorable avec felicitations

Language skills

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

Teaching experience

General teaching experience

1 Name of the course: Thermodynamics and Statistical Physics II

University degree: Physics

Start date: 01/2015

End date: 07/2017

End date: 2017

Entity: Universidad Autónoma de Madrid

Type of entity: University

Faculty, institute or centre: Facultad de Ciencias



- 2** **Name of the course:** Experimental techniques IV
University degree: Graduate Physics (licenciatura)
Start date: 2000 **End date:** 2012
End date: 2012
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Faculty, institute or centre: Facultad de Ciencias
- 3** **Name of the course:** Física de Bajas Temperaturas.
University degree: Graduate Physics (licenciatura)
Start date: 2001 **End date:** 2011
End date: 2011
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Faculty, institute or centre: Facultad de Ciencias
- 4** **Name of the course:** Física Avanzada de Bajas Temperaturas
University degree: Doctoral studies (curso de doctorado)
Start date: 2002 **End date:** 2008
End date: 2008
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Faculty, institute or centre: Facultad de Ciencias
- 5** **Name of the course:** Solid State Physics
University degree: Graduate physics (licenciatura)
Start date: 2003 **End date:** 2004
End date: 2004
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Faculty, institute or centre: Facultad de Ciencias
- 6** **Name of the course:** Physics
University degree: Physics for first year Biology
Start date: 1994 **End date:** 1996
End date: 1996
Entity: University of Savoie, France **Type of entity:** University
Faculty, institute or centre: Science
- 7** **Name of the course:** Low Temperature Physics
University degree: Master Condensed Matter and Bio systems, <http://www.masternanobio.es/>
Start date: 2015 **End date:** 2019
End date: 2019
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Faculty, institute or centre: Facultad de Ciencias
- 8** **Name of the course:** TFG-EXP, Coordinador del laboratorio avanzado del grado (4 Física)
University degree: Physics
Start date: 2015 **End date:** 2019
End date: 2019
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Faculty, institute or centre: Facultad de Ciencias



- 9** **Name of the course:** Experimental techniques (advanced)
University degree: Graduate Physics (grado)
Start date: 2013
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Faculty, institute or centre: Facultad de Ciencias
- 10** **Name of the course:** Modern Physics
University degree: General physics, 2nd year physics, chemistry and engineering
Start date: 2012
End date: 2013
Entity: Universidad Autónoma de Madrid **Type of entity:** University
- 11** **Name of the course:** Advanced low temperature physics
University degree: Master degree Condensed Matter Physics and Nanotechnology
Start date: 2011
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Faculty, institute or centre: Facultad de Ciencias
- 12** **Name of the course:** Superconductivity and superfluidity
University degree: Master degree Condensed Matter Physics and Nanotechnology (www.fmcyn.es).
Start date: 2009
End date: 2013
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Faculty, institute or centre: Facultad de Ciencias
- 13** **Name of the course:** Scanning microscopy
University degree: Advanced Cryogenics School
Start date: 2005
End date: 2008
- 14** **Name of the course:** Growth and characterization of new materials, together with PC Canfield
University degree: Master and graduate physics
End date: 2012

Experience supervising doctoral thesis and/or final year projects

- 1** **Project title:** Magnetic force microscopy of layered superconductors in vectorial magnetic fields
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Alex Correa Orellana
Date of reading: 22/01/2018
- 2** **Project title:** Visualizing the influence of defects and impurities on pnictide and chalcogenide superconductors
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Anton Fente Hernandez
Date of reading: 26/04/2017
- 3** **Project title:** Visualizing the influence of the Fermi surface on Superconductivity
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Edwin Herrera Vasco
Date of reading: 15/12/2016



- 4** **Project title:** Superconductividad y dimensionalidad: Microscopa tunel bajo campos magneticos inclinados.
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Jose Augusto Galvis Echeverry
Date of reading: 11/2013
- 5** **Project title:** Master project Growth and characterization of single crystals of layered Pd-Bi binary alloys
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Alexandre Correa
Date of reading: 07/2013
- 6** **Project title:** PhD thesis, Superconducting vortex dynamics and new heavy fermion phases studied by very low temperature scanning tunneling spectroscopy
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Ana Maldonado Cid
Date of reading: 07/2013
- 7** **Project title:** Master project of A. Fente, Superconductividad bidimensional, efecto Kondo, y magnetismo en la serie $\text{La}_x\text{Ce}_{1-x}\text{Sb}_2$
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Anton Fente Hernandez
Date of reading: 07/2012
- 8** **Project title:** Master project of A. Maldonado, Espectroscopía túnel a muy bajas temperaturas en aluminio
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Ana Maldonado Cid
Date of reading: 07/2009
- 9** **Project title:** PhD thesis Orden y desorden en superconductividad
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Isabel Guillamon Gomez
Date of reading: 06/2009
- 10** **Project title:** Master project of F. Luque, Espectroscopía túnel en el superconductor magnético $\text{HoNi}_2\text{B}_2\text{C}$
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Francisco J. Luque
Date of reading: 07/2008
- 11** **Project title:** PhD thesis, Espectroscopía túnel local en superconductores magnéticos: los borocarburos de niquel $\text{TmNi}_2\text{B}_2\text{C}$ y $\text{ErNi}_2\text{B}_2\text{C}$
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Maria Crespo Jimenez
Date of reading: 11/2006



Scientific and technological experience

Scientific or technological activities

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

- 1** **Name of the project:** Solutions of nanomagnetism to social challenges.
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): Rodolfo Miranda; Manuel Vazquez; Ma Pilar Marin; Hermann Suderow; Alberto Bollero; Juan de la Figuera; Agustina Asenjo; Paolo Perna
Nº of researchers: 50
Funding entity or bodies: Comunidad de Madrid **Type of entity:** Regional Research Funding Agency
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 01/01/2019 - 31/12/2022
Total amount: 1.000.000 €
- 2** **Name of the project:** NUEVAS MICROSCOPIAS DE DISPOSITIVOS PARA VISUALIZAR MATERIALES CUANTICOS CONTROLADOS
Entity where project took place: Facultad de Ciencias **Type of entity:** University Centres and Structures and Associated Bodies
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): Hermann Suderow Rodriguez; Isabel Guillamon Gomez; Miguel Angel Ramos; Jose Gabriel Rodrigo Rodriguez
Nº of researchers: 6
Start-End date: 01/01/2018 - 31/12/2020
Total amount: 272.000 €
- 3** **Name of the project:** EU, H2020, COST, Nanoscale coherent hybrid devices for superconducting quantum technologies, COST CA16218
Entity where project took place: COST EU **Type of entity:** State agency
City of entity: Brussels,
Name principal investigator (PI, Co-PI....): Hermann Suderow Rodriguez
Nº of researchers: 100
Start-End date: 01/11/2017 - 30/10/2020
Total amount: 600.000 €
- 4** **Name of the project:** Increasing the delivery capabilities of the liquid Helium production and recovery system of the Campus UAM+CSIC
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): Hermann Suderow
Nº of researchers: 30
Start-End date: 01/01/2019 - 31/12/2019



Total amount: 105.725 €

- 5** **Name of the project:** Visualizing, understanding and controlling Andreev bound states down to atomic scale
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): Alfredo Levy Yeyati; Hermann Suderow
Nº of researchers: 5
Start-End date: 01/01/2015 - 31/12/2018
Total amount: 160.000 €
- 6** **Name of the project:** New frontiers of fundamental and applied nanomagnetism
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): Rodolfo Miranda Soriano; Hermann Suderow Rodriguez
Nº of researchers: 40
Start-End date: 2014 - 2018
Total amount: 900.000 €
- 7** **Name of the project:** Superconductividad bidimensional, nuevos fenómenos para nuevas aplicaciones
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): Hermann Suderow
Nº of researchers: 4
Start-End date: 01/01/2015 - 31/12/2017
Total amount: 130.000 €
- 8** **Name of the project:** COST program 2012. Nanoscale superconductivity: novel functionalities through optimized confinement of condensate and fields. NanoSC-COST.
Name principal investigator (PI, Co-PI....): H. Suderow, Spanish representative and responsible for characterization (IP at EU V. Moshchalkov)
Nº of researchers: 80
Start-End date: 2013 - 2017
- 9** **Name of the project:** ExtremeFieldImaging – Scanning tunneling spectroscopy at high magnetic fields: visualizing pnictide and heavy fermion superconductivity
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): Isabel Guillamón Gomez; Hermann Suderow Rodriguez
Nº of researchers: 2
Start-End date: 2013 - 2017
Total amount: 100.000 €
- 10** **Name of the project:** Vortex 2015 workshop, ICAM-NSF support for travel for ICAM scientists
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
Name principal investigator (PI, Co-PI....): H. Suderow; I. Guillamon; L. Greene; J.G. Rodrigo; S. Vieira; E. Gonzalez
Nº of researchers: 5



Start-End date: 2014 - 2015

Total amount: 10.000 €

11 Name of the project: Proyectos de cooperación interuniversitaria con Asia Banco Santander - UAM (2013). Síntesis y caracterización de superconductores nanoestructurados.

Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University

Name principal investigator (PI, Co-PI....): H. Suderow

Nº of researchers: 8

Funding entity or bodies:

BANCO SANTANDER, S.A.

City funding entity: Spain

Start-End date: 2013 - 2015

Total amount: 11.000 €

12 Name of the project: Direct observation of individual and collective properties of superconducting vortices through scanning tunneling microscopy and spectroscopy. FIS2011-23488. VORTEX MATTERS.

Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University

Name principal investigator (PI, Co-PI....): H. Suderow

Nº of researchers: 8

Start-End date: 2011 - 2014

Total amount: 240.000 €

13 Name of the project: Proyecto ACI-Colabora con India. Fabricación y estudio de nanoestructuras en dicalcogenuros superconductores. Mayo 2010-Abril 2013. Referencia ACI2009-0905.

Name principal investigator (PI, Co-PI....): H. Suderow

Nº of researchers: 14

Start-End date: 2010 - 2013

Total amount: 77.000 €

14 Name of the project: Fundamentos y aplicaciones de moléculas, nanopartículas y nanoestructuras

Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University

Name principal investigator (PI, Co-PI....): Rodolfo Miranda Soriano

Funding entity or bodies:

Comunidad de Madrid

Type of entity: Body, others

Start-End date: 2009 - 2013

15 Name of the project: Programa Consolider-Ingenio 2010 del Ministerio de Educación y Ciencia (de 2007 a 2011). Nanociencia Molecular CDS2007-00010

Name principal investigator (PI, Co-PI....): E. Coronado Miralles

Nº of researchers: 120

Start-End date: 2007 - 2013

Total amount: 5.000.000 €

16 Name of the project: Proyecto ACI-Promociona. Science and technology at high magnetic fields

Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University

Name principal investigator (PI, Co-PI....): H. Suderow.

