Fecha del CVA	9/9/2014

Parte A. DATOS PERSONALES

Nombre y apellidos	Rainer Schmidt		
DNI/NIE/pasaporte	356088995	Edad	39
Núm. identificación del investigador	Researcher ID	A-4265-2008	
	Código Orcid	0000-0002-8344-8403	

A.1. Situación profesional actual

Organismo	Universidad Complutense de Madrid		
Dpto./Centro	Física Aplicada III		
Dirección	Facultad de Física. Avda Complutense s/n . 28040 Madrid		
Teléfono	+34913944445	correo electrónico	rainer.schmidt@fis.ucm.es
Categoría profesional	Investigador Ramón y Cajal	Fecha inicio	Mayo 2008
Espec. cód. UNESCO			
Palabras clave	Materiales cerámicos. Óxidos. Materia Condensada. Multiferroicos. Espectroscopía de impedancia. Transporte iónico.		

A.2. Formación académica *(título, institución, fecha)*

Licenciatura/Grado/Doctorado	Universidad	Año
Licenciatura	University of Erlangen-Nuremberg (Germany)	2001
Doctorado	University of Durham (United Kingdom)	2004

A.3. Indicadores generales de calidad de la producción científica *(véanse instrucciones)*

número de sexenios de investigación (**0**) y la fecha del último concedido (**-**), número de tesis doctorales dirigidas en los últimos 10 años (**1**), citas totales (**618**), promedio de citas/año durante los últimos 5 años (**88**), publicaciones totales en primer cuartil (**30**), índice h (**16**).

Total of **1 supervised thesis**. **8 Book chapters. 1 Book comment. 34 publicationes.** 2 Advanced Materials, 1 Advanced Functional Materials, 1 Chemistry of Materials, 1 Journal of Power Sources, 1 Inorganic Chemistry, 6 Phys. Rev. B. **30 poster or oral presenations** at prestigious international conferences (including APS March Meeting, EMRS, etc.). **15 invited seminars and colloquia** at prestigious international academic and research organisations, including 1 invited seminar at the Max-Planck Institute for Solid State Reearch (Stuttgart), Department prof. J. Maier.

Parte B. RESUMEN LIBRE DEL CURRÍCULUM

Research

My first research experience was in 1998 - 2004 during my PhD project at the University of Durham (United Kingdom). The project was concerned with the production of NTC thermistors $NiMn_2O_4$ (Negative Temperature Coefficient Thermally Active Resistors) in the form of thin films by means of Electron-beam evaporation. However, it turned out that the stoichiometry in the thin films was not reproducible and generally not controllable. In the search for alternative production for NTC thermistor layers I created a contact in 1999 with Prof. A. Roosen at the Department of Materials Science III, glass and ceramics, in Erlangen. During a 7 month research visit in Erlangen in the year 2000 I managed to produce NTC thermistor thick films by screen printing. Furthermore, I familiarized myself with wet-chemical synthesis (co-precipitation of oxalates) for the production of $NiMn_2O_4$ spinels. Phase analysis was performed by X-ray diffraction, and I also gained a detailed understanding of thick-film technology. I mainly focused on the the powder dispersion in the printing paste, the paste viscosity, the addition of a glass frit and the subsequent sintering densification of green screen printed thick-film ceramics.

When I returned to Durham at the end of the year 2000, I carried out Rietveld refinement of the $NiMn_2O_4$ powder X-ray diffraction pattern and started with the functional characterization

of the screen-printed thick films. For the latter, I developed an automated data acquisition setup for temperature-dependent resistance measurements, which included the installation of all necessary hardware as well as software programming. Furthermore, I dealt with the thin-film technology Radio frequency (RF) magnetron sputtering for the production of NTC thermistor thin films. A detailed examination using scanning electron microscopy (SEM) led to 2 review articles regarding the clear differences in the microstructure of NTC thermistor layers that had been made with the three different methods, Electron-beam evaporation, sputtering and screen printing. Furthermore, the electrical conduction mechanism (electron hopping) could be specified and quantified in all three types of NTC thermistor layers. Later I learned the method of impedance spectroscopy, to measure the temperature-dependent electrical resistivity and dielectric permittivity in different areas of ceramics (grain boundaries, the grain interior, electrode interfacial).