Nº of researchers: 4

**Funding entity or bodies:**

MINECO

Start-End date: 2011 - 2012**Total amount:** 30.000 €

- 17 Name of the project:** Proyectos de cooperación interuniversitaria Banco Santander - UAM (2011). Superconductividad: cien años de un fenómeno interdisciplinar.
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
Name principal investigator (PI, Co-PI....): H. Suderow
Nº of researchers: 12
Start-End date: 2011 - 2012
Total amount: 15.000 €
- 18 Name of the project:** Nano-Science and Engineering in Superconductivity (NES) Core-to-Core program entre Japón, USA, y la Unión Europea Japan Society for Promotion of Science y European Science Foundation Coordinador europeo: V. Moshchalkov. Coordinador en Japón: Kazuo Kadowaki Coordinador en España: S. Vieira
Name principal investigator (PI, Co-PI....): S. Vieira (Spain), V. Moshchalkov (EU IP)
Nº of researchers: 100
Start-End date: 2009 - 2012
- 19 Name of the project:** Marie Curie advanced cryogenics course "Cryocourse" European Commission Contract Nr MSCF-CT-2006-045781 Coordinador: H. Godfrin, Grenoble Coordinador en España : S. Vieira.
Nº of researchers: 40
Start-End date: 2008 - 2011
- 20 Name of the project:** Estancia de año sabático de V. Tissen. Fermi surface under pressure: upper critical field down to millikelvin temperaturas of superconductors with competing orders. SAB2009-0057
Name principal investigator (PI, Co-PI....): S. Vieira
Nº of researchers: 3
Start-End date: 2010 - 2010
- 21 Name of the project:** Programa de actividades de I+D de la Comunidad de Madrid, CITECNOMIK
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
Name principal investigator (PI, Co-PI....): Sebastian Vieira Diaz
Nº of researchers: 30
Start-End date: 2006 - 2009
Total amount: 600.000 €
- 22 Name of the project:** Proyecto del Plan Nacional de I+D+I, convocatoria de 2003 (de 2004 a 2007). Punta superconductora para microscopía y espectroscopia túnel local a muy bajas temperaturas: Estudio de algunos sistemas superconductores y magnéticos Referencia: FIS2004-028977. Ejecución en el Laboratorio de Bajas Temperaturas de la UAM (LBT-UAM).
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
Name principal investigator (PI, Co-PI....): H. Suderow
Nº of researchers: 8
Start-End date: 2004 - 2007
Total amount: 140.000 €



- 23** **Name of the project:** Emergent behavior in Correlated Matter (ECOM) Programa de la European Science Foundation – COST, programa P-16 Coordinador del grupo de trabajo “experimental techniques”: H. Suderow Coordinador en España: J.C. Gomez-Sal
Name principal investigator (PI, Co-PI....): JC Gomez Sal (Spain), E. Bauer (EU IP)
Start-End date: 2002 - 2006
- 24** **Name of the project:** Fabricación de sistemas metálicos nanoscópicos y su caracterización a bajas y muy bajas temperaturas (2002-2005) MAT2001-1281-C02-01
Name principal investigator (PI, Co-PI....): N. Agraït de la Puente
Nº of researchers: 6
Start-End date: 2002 - 2004
Total amount: 120.000 €
- 25** **Name of the project:** Materiales Magnéticos y superconductores a muy bajas temperaturas: nanoestructuras y transporte de espín a escala atómica 07N/0053/2002
Name principal investigator (PI, Co-PI....): H. Suderow
Nº of researchers: 6
Funding entity or bodies:
Comunidad de Madrid **Type of entity:** Body, others
Start-End date: 2002 - 2004
Total amount: 60.000 €
- 26** **Name of the project:** Estudio a bajas temperaturas del espectro de excitaciones de superconductores magnéticos (2002-2004) Colaboración bilateral CSIC-CNRS con J.P. Brison en Grenoble
Name principal investigator (PI, Co-PI....): J.L. Martínez-Peña y J.P. Brison. Ejecución en el ICMM-CSIC y en el LBT-UAM
Start-End date: 2002 - 2003
Total amount: 10.000 €
- 27** **Name of the project:** STM study of MgB2 single crystals (2002-2003) Colaboración bilateral dentro del programa NEDO con S. Tajima y S. Lee, del ISTEK (Japón)
Name principal investigator (PI, Co-PI....): S. Vieira y S. Tajima
Start-End date: 2002 - 2003
- 28** **Name of the project:** Magnetoresistencia colosal a temperatura ambiente en sistemas de Mn: Policristales, monocristales y láminas delgadas (1999-2002) MAT99-1045
Name principal investigator (PI, Co-PI....): J.L. Martinez Ejecución en el ICMM-CSIC
Start-End date: 1999 - 2002
- 29** **Name of the project:** Fermi liquid instabilities in correlated metals (FERLIN) (1998-2002) Proyecto de la European Science Foundation <http://www.esf.org/physical/pp/ferlin/ferlina.htm> Coordinador en España: J.C. Gomez-Sal (Univ. Santander)
Name principal investigator (PI, Co-PI....): JC Gomez Sal (Spain IP) H.v. Löhneysen (EU IP)
Start-End date: 1998 - 2002
- 30** **Name of the project:** Vortex matter in superconductors at extreme scales and conditions Proyecto de la European Science Foundation
Name principal investigator (PI, Co-PI....): S. Vieira (Spain), V. Moshchalkov (Leuven-Belgica)
Nº of researchers: 60
Start-End date: 1998 - 2002



- 31 Name of the project:** Espectroscopía a escala nanométrica y medidas térmicas en materiales con electrones fuertemente correlacionados (1-10-98 al 1-10-2001) DGICYT PB97-0068
Name principal investigator (PI, Co-PI....): S. Vieira Ejecución en el LBT-UAM.
Start-End date: 1998 - 2001
- 32 Name of the project:** Scanning tunneling microscopy in exotic superconductors (1998-2000) Contrato de la Unión Europea (programa Marie Curie/TMR), ERBFMICT972499 Ejecución en el LBT-UAM.
Name principal investigator (PI, Co-PI....): H. Suderow (fellow), S. Vieira (supervisor)
Start-End date: 1998 - 2000
- 33 Name of the project:** Superconductores magnéticos: El caso de los borocarburos. Búsqueda de una nueva fase superconductor modulada bajo fuertes campos magnéticos y bajas temperaturas (1999-2000) Acción Integrada HF1998-0014 con el grupo de Superconductividad y Magnetismo del CRTBT-CNRS (Grenoble) y el grupo de teoría de la materia condensada de Bordeaux.
Name principal investigator (PI, Co-PI....): S. Vieira Ejecución en el LBT-UAM.
Start-End date: 1998 - 1999
- 34 Name of the project:** Propiedades eléctricas, mecánicas y térmicas de estructuras submicrométricas de plomo y oro a bajas temperaturas (1-10-95 al 1-10-98) DGICYT MAT95-1542
Name principal investigator (PI, Co-PI....): S. Vieira Ejecución en el LBT-UAM.
Start-End date: 1995 - 1998
- 35 Name of the project:** Expériences à Très Basses Températures Proyecto interno del Commissariat á l'Energie Atomique. Ejecución en el Laboratorio de Bajas Temperaturas del SPSMS/DRFMC/CEA
Name principal investigator (PI, Co-PI....): J. Flouquet
Start-End date: 1994 - 1998
- 36 Name of the project:** Sistema compacto de almacenamiento centralizado de helio gas en el Campus Uam+Csic
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
Name principal investigator (PI, Co-PI....): Hermann Suderow
Nº of researchers: 20
Start date: 2014
Total amount: 71.500 €
- 37 Name of the project:** Proyecto del Plan Nacional de I+D+I, convocatoria de 2007 (de 2008 a 2011) Espectroscopía túnel local de alta resolución en el milikelvin: estudio de superconductores con orden de espín y de carga . Ejecución en el Laboratorio de Bajas Temperaturas de la UAM (LBT-UAM). Referencia: FIS2008-00454.
Name principal investigator (PI, Co-PI....): H. Suderow
Start date: 2011

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

- 1 Name of the project:** Desarrollo de hilos pasamuros para medidas a altas presiones con EasyLab.
- 2 Name of the project:** Varios trabajos en el ámbito de la criogenia con EADS-CASA, dirigidos por S. Vieira.



Results

Industrial and intellectual property

- 1 Title registered industrial property:** Termómetro primario para muy bajas temperaturas
Inventors/authors/obtainers: H. Suderow; A. Maldonado; S. Vieira
Entity holder of rights: Universidad Autónoma de Madrid
N° of application: ES2380989B1
Country of inscription: Spain, Community of Madrid
Date of register: 2009
Conferral date: 16/10/2013
- 2 Title registered industrial property:** Dispositivo posicionador para microscopios operable en entornos criogénicos
Inventors/authors/obtainers: H. Suderow; I. Guillamón; A. Buendía; M. Pazos; S. Vieira.
Entity holder of rights: Universidad Autónoma de Madrid
N° of application: ES2396331B1
Country of inscription: Spain
Date of register: 2009
Conferral date: 2013

Scientific and technological activities

Scientific production

Publications, scientific and technical documents

- 1** Magnetic phase diagram, magnetotransport and inverse magnetocaloric effect in the noncollinear antiferromagnet Mn₅Si₃. Journal of Magnetism and Magnetic Materials. 489, pp. 165451. North-Holland, 13/06/2019.
DOI: 10.1016/j.jmmm.2019.165451
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
- 2** Methods to simplify cooling of liquid Helium cryostats. Hardware X. pp. e00058. Elsevier, 04/2019.
DOI: 10.1016/j.ohx.2019.e00058
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
- 3** Attractive interaction between superconducting vortices in tilted magnetic fields. Communications Physics. 2, pp. 31. Nature Group, 03/2019.
DOI: 10.1038/s42005-019-0132-x
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes

- 4** JA Galvis; E. Herrera; C. Berthod; S. Vieira; I. Guillamon; H. Suderow. Tilted vortex cores and superconducting gap anisotropy in 2H-NbSe₂. Communications Physics. 1, pp. 30. Nature, 12/2018.
DOI: 10.1038/s42005-018-0028-1
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
Source of citations: WOS **Citations:** 5
- 5** Fente A.; Correa-Orellana A.; Böhmer A.; Kreyssig A.; Ran S.; Bud'ko S.; Canfield P.; Mompean F.; García-Hernández M.; Munuera C.; Guillamón I.; Suderow H. Direct visualization of phase separation between superconducting and nematic domains in Co-doped CaFe₂As₂ close to a first-order phase transition. Physical Review B. 97, 2018. ISSN 24699950
DOI: 10.1103/PhysRevB.97.014505
Type of production: Scientific paper **Format:** Journal
Source of citations: WOS **Citations:** 6
- 6** Choi D.; Fernández C.; Herrera E.; Rubio-Verdú C.; Ugeda M.; Guillamón I.; Suderow H.; Pascual J.; Lorente N. Influence of Magnetic Ordering between Cr Adatoms on the Yu-Shiba-Rusinov States of the β -Bi₂Pd Superconductor. Physical Review Letters. 120, 2018. ISSN 00319007
DOI: 10.1103/PhysRevLett.120.167001
Type of production: Scientific paper **Format:** Journal
Source of citations: SCOPUS **Citations:** 4
- 7** Fente A.; Meier W.; Kong T.; Kogan V.; Bud'ko S.; Canfield P.; Guillamón I.; Suderow H. Influence of multiband sign-changing superconductivity on vortex cores and vortex pinning in stoichiometric high-*T_c* CaKFe₄As₄. Physical Review B. 97, 2018. ISSN 24699950
DOI: 10.1103/PhysRevB.97.134501
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
Source of citations: WOS **Citations:** 3
- 8** Pristáš G.; Orendáč M.; Gabáni S.; Kačmarčík J.; Gažo E.; Pribulová Z.; Correa-Orellana A.; Herrera E.; Suderow H.; Samuely P. Pressure effect on the superconducting and the normal state of β -Bi₂Pd. Physical Review B. 97, 2018. ISSN 24699950
DOI: 10.1103/PhysRevB.97.134505
Type of production: Scientific paper **Format:** Journal
Source of citations: WOS **Citations:** 1
- 9** J.A. Galvis; E. Herrera; I. Guillamón; S. Vieira; H. Suderow. Vortex cores and vortex motion in superconductors with anisotropic Fermi surfaces. Physica C: Superconductivity and its Applications. 533, pp. 2 - 8. Elsevier {BV}, 02/2017. Available on-line at: <10.1016/j.physc.2016.07.023>.
Type of production: Scientific paper **Format:** Journal
Source of citations: WOS **Citations:** 1
- 10** Kyuil Cho; A. Fente; S. Teknowijoyo; M. A. Tanatar; K. R. Joshi; N. M. Nusran; T. Kong; W. R. Meier; U. Kaluarachchi; I. Guillamon; H. Suderow; S. L. Bud'ko; P. C. Canfield; R. Prozorov. Nodeless multiband superconductivity in stoichiometric single-crystalline CaKFe₄As₄. Physical Review B. 95 - 10, 2017.
DOI: 10.1103/PhysRevB.95.100502
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
Source of citations: WOS **Citations:** 30



- 11** Herrera, E.; Guillamon, I.; Galvis, J. A.; Correa, A.; Fente, A.; Vieira, S.; Suderow, H.; Martynovich, A. Yu.; Kogan, V. G. Subsurface bending and reorientation of tilted vortex lattices in bulk isotropic superconductors due to Coulomb-like repulsion at the surface. *PHYSICAL REVIEW B*. 96, 2017. ISSN 2469-9950
DOI: 10.1103/PhysRevB.96.184502
Type of production: Scientific paper
Corresponding author: Yes
Source of citations: WOS **Citations:** 2
- 12** Edwin Herrera; Jose Benito-Llorens; Udhara S. Kaluarachchi; Sergey L. Bud'ko; Paul C. Canfield; Isabel Guillamon; Hermann Suderow. Vortex creep at very low temperatures in single crystals of the extreme type-II superconductor Rh9In4S4. *Physical Review B*. 95 - 13, 2017.
DOI: 10.1103/PhysRevB.95.134505
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
Source of citations: WOS **Citations:** 1
- 13** A. Fente; E. Herrera; I. Guillamon; H. Suderow; S. Manas-Valero; M. Galbiati; E. Coronado; V. G. Kogan. Field dependence of the vortex core size probed by scanning tunneling microscopy. *Physical Review B*. 94 - 1, 2016.
DOI: 10.1103/PhysRevB.94.014517
Type of production: Scientific paper **Format:** Journal
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- 14** Gorky Shaw; S. S. Banerjee; T. Tamegai; Hermann Suderow. Metastable inhomogeneous vortex configuration with non-uniform filling fraction inside a blind hole array patterned in a BSCCO single crystal and concentrating magnetic flux inside it. *Superconductor Science & Technology*. 29 - 6, 2016.
DOI: 10.1088/0953-2048/29/6/065021
Type of production: Scientific paper **Format:** Journal
Corresponding author: No
- 15** J. Kacmarcik; Z. Pribulova; T. Samuely; P. Szabo; V. Cambel; J. Soltys; E. Herrera; H. Suderow; A. Correa-Orellana; D. Prabhakaran; P. Samuely. Single-gap superconductivity in beta-Bi2Pd. *Physical Review B*. 93 - 14, 2016.
DOI: 10.1103/PhysRevB.93.144502
Type of production: Scientific paper **Format:** Journal
Corresponding author: No
Source of citations: WOS **Citations:** 18
- 16** Mostafa Enayat; Zhixiang Sun; Ana Maldonado; Hermann Suderow; Silvia Seiro; Christoph Geibel; Steffen Wirth; Frank Steglich; Peter Wahl. Superconducting gap and vortex lattice of the heavy-fermion compound CeCu2Si2. *Physical Review B*. 93 - 4, 2016.
DOI: 10.1103/PhysRevB.93.045123
Type of production: Scientific paper **Format:** Journal
Corresponding author: No
Source of citations: WOS **Citations:** 16
- 17** R. F. Luccas; A. Fente; J. Hanco; A. Correa-Orellana; E. Herrera; E. Climent-Pascual; J. Azpeitia; T. Perez-Castaneda; M. R. Osorio; E. Salas-Colera; N. M. Nemes; F. J. Mompean; M. Garcia-Hernandez; J. G. Rodrigo; M. A. Ramos; I. Guillamon; S. Vieira; H. Suderow. Charge density wave in layered La1-xCexSb2. *Physical Review B*. 92 - 23, 2015.



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E. Herrera; I. Guillamon; J. A. Galvis; A. Correa; A. Fente; R. F. Luccas; F. J. Mompean; M. Garcia-Hernandez; S. Vieira; J. P. Brison; H. Suderow. Magnetic field dependence of the density of states in the multiband superconductor beta-Bi2Pd. Physical Review B. 92 - 5, 2015. Available on-line at: <http://gateway.webofknowledge.com/gateway/Gateway.cgi?GWVersion=2&SrcAuth=ORCID&SrcApp=OrcidOrg&DestLinkType=FullRecord&DestApp=WOS_CPL&KeyUT=WOS:0>

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Citations: 23

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Type of production: Scientific paper

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JA Galvis; Hermann Suderow. Three axis vector magnet set-up for cryogenic scanning probe microscopy. Review of Scientific Instruments. 86 - 013706, AIP, 2015.

DOI: 10.1063/1.4905531

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Citations: 38

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Type of production: Scientific paper

Corresponding author: Yes

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H. Suderow; S. Vieira; J.G. Rodrigo; I. Guillamon. Scanning tunneling microscopy and spectroscopy at very low temperatures. J. Physics, Conference Series. 568, pp. 022045. 2014.

DOI: 10.1088/1742-6596/568/2/022045



Type of production: Scientific paper

Format: Scientific and technical document or report

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DOI: 10.1103/PhysRevB.89.224512
Type of production: Scientific paper
Source of citations: WOS
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- 26** A. Fente; H. Suderow; S. Vieira; N.M. Nemes; M. García-Hernández; S.L. Bud'ko; P.C. Canfield. Low temperature magnetic transitions of single crystal HoBi. *Solid State Comm.* 171, pp. 59. 2013.
DOI: 10.1016/j.ssc.2013.07.027
Type of production: Scientific paper
Corresponding author: Yes
Source of citations: WOS
Citations: 3
- 27** T. Perez-Castañeda; J. Azpeitia; J. Hanko; A. Fente; H. Suderow; M.A. Ramos J. Low-Temperature Specific Heat of Graphite and CeSb₂: Validation of a Quasi-adiabatic Continuous Method. *J Low Temp Phys.* 173, pp. 4. 2013.
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Type of production: Scientific paper
Source of citations: WOS
Citations: 9
- 28** R. Córdoba; T.I. Baturina; J. Sesé; Yu. Mironov; J.M. De Teresa; M.R. Ibarra; D.A. Nasimov; A.K. Gutakovskii; A.V. Latishev; I. Guillamón; H. Suderow; S. Vieira; M.R. Baklanov; J.J. Palacios; Valerii Vinokour. Magnetic field-induced dissipation-free state in superconducting nanostructures. *Nat Comm.* 4, pp. 1437. 2013.
DOI: 10.1038/ncomms2437
Type of production: Scientific paper
Source of citations: WOS
Citations: 54
Relevant results: Highlight in Madrimasd(<http://www.madrimasd.org/informacionidi/noticias/noticia.asp?id=55849>), <http://www.2physics.com/>) and US Society of Hispanic Professional Engineers (see p. 24 <http://www.nxtbook.com/nxtbooks/shpe/fall13/index.php>)
- 29** V.G. Tissen; M.R. Osorio; J.P. Brison; N.M. Nemes; M. Gacría-Hernández; L. Cario; P. Rodiere; S. Vieira; H. Suderow. Pressure dependence of superconducting critical temperature and upper critical field of NbS₂. *Phys. Rev. B*. 87, pp. 134502. 2013.
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Type of production: Scientific paper
Corresponding author: Yes
Source of citations: WOS
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- 30** J.A. Galvis; P. Rodiere; I. Guillamón; M.R. Osorio; J.G. Rodrigo; L. Cario; E. Navarro-Moratalla; E. Coronado; S. Vieira; H. Suderow. Scanning tunneling measurements of layers of superconducting 2H-TaSe₂: Evidence for a zero-bias anomaly in single layers. *Phys Rev B*. 87, pp. 094502. 2013.
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- 31** J.A. Galvis; H. Suderow; S. Vieira; S.L. Bud'ko; P.C. Canfield. Scanning tunneling microscopy in the superconductor LaSb₂. Phys Rev B. 87, pp. 214504. 2013.
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Type of production: Scientific paper
Corresponding author: Yes
Source of citations: WOS **Citations:** 5
- 32** H. Suderow; S. Vieira; M.A. Ramos; M. Garcia-Hernandez; F. Mompean; P. Kulkarni; M.R. Osorio; J. Hanko; N.M. Nemes; R.F. Luccas; B. Silva. Superconductivity and magnetism on flux-grown single crystals of NiBi₃. Physical Review B. 88, pp. 184508. APS, 2013.
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Type of production: Scientific paper **Format:** Scientific and technical document or report
Corresponding author: Yes
Source of citations: WOS **Citations:** 13
- 33** A. Maldonado; S. Vieira; H. Suderow. Supercurrent on a vortex core: Current-driven scanning tunneling spectroscopy measurements. Phys Rev B. 88, pp. 064518. 2013.
DOI: 10.1103/PhysRevB.88.064518
Type of production: Scientific paper **Format:** Journal
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- 34** J.G. Rodrigo; V.Crespo; H. Suderow; S. Vieira; F. Guinea. Topological superconductivity in metallic nanowires fabricated with a scanning tunneling microscope. New J of Phys. 15, pp. 055020. 2013.
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- 35** M.R. Osorio; A. Palacio-Morales; J.G. Rodrigo; H. Suderow; S. Vieira. Demonstration experiments for solid-state physics using a table-top mechanical Stirling. Eur J Phys. 33, pp. 757. 2012.
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Corresponding author: Yes
Source of citations: WOS **Citations:** 2
- 36** G. Shaw; B. Bag; S.S. Banerjee; H. Suderow; T. Tamegai. Generating strong magnetic flux shielding regions in a single crystal of Bi₂Sr₂CaCu₂O₈ using a blind hole array. Superc Sci Tech. 25, pp. 095016. 2012.
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- 38** M.R. Osorio; D.E. Lahera; H. Suderow. Magnetic levitation on a type-I superconductor as a practical demonstration experiment for students. Eur J Phys. 33, pp. 1383. 2012.
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Type of production: Scientific paper