During my time as a Postdoctoral Researcher and the University of Cambridge (2004 – 2007) I dealt with the electrical charge transport in perovskite manganites. The investigations of semiconducting ceramics and thin films, both with a "charge-ordering" effect, led to the conclusion that both the temperature-dependent direct current resistance and the impedance spectra suggested a localized nature of the conduction electrons. The ideas of "Electronically soft phases" and a possible effect of "charge-density-wave sliding" (Nat.Mater. 7, p.25, 2008) in these materials could not be confirmed. The thin films were produced by laser ablation and characterized with X-ray diffraction and atomic force microscopy. Furthermore, I conducted impedance spectroscopy of epitaxial multiferroic thin films, whereby I was able to establish a measurement setup that allowed reliable measurements in epitaxial multiferroic thin films. At this time I wrote a book chapter, which included a summary of all important aspects of impedance spectroscopy and several case studies.

My work as a Postdoctoral Researcher at The University of Sheffield (2007 - 2009) was part of a larger European project (FP-7, NUOTO) about the high dielectric permittivity in $CaCu_3Ti_4O_{12}$ (CCTO) materials. I was able to show that Sr-doping in $Ca_{1-x}Sr_xCu_3Ti_4O_{12}$ ceramics leads to an increased dielectric permittivity of the extrinsic grain boundaries. Furthermore, I dealt extensively with the ternary Ca-Cu-Ti phase diagram. A slight deviation from the nominal Cu stoichiometry was found responsible for the massive differences in the electrical resistance at the grain boundaries and the grain interior areas of CCTO ceramics. Additionally, a clear relationship between the sintering temperature in $CaCu_3Ti_4O_{12}$ ceramics and the dielectric permittivity could be revealed and the origin of the "Internal Barrier Layer Capacitor (IBLC)" could be attributed to the thermal treatment of $CaCu_3Ti_4O_{12}$ ceramics. The results of this work, were summarized in a book chapter. Additionally, I have dealt with cobaltite compounds and a correlation of the dielectric permittivity with the thermally induced spin-state transition in $LaCoO_3$ was discovered.

The focus of my work at the University of Madrid as a Ramón y Cajal Fellow (since 2009) comprises the characterization of polycrystalline functional ceramics and epitaxial thin films and multilayers. Particularly the technique of impedance spectroscopy is used. As part of a doctoral thesis supervised by me a variety of functional ceramics were synthesized by microwave techniques and tested for their functionality. This included chromate compounds for magnetic applications, ceria compounds for solid oxide fuel cells and pyrochlore titanate. It was clear to me that the microwave synthesis of oxide materials shows very similar advantages as is the case in domestic use of microwaves, namely massive savings of time and energy. Furthermore, cobaltites for thermoelectric applications and scandium-stabilized zirconia for solid oxide fuel cells were synthesized by microwaves. In none of these phases an incompatibility of the microwave synthesis occurred. For this reason one of my Main research goals is to better understand the efficiency of the microwave synthesis. For this purpose, the use of polarized microwaves is ideal (single-mode microwave), which allows separate use of magnetic or electrical contribution of the microwave radiation and a deeper understanding of the function of both contributions to the heating mechanism. Furthermore, I

have dealt with the extended application of impedance spectroscopy on thin films and multilayers under applied magnetic fields. This so-called "magneto-impedance spectroscopy" is ideally suited for dielectric characterization of multiferroic and multifunctional materials, such as epitaxial $BiFeO_3$ and $BiMnO_3$, and V_2O_3 thin films, multilayers $LaMnO_3/SrTiO_3$, and $Bi_{0.5}Pb_{0.5}CrO_6$ and Mn_2FeSbO_6 ceramics. Further work in Madrid dealt with the synthesis of $NiMn_2O_4$ thermistors with the aid of permanganates as precursor starting material, and the dielectric characterization by impedance spectroscopy (without magnetic field) of $LaFeO_3/Sm_2CuO_4$ multilayers, VO_2 thin films and bicrystals of yttria-stabilized zirconia.