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Source of citations: WOS **Citations:** 30
- 47** I. Guillamón; H. Suderow; S. Vieira; A. Fernández-Pacheco; J. Sesé; R. Córdoba; J.M. De Teresa; M.R. Ibarra. Direct observation of stress accumulation and release in small superconducting vortex bundles. *Phys Rev Lett.* 107, pp. 077001. 2011.
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- 49** I. Guillamón; V. Crespo; H. Suderow; S. Vieira; J.P. Brison; S.L. Bud'ko and P.C. Canfield. Atomic resolution and vortex lattice studies of magnetic superconductors: a first approach in the nickel borocarbide TmNi₂B₂C. *Physica C.* 470, pp. 771. 2010.
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Corresponding author: Yes
Source of citations: WOS **Citations:** 8
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DOI: 10.1016/j.physc.2010.02.080
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- 51** A. Maldonado; H. Suderow; S. Vieira. Thermometry with a nearly temperature independent sensitivity using a normal-superconducting tunnel diode biased closet o the superconducting gap. *Cryogenics.* 50, pp. 397. 2010.
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Source of citations: WOS **Citations:** 3
- 52** H. Suderow; V. Crespo; I. Guillamón; F. Servant; P. Lejay; J.P. Brison; J. Flouquet. A Nodeless superconducting gap in Sr₂RuO₄ from tunneling spectroscopy. *New J of Phys.* 11, pp. 093004. 2009.
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- 53** I. Guillamón; H. Suderow; A. Fernández-Pacheco; J. Sesé; R. Córdoba; J.M. De Teresa; M.R. Ibarra; S. Vieira. Direct observation of melting in a two-dimensional superconducting vortex lattice. *Nat Phys.* 5, pp. 461. 2009.
DOI: 10.1038/NPHYS1368
Type of production: Scientific paper
Corresponding author: Yes
Source of citations: WOS **Citations:** 67
Relevant results: Highlight in *Physics Today* (October 2009), *Physics Update* (<http://blogs.physicstoday.org/update/2009/08/mapping-two-dimensional-melting.html>), and *Madrimasd* (“Observar la fusión de la red de vórtices en un nuevo material superconductor”).
- 54** V. Crespo; J.G. Rodrigo; H. Suderow; S. Vieira; D.G. Hinks; I.K. Schuller. Evolution of the local superconducting density of states in ErRh₄B₄ close to the ferromagnetic transition. *Phys Rev Lett.* 102, pp. 237002. 2009.
DOI: 10.1103/PhysRevLett.102.237002
Type of production: Scientific paper
Corresponding author: Yes
Source of citations: WOS **Citations:** 11
- 55** B.L. Willems; V.H. Dau; J. Vanacken; L.F. Chibotaru; V.V. Moshchalkov; I. Guillamón; H. Suderow; S. Vieira; S.D. Janssens; O.A. Williams; K. Haenen and P. Wagner. Intrinsic granularity in nanocrystalline boron-doped diamond films measured by scanning tunneling microscopy. *Phys Rev B.* 80, pp. 224518. 2009.
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Type of production: Scientific paper
Source of citations: WOS **Citations:** 16
- 56** J.G. Rodrigo; H. Suderow; S. Vieira. *Nanoscience and Engineering in Superconductivity*. Editors V.V. Moshchalkov, R. Woerdenweber and W. Lang, ISBN 978-3-642-15136-1. Scanning Tunneling Spectroscopy of vortices with superconducting tips. 2009.
Type of production: Scientific paper **Format:** Book
- 57** H. Suderow; K. Behnia; I. Guillamón; V. Crespo; S. Vieira; D. Kikuchi; Y. Aoki; H. Sugawara and H. Sato. Gap opening with ordering in PrFe₄P₁₂ studied by local tunneling spectroscopy. *Phys Rev B.* 77, pp. 153101. 2008.
DOI: 10.1103/PhysRevB.77.153101
Type of production: Scientific paper
Source of citations: WOS **Citations:** 3
- 58** J. Kacmarcik; P. Szabo; P. Samuely; J.G. Rodrigo; H. Suderow; S. Vieira; A. Lafond and A. Meerschaut. Intrinsic Josephson junction behavior of the low T_c superconductor (LaSe)_{1.14}(NbSe₂). *Physica C.* 468, pp. 543. 2008.
DOI: 10.1016/j.physc.2007.11.062
Type of production: Scientific paper
Source of citations: WOS **Citations:** 2
- 59** I. Guillamón; H. Suderow; F. Guinea; S. Vieira. Intrinsic atomic scale modulations of the superconducting gap of 2H-NbSe₂. *Phys Rev B.* 77, pp. 134505. 2008.
DOI: 10.1103/PhysRevB.77.134505
Type of production: Scientific paper
Source of citations: WOS **Citations:** 62
Relevant results: Editor’s suggestion. Highlight in “ESF Highlights 2007”.



- 60** I. Guillamón; H. Suderow; S. Vieira; A. Fernández-Pacheco; J. Sesé; R. Córdoba; J.M. De Teresa; M.R. Ibarra. Nanoscale superconducting properties of amorphous W-based deposits grown with a focused-ion-beam. *New J of Phys.* 10, pp. 093005. 2008.
DOI: 10.1088/1367-2630/10/9/093005
Type of production: Scientific paper
Source of citations: WOS **Citations:** 47
Relevant results: Highlight in Europhysics News, Vol.39, p. 15 (2008).
- 61** I. Guillamón; H. Suderow; S. Vieira; P. Rodiere. Scanning tunneling spectroscopy with superconducting tips of Al. *Physica C.* 468, pp. 537. 2008.
DOI: 10.1016/j.physc.2007.11.066
Type of production: Scientific paper
Corresponding author: Yes
Source of citations: WOS **Citations:** 24
- 62** I. Guillamón; H. Suderow; S. Vieira; L. Cario; P. Diener and P. Rodière. Superconducting density of states and vortex cores of 2H-NbSe₂. *Phys Rev Lett.* 101, pp. 166407. 2008.
DOI: 10.1103/PhysRevLett.101.166407
Type of production: Scientific paper
Corresponding author: Yes
Source of citations: WOS **Citations:** 97
- 63** M. Crespo; H. Suderow; S. Vieira; S. Bud'ko; P.C. Canfield. Local superconducting density of states of ErNi₂B₂C. *Phys Rev Lett.* 96, pp. 27003. 2006.
DOI: 10.1103/PhysRevLett.96.027003
Type of production: Scientific paper
Corresponding author: Yes
Source of citations: WOS **Citations:** 30
- 64** M. Crespo; H. Suderow; S. Vieira; S. Bud'ko and P.C. Canfield. Thermal expansion measured by STM in the magnetic superconductor ErNi₂B₂C. *Physica B.* 378, pp. 471. 2006.
DOI: 10.1016/j.physb.2006.01.205
Type of production: Scientific paper
Corresponding author: Yes
Source of citations: WOS **Citations:** 3
- 65** H. Suderow; V. Tissen; J.P. Brison; J.L. Martínez; S. Vieira. Pressure induced effects on the Fermi surface of superconducting 2H-NbSe₂. *Phys Rev Lett.* 95, pp. 117006. 2005.
DOI: 10.1103/PhysRevLett.95.117006
Type of production: Scientific paper
Corresponding author: Yes
Source of citations: WOS **Citations:** 59
- 66** J.P. Brison; N. Luchier; A. Sulpice; H. Suderow; P. Martínez-Samper; S. Vieira; A.I. Buzdin; P.C. Canfield. Anisotropic superconductivity in the borocarbide superconductors and spin disorder. *J of Mag and Mag Mat.* 272, pp. 158. 2004.
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Type of production: Scientific paper
Source of citations: WOS **Citations:** 5



- 67** J.G. Rodrigo; H. Suderow; S. Vieira. On the use of STM superconducting tips at very low temperatures. Eur Phys J B. 40, pp. 483. 2004.
DOI: 10.1140/epjb/e2004-00273-y
Type of production: Scientific paper
Source of citations: WOS **Citations:** 44
- 68** H. Suderow; V. Tissen; J.P. Brison; P. Lejay; J.L. Martínez; S. Vieira; S. Lee and S. Tajima. Pressure dependence of the upper critical field of MgB₂ and of YNi₂B₂C. Phys Rev B. 70, pp. 134518. 2004.
DOI: 10.1103/PhysRevB.70.134518
Type of production: Scientific paper
Corresponding author: Yes
Source of citations: WOS **Citations:** 35
- 69** J. Kacmarcik; P. Szabo; P. Samuely; J.G. Rodrigo; H. Suderow and S. Vieira; A. Lafond; A. Meerschaut. Scanning Tunneling Microscopy and Spectroscopy of (LaSe)_{1.14}(NbSe₂) at very low temperatures and in magnetic fields. Czechoslovak Journal of Physics (2004). 2004.
Type of production: Scientific paper
- 70** J.G. Rodrigo; H. Suderow; S. Vieira; E. Bascones; F. Guinea. Superconducting nanostructures fabricated with an STM. Review article. J of Phys Cond Matt. 16, pp. R1151. 2004.
DOI: 10.1088/0953-8984/16/34/R01
Type of production: Scientific paper
Source of citations: WOS **Citations:** 33
Relevant results: Top papers 2004 (http://ej.iop.org/pdf/jpcm/2004_top_papers.pdf).
- 71** H. Suderow; S. Vieira; J.D. Strand; S. Bud'ko; P.C. Canfield. Very Low Temperature Scanning tunneling spectroscopy in the heavy fermion superconductor PrOs₄Sb₁₂. Phys Rev B Rapid Comm. 69, pp. 060504. 2004.
DOI: 10.1103/PhysRevB.69.060504
Type of production: Scientific paper
Source of citations: WOS **Citations:** 61
- 72** L. Durivault; F. Bourée; B. Chevalier; G. André; F. Weil; J. Etourneau; P. Martínez Samper; J.G. Rodrigo; H. Suderow; S. Vieira. Incommensurate and commensurate magnetic structures of the ternary germanide CeNiGe₃. J Phys: Cond Matt. 15, pp. 77. 2003.
Type of production: Scientific paper
- 73** H. Suderow; M. Crespo; S. Vieira; M. Vila; M. Garcia-Hernandez; A. de Andres; C. Prieto; C. Ocal; J.L. Martínez; Y.M. Mukovskii. Observation of a spin polarized current through single atom quantum point contacts. Physica E. 18, pp. 264. 2003.
DOI: 10.1016/S1386-9477(02)01010-X
Type of production: Scientific paper
Source of citations: WOS **Citations:** 3
- 74** P. Martinez-Samper; H. Suderow; S. Vieira; J.P. Brison; N. Luchier; P. Lejay; P. Canfield. Phonon mediated anisotropic superconductivity in the Y and Lu Ni borocarbides. Phys Rev B. 67, pp. 014526. 2003.
DOI: 10.1103/PhysRevB.67.014526
Type of production: Scientific paper
Corresponding author: Yes
Source of citations: WOS **Citations:** 45



- 75** P. Martínez-Samper; J.G. Rodrigo; G. Rubio-Bollinger; H. Suderow; S. Vieira. Scanning tunneling spectroscopy in MgB₂. Invited Review issue about MgB₂. Physica C. 385, pp. 233. 2003.
DOI: 10.1016/S0921-4534(02)02296-7
Type of production: Scientific paper
Source of citations: WOS **Citations:** 40
- 76** H. Suderow; J.G. Rodrigo; P. Martínez-Samper; S. Vieira; J.P. Brison; P. Lejay; P.C. Canfield; S.I. Lee; S. Tajima. Scanning tunneling spectroscopy in anisotropic s-wave superconductors. Int J of Mod Phys. 17, pp. 18. 2003.
DOI: 10.1142/S0217979203020892
Type of production: Scientific paper
Corresponding author: Yes
Source of citations: WOS **Citations:** 1
- 77** J.G. Rodrigo; H. Suderow; S. Vieira. Superconducting nanobridges under magnetic fields. Phys Stat Sol B. 237, pp. 386. 2003.
DOI: 10.1002/pssb.200301798
Type of production: Scientific paper
Source of citations: WOS **Citations:** 16
- 78** H. Suderow; E. Bascones; A. Izquierdo; S. Vieira. Proximity effect and strong-coupling superconductivity in nanostructures built with an STM. Phys Rev B, Rapid Comm. 65, pp. 100519. 2002.
DOI: 10.1103/PhysRevB.65.100519
Type of production: Scientific paper
Source of citations: WOS **Citations:** 30
- 79** H. Suderow; M. Crespo; P. Martínez-Samper; J.G. Rodrigo; G. Rubio-Bollinger; S. Vieira; N. Luchier; J.P. Brison; P.C. Canfield. Scanning tunneling microscopy and spectroscopy at very low temperatures. Physica C, Vol. 369, pp. 369, pp. 106. 2002.
DOI: 10.1016/S0921-4534(01)01228-X
Type of production: Scientific paper
Source of citations: WOS **Citations:** 22
- 80** P. Martínez Samper; A. Izquierdo; H. Suderow; J. Rodríguez Fernández; J.I. Espeso; F.G. Aliev; J.C. Gómez Sal; S. Vieira. The evanescence of the Ferromagnetic order in Ce_{1-x}Y_xNi_{0.8}Pt_{0.2} Dense Kondo System. Eur Phys J B. 28, pp. 103. 2002.
Type of production: Scientific paper
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DOI: 10.1103/PhysRevLett.86.5582
Type of production: Scientific paper
Source of citations: WOS **Citations:** 135
- 82** H. Suderow; P. Martinez-Samper; S. Vieira; N. Luchier; J.P. Brison; P. Canfield. Tunneling spectroscopy in the magnetic superconductor TmNi₂B₂C. Phys Rev B, Rapid Comm. 64, pp. 20503. 2001.
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Source of citations: WOS **Citations:** 24



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DOI: 10.1209/epl/i2000-00544-3
Type of production: Scientific paper
Source of citations: WOS **Citations:** 24
- 84** J.P. Brison; L. Glemot; H. Suderow; A. Huxley; S. Kambe; J. Flouquet. Heavy Fermion Superconductivity. *Physica B*. 280, pp. 165. 2000.
DOI: 10.1016/S0921-4526(99)01551-3
Type of production: Scientific paper
Source of citations: WOS **Citations:** 16
- 85** H. Suderow; S. Vieira. Nonequilibrium effects in superconducting nanobridges under magnetic fields. *Phys Lett A*. 275, pp. 299. 2000.
DOI: 10.1016/S0375-9601(00)00587-9
Type of production: Scientific paper
Corresponding author: Yes
Source of citations: WOS **Citations:** 6
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Type of production: Scientific paper
Source of citations: WOS **Citations:** 8
- 87** J.P. Brison; H. Suderow; P. Rodière; A. Huxley; S. Kambe; F. Rullier-Albenque; J. Flouquet. Transport in the Superconducting Phase of UPt₃ at Low Temperatures: Magnetic Field and Imputity Effects. *Physica B*. 281, pp. 872. 2000.
Type of production: Scientific paper
- 88** H. Suderow; S. Kambe; J. P. Brison; A.D. Huxley; J. Flouquet; F. Rullier-Albenque. Controlled Creation of Structural Defects and its Influence on the Superconducting Properties of UPt₃. *J of Low Temp Phys*. 116, pp. 393. 1999.
DOI: 10.1023/A:1021711610128
Type of production: Scientific paper
Source of citations: WOS **Citations:** 8
- 89** S. Kambe; H. Suderow; T. Fukuhara; J. Flouquet; T. Takimoto. Spin fluctuation mediated thermal conductivity around the magnetic instability of CeNi₂Ge₂. *J of Low Temp Phys*. 117, pp. 101. 1999.
DOI: 10.1023/A:1021865906745
Type of production: Scientific paper
Source of citations: WOS **Citations:** 22
- 90** H. Suderow; J.P. Brison; A.D. Huxley; J. Flouquet. Scaling and Thermal Conductivity in Unconventional Superconductors : The Case of UPt₃. *Physical Review Letters*. 80, pp. 165. 1998.
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Type of production: Scientific paper
Source of citations: WOS **Citations:** 41



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Type of production: Scientific paper
- 92** H. Suderow; J.P. Brison; J. Flouquet; A. Tyler; Y. Maeno. Very Low Temperature Thermal Conductivity in the Layered Perovskite Sr₂RuO₄. *J of Phys Cond Matt*. 10, pp. L597. 1998.
DOI: 10.1088/0953-8984/10/34/004
Type of production: Scientific paper
Source of citations: WOS **Citations:** 23
- 93** H. Suderow; A.D. Huxley; H. Aubin; K. Behnia. Quasiparticle Vortex Scattering in UPt₃. *Phys Lett A*. 234, pp. 342. 1997.
DOI: 10.1016/S0375-9601(97)00569-0
Type of production: Scientific paper
Source of citations: WOS **Citations:** 13
- 94** H. Suderow; J.P. Brison; A.D. Huxley; J. Flouquet. Thermal Conductivity and Gap Structure of the Superconducting Phases of UPt₃. *J of Low Temp Phys*. 108, pp. 11. 1997.
DOI: 10.1007/BF02396814
Type of production: Scientific paper
Source of citations: WOS **Citations:** 69
- 95** S. Kambe; S. Raymond; H. Suderow; G. Lapertot; H. Bioud; P. Haen; L.P. Regnault; J. Flouquet; D.N. Davydov; A.G.M. Jansen; P. Wyder; N. Wilson. Charge and Spin Gaps in Kondo-Insulator CeNiSn. *Czechoslovak Journal of Physics*. 46, pp. 1999. 1996.
Type of production: Scientific paper
- 96** S. Kambe; S. Raymond; H. Suderow; J. McDonough; B. Fak; L.P. Regnault; R. Calemezuk; J. Flouquet. Excitations in Heavy Fermion Systems. *Physica B*. 224, pp. 135. 1996.
DOI: 10.1016/0921-4526(96)00060-9
Type of production: Scientific paper
Source of citations: WOS **Citations:** 21
- 97** H. Suderow; J.P. Brison; A.D. Huxley; J. Flouquet. Probing the Superconducting Gap of UPt₃ by Very Low Temperature Thermal Conductivity. *Physica B*. 224, pp. 47. 1996.
Type of production: Scientific paper
- 98** H. Suderow; J.P. Brison; Ch. Marcenat; B. Salce. Thermal Diffusivity and Conductivity Measurements for Si:P near the Metal-Insulator Transition. *Journal of Phys : Cond Matt*. 8, pp. 999. 1996.
DOI: 10.1088/0953-8984/8/8/011
Type of production: Scientific paper
Source of citations: WOS **Citations:** 5
- 99** H. Suderow; J.P. Brison; A.D. Huxley; J. Flouquet. Very Low Temperature Thermal Conductivity of UPt₃. *Physica B*. 230, pp. 47. 1996.
Type of production: Scientific paper



- 100** S. Kambe; H. Suderow; J. Flouquet; P. Haen and P. Lejay. Field-induced Renormalization observed by Magnetoresistance in CeRu₂Si₂. Solid State Communications. 95, pp. 175. 1995.
DOI: 10.1016/0038-1098(95)00243-X
Type of production: Scientific paper
Source of citations: WOS **Citations:** 28
- 101** Editor of "Some Modern Aspects of the Physics of Strongly Correlated Electron Systems", junto con R. Villar, J.C. Gomez-Sal y F. Aliev. Publication service UAM. ISBN 84-7477-780-1. 1999.
Type of production: Scientific book or monograph
- 102** A. Fente; I. Guillamon; S. Ran; S. Vieira; H. Suderow; S.L. Bud'ko; P.C. Canfield. Observation of unreconstructed square atomic square lattice in Ca(Fe_{0.965}Co_{0.035})₂As₂ cleaved at very low temperatures. J. Physics, Conference Series. 568, pp. 022046. 2014.
DOI: 10.1088/1742-6596/568/2/022046
Format: Scientific and technical document or report
Source of citations: WOS **Citations:** 2
- 103** H. Suderow; S. Vieira. Fusión en una red bidimensional de vórtices superconductores. Investigación y Ciencia 05/2010. pp. 10 - 11. 2010.