Furthermore, I have examined the dielectric properties of CCTO ceramics, laminates and multilayer ceramic capacitors and the relationships between the dielectric properties, the microstructure and the process parameters in collaboration with Prof. J. Töpfer of the University of Applied Sciences Jena. Laminates and multilayer capacitors were produced in Jena by ceramic tape casting. In cooperation with the Korea Institute of Material Science (KIMS), I have studied the dielectric properties of $NiMn_2O_4$ thick layers prepared with aerosol spray deposition. The method of aerosol spray deposition seems superior to all other thick-film techniques by far, at least as concerns the densification of the layers. By the high pressure of the aerosol, the particles are crushed when sprayed onto the substrate, leading to nanoparticles in the layer thickness and virtually pore-free surfaces.

At the beginning of my activities in Madrid, I was also temporarily involved in the use of electron beam lithography for the deposition of magnetic Co-nano-dots as pinning centers in superconducting thin film $YBa_2Cu_3O_{7-x}$. An improvement in the superconducting properties could not be detected.

Through my various activities in the field of oxide materials I have gained a broad overview of a variety of functionalities, synthesis techniques, thin-and thick-film processes and characterization techniques. By working in different countries (Germany, UK, Spain) and at various institutes (physics, materials science) I got a broad overview over different working philosophies. For this reason, I consider myself qualified to research in the field of materials with the increased responsibility of a Reader and to keep developing myself professionally.

Main research interests

- Microwave synthesis
- Aerosol spray deposition
- Screen-printing and tape casting
- (Magneto-) impedance spectroscopy

Teaching

My first experience in university teaching was at the University of Durham as a supervisor for various laboratory courses (lab demonstrating). Hereby I learned about the benefits of direct and less formal contact with the students.

A very open and direct contact with students was also possible during my teaching at the University of Cambridge as a tutor in small groups (2-3 students). This form of repeating of lecture content and help with homework was an efficient way to give students a deeper understanding of the lecture material and prepare for exams. There is an option for my current course in Madrid that students can participate in tutorials. I try always to achieve an active participation, which is only partially successful. From my point of view, compulsory exercises in small or very small groups as a support to the Main lectures are essential.

My teaching at the University of Madrid extends to very different forms of teaching. This includes practical laboratory experiments, instructions to laboratory experiments in the lecture hall which is combined with experimental setups at each table, lectures in the computer room and standard classroom lectures. I think this combination of different teaching methods is optimal in order to teach different matters in different ways. I have found an increased motivation among the students, if the form of instruction varied. I try to offer this in my regular lectures, where I work regularly with PowerPoint presentations and I often show appropriate instructional videos that are available on the internet.

Another concern to me is the teaching handling standard software programs such as MS Excel, MS Word or Origin. These skills are often tacitly assumed, but many students are lacking them. Especially laboratory courses should contain a brief introduction into the relevant software for data analysis.
Through my various teaching activities in the fields of solid state physics, electronics, electromagnetism, thermal and fluid dynamics, nuclear physics and general physics at various institutes (physics, engineering, computer science, biology) in different countries (UK, Spain) I have a broad overview of different teaching materials, teaching methods and common problems encountered in the process of knowledge transfer

Parte C. MÉRITOS MÁS RELEVANTES *(ordenados por tipología)*

C.1. Publicaciones (34)

1.) R. Schmidt, A. Basu, A.W. Brinkman, *Production of NTCR thermistor devices based on* $NiMn_2O_{4+\delta}$, Journal of the European Ceramic Society **24** (2004) p.1233. **Citas: 48**.