Works submitted to national or international conferences

- 1** **Title of the work:** Atomic scale scanning tunneling spectroscopy with a superconducting tip
Name of the conference: Quantum coherent phenomena at the nanoscale
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
City of event: Naples, Italy
Date of event: 16/06/2019
End date: 20/06/2019
Organising entity: University Naples
- 2** **Title of the work:** Characterization and manipulation of bound states in superconductors via scanning probe microscopy
Name of the conference: ESMOLNA2019
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
City of event: Elche, Spain
Date of event: 23/05/2019
End date: 24/05/2019
Organising entity: Universitat de València **Type of entity:** University
- 3** **Title of the work:** Characterizing and manipulating vortices in uniaxial superconductors at high magnetic fields
Name of the conference: Vortex 2019
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
City of event: Antwerp, Belgium
Date of event: 20/05/2019
End date: 25/05/2019



Organising entity: University Antwerp
Hermann Suderow.

- 4** **Title of the work:** Scanning probe microscopy of vortices in tilted magnetic fields
Name of the conference: Probing Coherent Superconducting Hybrids at the Nanoscale
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
City of event: Eilat, Israel
Date of event: 17/02/2019
End date: 20/02/2019
Organising entity: NanocoHybri
Hermann Suderow.
- 5** **Title of the work:** Electronic interference observed by very low temperature scanning tunneling microscopy
Name of the conference: Synthesis and exotic physics of novel quantum materials
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
City of event: Ames, United States of America
Date of event: 08/2018
Organising entity: Ames Lab
City organizing entity: Ames, United States of America
Hermann Suderow.
- 6** **Title of the work:** Scanning probe microscopy of vortices in tilted magnetic
Name of the conference: 12th International Conference on Materials and Mechanisms of Superconductivity.
City of event: Beijing, China
Date of event: 08/2018
Organising entity: M2S committee
Hermann Suderow.
- 7** **Title of the work:** Bound states of vortices and magnetic impurities in superconductors
Name of the conference: A.A.Abrikosov Memorial Conference
Type of participation: Participatory - invited/keynote talk
City of event: Moscow, Russia
Date of event: 25/06/2018
End date: 28/06/2018
Organising entity: Landau Institute of Physics
Hermann Suderow.
- 8** **Title of the work:** Bound states and unconventional low energy electronic behavior in superconductors
Name of the conference: New Platforms for Topological Superconductivity with Magnetic Atoms
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
City of event: Dresden, Germany
Date of event: 10/04/2018
End date: 14/04/2018
Organising entity: Max Planck
Hermann Suderow.



- 9** **Title of the work:** Biaxial strain induces phase separation in $\text{Ca}(\text{FeCo})_2\text{As}_2$
Name of the conference: Vortex X. Rhodes
Corresponding author: Yes
Date of event: 2017
Hermann Suderow.
- 10** **Title of the work:** Microscopía de efecto túnel a muy bajas temperaturas
Name of the conference: XVII Encuentro de Superficies y Materiales Nanoestructurados. Bariloche
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
Date of event: 2017
Hermann Suderow.
- 11** **Title of the work:** Scanning tunneling microscopy of vortices in tilted fields.
Name of the conference: 16th international workshop on vortex matter.
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
Date of event: 2017
Hermann Suderow.
- 12** **Title of the work:** Visualizing the vortex lattice in two-effective-band, stoichiometric high T_c $\text{CaKFe}_4\text{As}_4$ superconductor.
Name of the conference: March meeting. Nueva Orleans
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
Date of event: 2017
Hermann Suderow.
- 13** **Title of the work:** Anisotropy and size of the superconducting vortex core.
Name of the conference: Workshop on nanoscale imaging of superconductivity
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
City of event: Sas Fee, Switzerland
Date of event: 2016
Hermann Suderow.
- 14** **Title of the work:** Correlations and superconductivity in 2D
Name of the conference: 9th European School on Molecular Nanomagnetism
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
City of event: Valladolid, Spain
Date of event: 2016
Hermann Suderow.
- 15** **Title of the work:** Interplay between structural domains, magnetic and superconductivity from low temperature scanning tunneling microscopy.
Name of the conference: Interference of magnetism and superconductivity. Natal. Institute of Physics.
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
Date of event: 2016
Hermann Suderow.



- 16** **Title of the work:** Vortex core size from low temperature scanning tunneling microscopy. 54. Interference of magnetism and superconductivity. Natal. Institute
Name of the conference: Nanoconfined superconductors and their applications. Garmisch-Partenkirchen
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
Date of event: 2016
Hermann Suderow.
- 17** **Title of the work:** Vortex core size from very low temperature scanning tunneling microscopy in one and two gap superconductors
Name of the conference: 3rd Toyota Riken International Workshop on vortex matter.
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
Date of event: 2016
Hermann Suderow.
- 18** **Title of the work:** Multiband Fermi surface, anisotropic gap structure and tilted vortices in layered superconductors
Name of the conference: Brazilian Physical Society Meeting 2015
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
City of event: Iguazu, Brazil
Date of event: 2015
Hermann Suderow.
- 19** **Title of the work:** Scanning tunneling microscopy and spectroscopy in strongly correlated electron systems
Name of the conference: International conference on vortex matter in nanostructured superconductors
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
City of event: Rhodes, Greece
Date of event: 2015
Hermann Suderow.
- 20** **Title of the work:** Scanning tunneling microscopy in strongly correlated electron systems
Name of the conference: WE Heraeus seminar Frontiers in Scanning Probe Microscopy
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
City of event: Bad Honner, Germany
Date of event: 2015
Hermann Suderow.
- 21** **Title of the work:** Scanning tunneling spectroscopy of two-dimensional superconductors at very low temperatures
Name of the conference: Landau Institute. International workshop on localization, interactions and superconductivity
Type of participation: Participatory - invited/keynote talk
Corresponding author: Yes
City of event: Moscu, Russia
Date of event: 2015
Hermann Suderow.



- 22** **Title of the work:** Disorder and Coulomb interactions in quasi two dimensional superconductors
Name of the conference: Workshop on the superconductor to insulator transition
Type of participation: Participatory - invited/keynote talk
City of event: Villard de Lans, France
Date of event: 2014
Organising entity: UJF **Type of entity:** University
City organizing entity: Grenoble, France
H. Suderow.
- 23** **Title of the work:** On the tilted vortex lattice.
Name of the conference: Interplay between magnetism and superconductivity
City of event: Bordeaux,
Date of event: 2014
Organising entity: University Bordeaux **Type of entity:** University
City organizing entity: Bordeaux,
H. Suderow.
- 24** **Title of the work:** Semi-plenary talk. Scanning tunneling microscopy and spectroscopy in superconductors at very low temperatures
Name of the conference: Condensed Matter in Paris 2014, JMC 14 CMD 25
Type of participation: Participatory - invited/keynote talk
City of event: Paris, France
Date of event: 2014
H. Suderow.
- 25** **Title of the work:** Semi-plenary talk. Very low temperature scanning tunneling microscopy observation of the 2D vortex order-disorder transition
Name of the conference: International Conference in Low Temperature Physics, LT27
Type of participation: Participatory - invited/keynote talk
City of event: Buenos Aires, Argentina
Date of event: 2014
Organising entity: UBA **Type of entity:** University
City organizing entity: Buenos Aires,
H. Suderow.
- 26** **Title of the work:** Superconductivity and magnetism at the nanoscale
Name of the conference: International School of the IMPRS for Condensed Matter Science
Type of participation: Participatory - invited/keynote talk
City of event: Stuttgart, Germany
Date of event: 2014
Organising entity: Max Planck Stuttgart **Type of entity:** Public Research Body
City organizing entity: Stuttgart, Germany
H. Suderow.
- 27** **Title of the work:** Tilted vortex cores and the Fermi surface anisotropies
Name of the conference: Physics and applications of superconducting hybrid nanoengineered devices
Type of participation: Participatory - invited/keynote talk
City of event: Naples, Italy
Date of event: 2014
Organising entity: University naples **Type of entity:** University



H. Suderow.

- 28** **Title of the work:** 2D crystals and disordered superconducting systems
Name of the conference: 14th international workshop on vortex matter in superconductors. Mai 2013.
Type of participation: Participatory - invited/keynote talk
City of event: Nanjing, China
Date of event: 2013
H. Suderow. 2013.
- 29** **Title of the work:** Keynote talk. Vortex lattice visualization using scanning tunneling spectroscopy at very low temperatures
Name of the conference: VIII Vortex Summer School. October 2013.
Type of participation: Participatory - invited/keynote talk
City of event: Rhodes, Greece
Date of event: 2013
H. Suderow. 2013.
- 30** **Title of the work:** Scanning tunneling spectroscopy at very low temperatures
Name of the conference: 15th Czech and Slovak conference on magnetism.
Type of participation: Participatory - invited/keynote talk
City of event: Kosice,
Date of event: 2013
H. Suderow. 2013.
- 31** **Title of the work:** Scanning tunneling spectroscopy at very low temperatures in vortex lattices
Name of the conference: Modern trends in theory of quantum phase transitions
Type of participation: Participatory - invited/keynote talk
City of event: Bordeaux, France
Date of event: 2013
H. Suderow. 2013.
- 32** **Title of the work:** Scanning tunneling spectroscopy on disordered systems
Name of the conference: XVI National Conference of superconductivity
Type of participation: Participatory - invited/keynote talk
City of event: Zakopane, Poland
Date of event: 2013
H. Suderow. 2013.
- 33** **Title of the work:** Superconducting thin films and single layers studied by STM
Name of the conference: Workshop on high temperature superconductors
Type of participation: Participatory - invited/keynote talk
City of event: Planneralm, Austria
Date of event: 2013
Organising entity: University Wien **Type of entity:** University
H. Suderow.
- 34** **Title of the work:** Very low temperature scanning tunneling spectroscopy in superconductors
Name of the conference: International conference in superconductivity
Type of participation: Participatory - invited/keynote talk
City of event: Tokyo,
Date of event: 2013



H. Suderow.

- 35** **Title of the work:** Laboratorio de muy bajas temperaturas: cerca del cero absoluto
Name of the conference: CYTEF 2012.
Type of participation: Participatory - invited/keynote talk
City of event: Madrid, Spain
Date of event: 2012
- 36** **Title of the work:** Scanning tunneling conductance at very low temperatures in superconducting and insulating phases of ultra thin TiN films
Name of the conference: Workshop on unconventional insulators.
Type of participation: Participatory - invited/keynote talk
City of event: Argonne, USA,
Date of event: 2012
H. Suderow. 2012.
- 37** **Title of the work:** Scanning tunneling microscopy of the vortex lattice
Name of the conference: M2S 2012
Type of participation: Participatory - invited/keynote talk
City of event: Washington, USA, Canada
Date of event: 2012
H. Suderow. 2012.
- 38** **Title of the work:** Cryogenic scanning probe microscopy. Atomic scale precisión in a cryogenic environment
Name of the conference: 23rd International congress of refrigeration.
Type of participation: Participatory - invited/keynote talk
City of event: Prague, Cheque republic,
Date of event: 2011
H. Suderow. 2011.
- 39** **Title of the work:** Scanning tunneling microscopy at very low temperatures
Name of the conference: ESMOLNA 2011
Type of participation: Participatory - invited/keynote talk
City of event: Peñíscola, Spain
Date of event: 2011
H. Suderow. 2011.
- 40** **Title of the work:** Very low temperature scanning tunneling spectroscopy of the vortex lattice: order-disorder transition.
Name of the conference: Mesoscopic superconductivity and vortex imaging
Type of participation: Participatory - invited/keynote talk
City of event: Bath, UK,
Date of event: 2011
H. Suderow. 2011.
- 41** **Title of the work:** Scanning tunneling spectroscopy of the vortex lattice.
Name of the conference: Fuerzas y Túnel 2010.
Type of participation: Participatory - invited/keynote talk
City of event: Tarragona, Spain,
Date of event: 2010
H. Suderow. 2010.



- 42** **Title of the work:** Scanning tunneling spectroscopy in heavy fermion superconductors.
Name of the conference: On the heavy fermion road.
Type of participation: Participatory - invited/keynote talk
City of event: Paris, France,
Date of event: 2010
- 43** **Title of the work:** Scanning tunneling spectroscopy in strongly correlated electron systems
Name of the conference: New generation of strongly correlated electron systems.
Type of participation: Participatory - invited/keynote talk
City of event: Lanzarote, Spain
Date of event: 2010
H. Suderow. 2010.
- 44** **Title of the work:** Scanning tunneling spectroscopy in superconductors at very low temperatures.
Name of the conference: International Vacuum Congress
Type of participation: Participatory - invited/keynote talk
City of event: Beijing, China.,
Date of event: 2010
H. Suderow. 2010.
- 45** **Title of the work:** STM in superconductors at very low temperatures.
Name of the conference: Emergent behavior in correlated systems.
Type of participation: Participatory - invited/keynote talk
City of event: Krakow, Poland.,
Date of event: 2009
- 46** **Title of the work:** Scanning tunneling microscopy imaging of the vortex lattice.
Name of the conference: Vortex matter in nanostructured superconductors
Type of participation: Participatory - invited/keynote talk
City of event: Rhodes, Greece,
Date of event: 2009
H. Suderow. 2009.
- 47** **Title of the work:** Superconductivity studied by scanning tunneling spectroscopy at very low temperatures.
Name of the conference: First European School on Molecular Nanoscience
Type of participation: Participatory - invited/keynote talk
Date of event: 2008
H. Suderow. 2008.
- 48** **Title of the work:** Interplay between superconductivity and charge order in the transition metal dichalcogenides
Name of the conference: New materials, new techniques and new ideas in strongly correlated electron systems
Type of participation: Participatory - invited/keynote talk
Date of event: 2008
H. Suderow. 2008.
- 49** **Title of the work:** Nanoscale superconducting properties of amorphous W-based deposits grown with focused-ion-beam.
Name of the conference: IV International Workshop on Nanomagnetism.



Type of participation: Participatory - invited/keynote talk

Date of event: 2008

H. Suderow. 2008.

50 Title of the work: Superconductivity and charge order: Intrinsic atomic scale modulations of the superconducting density of states.

Name of the conference: Probing superconductivity the Nanoscale.

Type of participation: Participatory - invited/keynote talk

City of event: Alicante, Spain,

Date of event: 2008

H. Suderow. 2008.

51 Title of the work: "Cerca del cero absoluto: física de bajas y muy bajas temperaturas". Invited lecture. Superconductividad en materiales magnéticos

Name of the conference: Curso de Verano en El Escorial.

Type of participation: Participatory - invited/keynote talk

Date of event: 2007

H. Suderow. 2007.

52 Title of the work: Local Tunneling Spectroscopy at millikelvin temperatures: Multiband effects, and coexistence of superconductivity and magnetism in the nanoscale.

Name of the conference: Vortex Matter in nanostructured superconductors

Type of participation: Participatory - invited/keynote talk

City of event: Rhodes,

Date of event: 2007

H. Suderow. 2007.

53 Title of the work: Scanning tunnelling microscopy and spectroscopy at 100 mK: Local density of states, vortex lattice and superconducting tips

Name of the conference: II International workshop on nanomagnetism, Coma-Ruga

Type of participation: Participatory - invited/keynote talk

Date of event: 2006

H. Suderow. 2006.

54 Title of the work: Very low temperature Scanning Tunneling Spectroscopy in magnetic superconductors.

Name of the conference: USA-Spain workshop on nanomaterials

Type of participation: Participatory - invited/keynote talk

City of event: Segovia,

Date of event: 2005

H. Suderow. 2005.

55 Title of the work: Local Tunneling Spectroscopy in superconductors at very low temperatures

Name of the conference: Spectroscopies in novel superconductors,

Type of participation: Participatory - invited/keynote talk

Date of event: 2004

H. Suderow. 2004.

56 Title of the work: Phonon mediated superconductivity induced by Fermi surface nesting in the Y and Lu Nickel borocarbides

Name of the conference: Intrinsic inhomogeneities in strongly correlated electron systems. Santander

Type of participation: Participatory - invited/keynote talk



Date of event: 2003
H. Suderow. 2003.

57 Title of the work: Advances and future prospects of spin dependent transport and local magnetization measurements with very low temperature STM

Name of the conference: Workshop on magnetic tunnel junctions M2TPS

Type of participation: Participatory - invited/keynote talk

Date of event: 2003

H. Suderow.

58 Title of the work: Scanning tunneling spectroscopy at very low temperatures

Name of the conference: New Theories and discoveries in High Tc superconductors and related materials

Type of participation: Participatory - invited/keynote talk

City of event: San Diego,

Date of event: 2003

H. Suderow. 2003.

59 Title of the work: Scanning tunneling spectroscopy in superconductors below 1K: nanostructures and nanoscale phenomena

Name of the conference: Spin and Charge transport in nanostructures, Braga

Type of participation: Participatory - invited/keynote talk

Date of event: 2003

2003.

60 Title of the work: Scanning tunneling spectroscopy in MgB2 and the borocarbides

Name of the conference: March Meeting of the American Physica Society, Indianapolis, March 2002

Type of participation: Participatory - invited/keynote talk

Date of event: 2002

2002.

61 Title of the work: Espectroscopía túnel local en un superconductor magnético: Interacción-competición entre la superconductividad y el magnetismo.

Name of the conference: Reunión de la Sección de Estado Sólido de la Real Sociedad de Física Española. Madrid, Febrero 2001

Type of participation: Participatory - invited/keynote talk

Date of event: 2001

H. Suderow. 2001.

62 Title of the work: Keynote lecture. Tunneling Spectroscopy in Superconductors.

Name of the conference: Summer School on "Vortex Matter in Superconductors" Crete-Greece, September 2001.

Type of participation: Participatory - invited/keynote talk

Date of event: 2001

2001.

63 Title of the work: Superconducting properties of nanostructured necks under magnetic fields

Name of the conference: TMR Conference on "Phase Coherent Dynamics in Hybrid Nanostructures" Cargese, Mai 2000.

Type of participation: Participatory - invited/keynote talk

Date of event: 2000

2000.



- 64** **Title of the work:** Superconductivity under Magnetic Fields in Nanobridges of Lead
Name of the conference: Euroconference on "Vortex Matter in Superconductors" Crete-Greece, September 1999
Type of participation: Participatory - invited/keynote talk
Date of event: 1999
1999.
- 65** **Title of the work:** The vortex phases of heavy fermion superconductors probed by thermal conductivity
Name of the conference: International Workshop "Vortices in Exotic Systems" dedicated to the 70th anniversary of A.A. Abrikosov. Bordeaux, October 1998.
Type of participation: Participatory - invited/keynote talk
Date of event: 1998
1998.
- 66** **Title of the work:** These are invited talks delivered by myself. Further contributions include 10 talks in international meetings and over 15 poster presentations. I also delivered more than 25 invited talks in laboratories such as the Van der Waals-Zeeman colloquium in Amsterdam, colloquia in Ames Laboratory, in Tokyo, in Stuttgart (Max-Planck Institute), in Grenoble and in several places in Spain.