2.) R. Schmidt, A. Basu, A.W. Brinkman, *Small polaron hopping in spinel manganates*, Physical Review B **72** (2005) p.115101. **Citas: 53**

3.) R. Schmidt, A.W. Brinkman, *Studies of the temperature and frequency dependent impedance of an electroceramic functional oxide thermistor*, Advanced Functional Materials, **17** (2007) p.3170. **Citas: 17**

4.) R. Schmidt, W. Eerenstein, T. Winiecki, F.D. Morrison, P.A. Midgley, *Impedance spectroscopy of epitaxial multiferroic thin films*, Physical Review B **75** (2007) p.245111. **Citas: 69**

5.) R. Schmidt, D.C. Sinclair, *Anomalous increase of dielectric permittivity in Sr-doped CCTO ceramics* $Ca_{1-x}Sr_xCu_3Ti_4O_{12}$ *(0≤x≤0.2)*, Chemistry of Materials **22** (2010) p.6. **Citas: 29**

6.) A. Rivera-Calzada, M.R. Diaz-Guillen, O.J. Dura, G. Sanchez-Santolino, T.J. Pennycook, R. Schmidt, F.Y. Bruno, J. Garcia-Barriocanal, Z. Sefrioui, N.M. Nemes, M. Garcia-Hernandez, M. Varela, C. Leon, S.T. Pantelides, S.J. Pennycook, J. Santamaria, *Tailoring Interface Structure in Highly Strained YSZ/STO Heterostructures*, Advanced Materials **23** (2011) p.5268. **Citas: 16**

7.) R. Schmidt, M. Stennett, N.C. Hyatt, J. Pokorny, J. Prado-Gonjal, M. Li, D.C. Sinclair, *Effects of sintering temperature on the internal barrier layer capacitor (IBLC) structure in* $CaCu_3Ti_4O_{12}$ *(CCTO) ceramics*, Journal of the European Ceramic Society **32** (2012) p.3313. **Citas: 32**

8.) R. Schmidt, J. Ventura, E. Langenberg, N.M. Nemes, C. Munuera, M. Varela, M. Garcia-Hernandez, C. Leon, J. Santamaria, *Magneto-impedance spectroscopy of epitaxial multiferroic thin films*, Physical Review B **86** (2012) p.035113. **Citas: 20**

9.) J. Prado-Gonjal, R. Schmidt, J.-J. Romero, D. Ávila, U. Amador, E. Morán, *Microwave assisted synthesis, microstructure and physical properties of Rare-Earth Chromites*, Inorganic Chemistry **52** (2013) p.313. **Citas: 7**

10.) F.Y. Bruno, R. Schmidt, M. Varela, J. Garcia-Barriocanal, A. Rivera-Calzada, F.A. Cuellar, C. Leon, P. Thakur, J.C. Cezar, N.B. Brooks, M. Garcia-Hernandez, E. Dagotto, S.J. Pennycook, J. Santamaria, *Electron Doping by Charge Transfer at* $LaFeO_3/Sm_2CuO_4$ *Epitaxial Interfaces*, Advanced Materials **25** (2013) p.1468. **Citas: 1**

C.2. Proyectos (6)