R&D management and participation in scientific committees

Scientific, technical and/or assessment committees

- 1** **Committee title:** C5 Commission of IUPAP
Primary (UNESCO code): 221127 - Superconductors
Start-End date: 2018 - 2020
- 2** **Committee title:** Advisory board of the "Scientific Park of Madrid"
Affiliation entity: Universidad Autonoma de Madrid and Universidad Complutense de Madrid
Start date: 2013
- 3** **Committee title:** A1 Commission of the International Institute of Refrigeration
(<http://www.iifiir.org/com/members.php?com=A1>)
Geographical area: Non EU International
Affiliation entity: <http://www.iifiir.org>
- 4** **Committee title:** COST P-16, ECOM, "Emergent behavior in condensed matter". Coordinador del grupo de trabajo "Experimental techniques" (<http://ecom.tuwien.ac.at/58.0.html>).
- 5** **Committee title:** Member (vocal) of GEFES of RSEF
Primary (UNESCO code): 221100 - Solid state physics
Affiliation entity: RSEF **Type of entity:** Associations and Groups
City affiliation entity: Spain
- 6** **Committee title:** Member of DPG, APS and Spanish Physical Society



- 7** **Committee title:** Steering committee of COST MP-1201, NanoSC, “Nanoscale superconductivity”.
Coordinador of “Design and characterization” (<http://www.kuleuven.be/inpac/cost/index.php>).

Organization of R&D activities

- 1** **Title of the activity:** Co-chair of CMD2020GEFES, <http://www.cmd2020gefes.eu/>
Type of activity: Organization of meetings **Geographical area:** European Union
Convening entity: EPS-RSEF
Start-End date: 31/08/2020 - 04/09/2020 **Duration:** 5 days
- 2** **Title of the activity:** Co-organizer of the Nicolas Cabrera Summer School 2019, www.uam.es/inc
Type of activity: Summer School **Geographical area:** European Union
Convening entity: Universidad Autónoma de Madrid **Type of entity:** University
City convening entity: Madrid, Community of Madrid, Spain
Start-End date: 08/09/2019 - 13/09/2019 **Duration:** 5 days
- 3** **Title of the activity:** Co-organizer of Superconductivity meets molecular spins
Type of activity: workshop,
<http://nanocoehyri.eu/superconductivity-meets-molecular-spins-20-22-march-2019/>
Start-End date: 20/03/2019 - 22/03/2019 **Duration:** 3 days
- 4** **Title of the activity:** Vortex 2015
Type of activity: Workshop organization **Geographical area:** European Union
City convening entity: El Escorial, Spain
Type of participation: Chairman
Start-End date: 10/05/2015 - 15/05/2015
- 5** **Title of the activity:** School on quantum materials and workshop on vortex behavior in unconventional superconductors
Type of activity: Summer school **Geographical area:** European Union
City convening entity: Braga,
Start date: 10/2018 **Duration:** 5 days
- 6** **Title of the activity:** Workshop Advances in Nanostructured Superconductors, <http://www.nicolascabrera.es/index.php/es/otras-actividades/workshops/350-qadvances-in-nanostructured-superconductorsq>
Type of activity: Workshop **Geographical area:** European Union
Convening entity: COST MP1201
Start date: 05/2014 **Duration:** 5 days
- 7** **Title of the activity:** Workshop “Science and technology at high magnetic fields”, Miraflores de la Sierra, November 2012.
Type of activity: Workshop co-chairman
Start date: 2012
- 8** **Title of the activity:** “La superconductividad: cien años ganando actualidad”.
<http://www.uam.es/superconductividad2011>.
Type of activity: Co-director
Start date: 2011



- 9 Title of the activity:** Cryoconference 2008 (www.uam.es/cryoconference).
Type of activity: Co-chairman
Start date: 2008
- 10 Title of the activity:** VI International Summer School Nicolás Cabrera Strongly Correlated Electrons (<http://www.uam.es/inc/>) del Instituto Universitario de Ciencia de Materiales “Nicolás Cabrera” de la Universidad Autónoma de Madrid, junto con R. Villar, J.C. Gomez-Sal y F. Aliev.
Type of activity: Co-organizer
Start date: 2008
- 11 Title of the activity:** XV International “N. Cabrera” Summerschool 2008. 100 years of liquid helium: new physics at the edge of absolute zero” (<http://www.nicolascabrera.es/index.php/es/escuelas-anteriores/58-escuela-verano-2008>).
Type of activity: Co-Chairman
Start date: 2008
- 12 Title of the activity:** workshop “Probing superconductivity at the nanoscale”
Type of activity: Member of the organizing committee
Start date: 2008
- 13 Title of the activity:** Stays in Madrid of J. Flouquet (3 weeks), V. Vinokur (2 times one month) and P.C. Canfield (two months).
Type of activity: Main organizer

R&D management

- 1 Name of the activity:** Gestor del Plan Estatal
Type of management: Management of R&D&I actions and projects
Performed tasks: Management of the evaluation of the projects of the Spanish State funding agency
Entity: Agencia Estatal de Investigacion
Start date: 2015 **Duration:** 3 years
- 2 Name of the activity:** Coordinator of the Advanced Materials section at IFIMAC
Type of management: Group management
Entity: Universidad Autonoma de Madrid **Type of entity:** University
Start date: 2013
- 3 Name of the activity:** Nicolas Cabrera Institute
Type of management: Management of body
Performed tasks: Director
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Start date: 11/2011
- 4 Name of the activity:** SEGAINVEX. Service for support of experimental sciences
Performed tasks: Scientific councillor
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Start date: 2010



- 5 Name of the activity:** Association UAM-CSIC on "Low temperature physics and high magnetic fields"
Performed tasks: Secretary until 2013, IP from 2013
Entity: Universidad Autónoma de Madrid and Consejo Superior de Investigaciones Científicas

Other achievements

Stays in public or private R&D centres

- 1 Entity:** CEA Grenoble
Duration: 4 years
Goals of the stay: Doctorate
- 2 Entity:** Several one or two week stays at Universities or Research institutes in Leuven, Antwerp, Grenoble, Bordeaux, Tokyo, Argonne, Stuttgart.
Goals of the stay: Guest
- 3 Entity:** Universidad Autónoma de Madrid
Duration: 2 years
Goals of the stay: Post-doctoral

Summary of other achievements

- 1 Description of the achievement:** Referee of FET-Open (6 projects)
Accrediting entity: FET-Open **Type of entity:** European Funding Agency
Conferral date: 2019
- 2 Description of the achievement:** Teaching innovation project: Diseño y evaluación de acciones transversales para introducir la perspectiva de género en la docencia en física
Accrediting entity: Universidad Autónoma de Madrid **Type of entity:** University
Conferral date: 2019
- 3 Description of the achievement:** Fellow of the American Physical Society
Accrediting entity: APS
Conferral date: 2017
- 4 Description of the achievement:** Acreditación Catedrático Universidad
Accrediting entity: Agencia Nacional de Evaluación **Type of entity:** others de la Calidad y Acreditación
Conferral date: 2015
- 5 Description of the achievement:** Panel member of Spanish funding agency (2012 and 2013)
Accrediting entity: MINECO
Conferral date: 2013
- 6 Description of the achievement:** Referee for funding agencies ERC (EU), DFG (Germany), EPSRC (UK), ANR (France), Royal Society (UK), FWO (Belgium), Dutch funding agency, La Caixa, and ANECA.
Conferral date: 2013



- 7** **Description of the achievement:** Referee of Science, Science Adv, Nat Phys, Nat. Comm., Physical Review (Letters and B), Europhysics Letters, Physica B, IOP (Journal of Physics Condensed Matter, Superc. Sci. Technolog., New Journal of Physics, Sci. Rep.
Conferral date: 2013
- 8** **Description of the achievement:** Commission "materials and nanoscience" of the excellence initiative UAM+CSIC.
Conferral date: 2012
- 9** **Description of the achievement:** Coordinator of four proposals to FP7 ITN calls, involving several EU research groups and companies. Proposals were ranked above threshold all times, without receiving support.
Conferral date: 2012
- 10** **Description of the achievement:** Director of the teaching innovation project "Internacionalización del programa oficial de posgrado en Física de la Materia Condensada y Nanotecnología de la UAM: diseño e implantación de asignaturas en inglés". Convocatoria de desarrollo de enseñanzas UAM 2011.
Accrediting entity: Universidad Autónoma de Madrid **Type of entity:** University
Conferral date: 2011
- 11** **Description of the achievement:** Member of Faculty and University senates since november 2011
Accrediting entity: Universidad Autónoma de Madrid **Type of entity:** University
Conferral date: 2011
- 12** **Description of the achievement:** New helium liquefaction facility for the UAM Campus (2009). Extension of high pressure storage (2013)
Conferral date: 2009
- 13** **Description of the achievement:** Organizer of sabbatical stay of Prof. V. Tissen (SAB2009-0057).
Conferral date: 2009
- 14** **Description of the achievement:** Century of liquid helium: preparation and transportation to Seville of macroscopic quantum phenomena experiments with liquid helium. Talk for faculty and students. Real Academia Sevillana de las Ciencias. Observación directa de fenómenos cuánticos macroscópicos en helio líquido
Conferral date: 2008
- 15** **Description of the achievement:** National competitive "Habilitation" in the area "condensed matter physics"
Conferral date: 2004
- 16** **Description of the achievement:** Positive evaluation for being hired as Profesor Contratado Doctor (PCD 2004-69), el 4 de Marzo de 2004.
Conferral date: 2004
- 17** **Description of the achievement:** Several articles of scientific dissemination, Oxford Instruments "Research Matters", Gazette UAM, Investigación y Ciencia, 2Physics.com
Conferral date: 2003
- 18** **Description of the achievement:** Best poster presentation in LT23 (Hiroshima).
Conferral date: 2002



- 19 Description of the achievement:** Dissemination activities. Organizer of visits of scholars, youtube videos, master courses, visits of external lecturers
- 20 Description of the achievement:** Organizer of open days since 2009, sometimes with 400 high school pupils attending the lab.
- 21 Description of the achievement:** Organizer of the stay of PC Canfield in Madrid, <http://www.uam.es/otros/fmcyn/CanfieldsStayinMadrid.pdf>
- 22 Description of the achievement:** Post docs I. Guillamon (now in Madrid), E. Herrera (now in Madrid), R.F. Luccas (now at Rosario, Argentina), M.R. Osorio (now in IMDEA-Nano).
- 23 Description of the achievement:** Various international collaborations (Grenoble, Stuttgart, Paris, Leuven y Antwerp, Cambridge), Japón (Tokio, Osaka) y USA (Ames, Berkeley, Argonne, Stanford).
- 24 Description of the achievement:** Web pages www.lbtuam.es, www.nicolascabrera.es, www.citecnomik.es, and channels <http://www.youtube.com/user/InstitutoNC> and <http://www.youtube.com/user/citecnomik1>.