1) *"Charge-density-wave phenomena in charge-ordered manganites*" (2004 - 2007). Leverhulme Trust (UK), Principal coordinator: Prof. Paul A. Midgley, Principal investigator.
2) *"New materials with Ultrahigh k dielectric constant fOr TOmorrow wireless electronics* (NUOTO)" Framework Programme 7 (2007 - 2009). European Commission, Principal coordinator: Prof. Derek C. Sinclair. Co-investigator.
3) *"Electronics based on nanoscale oxides: interface engineering for magnetoelectronic devices."* Spanish Minitry for Science and Innovation MAT2008- 6517. € 200.000 (2009). Principal coordinator: Prof. Jacobo Santamaría, Co-investigator.
4) *"Advanced Hybrid Materials for Photonic Applications (Ref. S2009/Mat-1756. Acronym: PHAMA)* Regional Goverment of Madrid. Programmes of Research and Development in Technologies 2009- 2013. € 879.060 Euros, Principal coordinator: Prof. Jacobo Santamaría, Co-investigator.
5) *"Materials Science Down To The Sub Angström Scale"* CSD2009-00013 Ministry for Science and Innovation MICINN. Programme Consolider-Ingenio 2010- 2015 Principal coordinator: José-María González-Calbet. 3.600.000 Euro. Co-Investigator.
6) *"Complex oxide interfaces in spintronics".* MAT 2011 27474 C02. Ministry for Science and Innovation 2011- 2013. 508.000 Euro. Principal coordinator: Prof. Jacobo Santamaría, Co-investigator.

C.5. Contribuciones a libros (9)

1.) R. Schmidt, *Impedance Spectroscopy of Electroceramics*, in "*Ceramic Materials Research Trends*", ed. Paul B. Lin, Nova Science Publishers, Hauppauge (USA), **ISBN**: 1-60021-769-9, pp.325-355, 2007

2.) R. Schmidt, *Cooperation instead of competition may do the trick*, expert commentary in "*Ceramic Materials Research Trends*" ed. Paul B. Lin, Nova Science Publishers, Hauppauge (USA), **ISBN**: 1-60021-769-9, pp.5-7, 2007

3.) M.A. Frechero, M. Rocci, R. Schmidt, M.R. Diaz-Guillen, O.J. Dura, A. Rivera-Calzada, J. Santamaria, C. Leon, *Efectos de interfase sobre la conductividad iónica en materiales de aplicación en pilas de combustible*, in "Nanotecnología para energías en Latinoamérica", Editor: E.M. Barea, Society for Nanomolecular Photovoltaics (SEFIN), Castelló (Spain), **ISBN**: 978-84-940189-9-2, pp.67-69, 2012.

4.) R. Schmidt, D.C. Sinclair, *$CaCu_3Ti_4O_{12}$ (CCTO) Ceramics for Capacitor Applications*, in "Capacitors. Theory of Operation, Behavior and Safety Regulations", Editor: K.N. Muller, Novascience Publishers, Hauppauge (USA), **ISBN:** 978-1-62417-586-2, pp.1-33, 2013.

5.) J. Prado-Gonjal, R. Schmidt, E. Morán, *Microwave-Assisted Synthesis and Characterization of Perovskite Oxides*, in "Perovskites - Crystallography, Chemistry and Catalytic Performance", Editors: J. Zhang, H. Li, Novascience Publishers, Hauppauge (USA), **ISBN:** 978-1-62417-800-9, pp.117-140, 2013.

6.) R. Schmidt, E. Langenberg, J. Ventura, *Bi-containing multiferroic perovskite oxide thin films*, in "Perovskites - Crystallography, Chemistry and Catalytic Performance", Editors: J. Zhang, H. Li, Novascience Publishers, Hauppauge (USA), **ISBN:** 978-1-62417-800-9, pp.59-96, 2013.

7.) R. Schmidt, J. Prado-Gonjal, D. Ávila, U. Amador, E. Morán, *Electron microscopy of microwave-synthesized rare-earth chromites*, in "Microscopy: advances in scientific research and education", Microscopy Book Series #6, Editor: A. Mendez-Vilas, Formatex Research Center, Badajoz (Spain), **in Press**, 8 pages, 2014

8.) R. Schmidt, J. Prado-Gonjal, E. Morán, *Microwave-assisted hydrothermal synthesis of nanoparticles*, in " CRC Concise Encyclopedia of Nanotechnology", Editors: B.I. Kharisov, O.V. Kharissova, U. Ortiz-Mendez, CRC Press Taylor & Francis Group, Boca Raton (USA), **in Press**, **ISBN:** 978-1-46658-034-3, 2015

9.) R. Schmidt, *Impedance spectroscopy of nanomaterials*, in " CRC Concise Encyclopaedia of Nanotechnology", Editors: B.I. Kharisov, O.V. Kharissova, U. Ortiz-Mendez, CRC Press Taylor & Francis Group, Boca Raton (USA), **in Press**, **ISBN:** 978-1-46658-034-3, 2015

C.6. Contribuciones a Congresos Internacionales de especial relevancia (30)

1) *Production of NTCR Thermistor Devices Based on $NiMn_2O_4$ (Oral Presentation)*, 8th Electroceramics Conference, Rome (Italy), August 2002
2) *Electrical Characterisation of Thick Film Thermistor Ceramics (Oral & Poster Presentation)*, 9th Electroceramics Conference, Cherbourg (France), June 2004
3) *Electrical Transport Properties of $La_{0.33}Ca_{0.67}MnO_3$ (Short Oral & Poster Presentation)*, Dalton Discussion 7: Ionic and Electronic Properties of Solids, The Royal Society of Chemistry, St Andrews (UK, Scotland), July 2004
4) *Impedance Spectroscopy on Multiferroic $BiFeO_3$ Epitaxial Thin Films (Oral Presentation),* 10th Electroceramics Conference, Toledo (Spain), June 2006
5) *Impedance Spectroscopy on Nano-sized Multiferroic Thin Films (Oral & Poster Presentation),* ICYS-ICMR Summer School on Nanomaterials, NIMS, Tsengen, Tsukuba (Japan), July 2006
6) *Dielectric response to the magnetic low-spin (S=0) to intermediate-spin (S=1) state transition in polycrystalline $LaCoO_{3-x}$ (Oral Presentation, Chairman of the Symposium on Multiferroics),* Inorganic Functional Materials, FAME Summer School, Aveiro (Portugal), July 2008
7) *Impedance spectroscopy of ceramic $NiMn_2O_4$ NTC thermistors (Oral Presentation)*, 11th Electroceramics Conference, Manchester (UK), September 2008
8) *Effects of sintering temperature on the dielectric properties in $CaCu_3Ti_4O_{12}$ ceramics (Oral Presentation),* 12th Electroceramics Conference, Trondheim (Norway), June 2010
9) *Increased ionic conductivity in microwave hydrothermally synthesized rare–earth (RE) doped ceria $Ce_{1-x}RE_xO_{2-(x/2)}$ (Oral Presentation),* Electroceramics XIII, Twente (Netherlands), June 2012
10) *Magnetocapacitance effects in $LaMnO_3$ (15 u.c.) – $SrTiO_3$ (2 u.c.) multi-layers (Oral Presentation),* APS March Meeting, Baltimore (USA), March 2013
11) *Non-stoichiometry in $CaCu_3Ti_4O_{12}$ (CCTO) ceramics (Oral Presentation),* 14th Electroceramics Conference, Bukarest (Rumania), June 2014
12) *Microstructure and dielectric properties of $CaCu_3Ti_4O_{12}$ multilayer capacitors (Oral Presentation),* ICCE-ANQUE-BIOTEC, Madrid (Spain), July 2014

C.7. Seminarios invitados en instituciones internacionales de prestigio alto

1.) *AC Impedance Spectroscopy: A) Basic Principles; B) Impedance Spectra of $BiFeO_3$ Thin Films*, Universidad Autónoma de Nuevo León, School of Mechanical and Electrical Engineering, Monterrey (Mexico), January 2006
2.) *Multiferroic Epitaxial Thin Films*, Max-Planck Institute for Solid State Research Stuttgart, Department Prof. J. Maier, Department Seminar, Stuttgart (Germany), March 2007
3.) *Impedance Spectroscopy of Multiferroic Epitaxial Thin Films,* Universidad de los Andes, Departamento de Física, Bogota (Colombia), January 2009
4.) *Impedance Spectroscopy of Electroceramics,* University of Aveiro, Department of Ceramics and Glass Engineering, Aveiro (Portugal), March 2009
5.) *Impedance Spectroscopy of Electroceramics,* University of Barcelona, Applied Physics & Optics Department, GECFE, Barcelona (Spain), October 2009
6.) *Effects of sintering temperature on the internal barrier layer capacitor structure (IBLC) in $CaCu_3Ti_4O_{12}$ ceramics,* Instituto Ceramica y Vidrio, CSIC, Madrid (Spain), July 2010
7.) *Impedance Spectroscopy of Electroceramics,* Schott AG Forschungszentrum Lerchenberg, Mainz (Germany), November 2010
8.) *Increased ionic conductivity in microwave hydrothermally synthesized rare–earth (RE) doped ceria $Ce_{1-x}RE_xO_{2-(x/2)}$,* Universidad de Santiago de Chile, Facultad de Química y Biología, Solid State Chemistry Group, Santiago de Chile (Chile), February 2012
9.) *Magneto-Impedance Spectroscopy of Epitaxial Multiferroic Thin Films (Invited Talk),* Instituto de Microelectronica de Madrid (IMM-CNM-CSIC), Madrid (Spain), November 2012
10.) *Interface multiferroicity in surface reconstructed $LaMnO_3/SrTiO_3$ multilayers probed by magneto-impedance spectroscopy (Invited Talk),* Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC), Madrid (Spain), November 2012
11.) *Impedance Spectroscopy of Electroceramics (Invited Talk),* Universidad Politécnica de Valencia, Departamento de Comunicaciones, Valencia (Spain), July 2013

C.8. Premios y becas

February 25, 2001 — Scholarship for studies abroad of the "Verein Alter Erlanger Bayern eV":
• DM 3000 (€1500) interest-free loan

January 15, 2006 — Scientific Exchange Program, Universidad Autónoma de Nuevo León (Monterrey, Mexico), for a 1-week research visit at the Facultad de Ingeniería Eléctrica y Mecánica, Dr. J.A. Aguilar:
• Reimbursement of all costs for travel and accommodation

July 28, 2006 — Prize for Best Presentation at the ICYS-ICMR Summer School on Nanomaterials, Tsukuba (Japan)

July 16, 2008 — Financiation of the participation at the 12th Electroceramics Conference in Manchester, Armourers and Braziers (United Kingdom):
• £ 600 as a contribution towards the cost of the congress

December 1, 2008 — Ramón y Cajal fellowship, Ministerio de Ciencia e Innovación (Spain), in the field "Ciencia y Tecnología de Materiales"
• 5-year employment as a researcher and lecturer at a Spanish university, € 12 000 research grant

February 12 , 2012 — Participation in the project Fondecyt 11,085,067, Universidad Santiago de Chile (Chile), for a 1-week research visit at the Departamento de Química de los Materiales, Prof. D.A. Ruiz León
• € 350 travel fee

May 30, 2013 — Mundus ACP II scholarship, European Comission, Erasmus Mundus, for a one-month stay at the Universidade Nacional Timor Lorosa'e (Dili, East Timor) for academic development work:
• reimbursement of all travel expenses, € 2500 free disposal

C.9. Servicio Profesional

- Co-editor of “ISRN Ceramics”
- Reviewer for the Polish Academy of Sciences

Referee for the journals: Physical Review Letters, Applied Physics Letters, Physical Review B, Physical Review Applied, Nature Scientific Reports, Journal of Applied Physics, Journal of Alloys and Compounds, Journal of the European Ceramic Society, Journal of the American Ceramic Society, Ionics, Solid State Ionics, Materials Science and Engineering B, Materials Chemistry and Physics, Chemical Physics Letters, Applied Physics A, International Journal of Nanoscience, Journal of Electroceramics, International Journal of Hydrogen Energy, Journal of Physics and Chemistry of Solids

Solid State Sciences, Materials, MMM Conference Proceedings