

## PERSONAL INFORMATION

## Antonio Javier Sánchez Herencia

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## WORK EXPERIENCE

01/01/1992–31/12/1995

**PhD Granted**

Spanish Ministry of Education, Madrid (Spain)

Research activities on Ceramic Laminates at the Institute for Ceramic and Glass of the Spanish Research Council (CSIC)

01/01/1996–01/09/1996

**Postdoctoral Research Assistant**

Institute for Ceramic and Glass, Madrid (Spain)

Colloidal processing of materials and rheological studies on suspensions for industrially transferable processes.

**Visitor Researcher at the University of California at Santa Barbara**

Spanish Ministry of Education, Santa Barbara (United States)

Research on the microstructural development of residual stresses in ceramic laminates and the influence on the mechanical properties of the materials.

16/08/2000–Present

**Tenured Scientist**

Spanish National Research Council - Instituto de Cerámica y Vidrio, Madrid (Spain)

Studies on the colloidal behaviour of inorganic particles in suspension aiming the processing of advanced materials for Energetic, Biological and Structural applications.

Proposal and participation in Research Projects.

Publication of papers

01/10/2010–30/09/2012

**Vice-director of the Institute for Ceramic and Glass**

Spanish National Research Council, Madrid (Spain)

In charge of the Scientific and Technical facilities of the Institute.

President of the Techniques Committee of the Institute

Coordinating the internal and external offer and cost of the services

Responsible of the access to common equipment.

Substituting the Director while a long absence for illness.

01/10/2012–05/06/2014

**Director of the Institute for Ceramic and Glass**

Spanish National Research Council, Madrid (Spain)

Responsible of the Scientific direction of the Institute and execution of the projects.

Representative of the Institute for official and professional events.

Responsible of personnel (more than 100 person) and building.

06/06/2014–05/02/2017

**Deputy Vice-President for Scientific Programming**

Spanish National Research Agency, Madrid (Spain)

Responsible of the participation of the CSIC Institutes and in the research programs funded by the National government, the European Union and other international institutions.

Financial officer of the CSIC for the European Union Funded Projects

Responsible of the Big Research Infrastructures participation on Research Actions.

**EDUCATION AND TRAINING**

15/09/1985–15/06/1991

**Graduated in Chemistry**

EQF level 7

Universidad Autónoma de Madrid, Madrid (Spain)

Graduated in Chemistry in a five years grade where the two last year were to specialize in Inorganic Chemistry.

01/1992–11/1995

**Doctor in Chemistry**

EQF level 8

Universidad Autónoma de Madrid, Madrid (Spain)

Doctoral Courses in Materials Science and PhD Thesis entitled "Laminated Ceramic Materials" where I studied the colloidal processing to design multilayered ceramics and the relationships between the laminated microarchitecture and the mechanical properties.

**PERSONAL SKILLS**

Mother tongue(s)

Spanish

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
German	A1	A1	A1	A1	

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user  
 Common European Framework of Reference for Languages - Self-assessment grid

Communication skills

I have good communicative expertise as I have presented and defended my research results in international meetings and in international institutions.

As top officer of the CSIC I have opened meetings, congress and reunions where I had limited expertise.

I attended a 18 hours course for Public Presentations.

Organisational / managerial skills

Principal Investigator of three research projects coordinating teams of different institutions and a company from 7 to 10 researchers. Without the salaries of researchers the funds of the three projects were of about 500.000€.

As Deputy Vice-president I coordinated the participation execution and reporting of CSIC in different National, European and International calls. This required to me of extensive organization capabilities and gave me a wide expertise on this area.

I was the Financial Officer of CSIC with the responsibility on the periodic and final financial reports of all the projects granted for the European Union and auditor inspections.

In 2014 I took a Course on Protocol (34 hours) at the Diplomatic School of Spanish

In 2018 I took a 35 hours on line course for Management of Projects.

Job-related skills

Co-founder of the Spin-off Colfeed4Print (www.colfeed.es) to transfer the results in processing functionalized filaments to be used by 3D Printers.

Included in the list of scientific independent expert for the European Parliament for Impact

Assessment and European Added Value.

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem-solving
Proficient user	Proficient user	Independent user	Independent user	Independent user

Digital skills - Self-assessment grid

Advanced user of Microsoft Office tools Word, Excel and Access and its relations to combine correspondence and use relationships.

Software for image edition (Photoshop, GIMP and similar) and video edition.

Creation and maintenance of WEB pages (<http://personal.icv.csic.es/colloidal>) and Social Media diffusion of the research group.

Driving licence

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ADDITIONAL INFORMATION

Publications

86 paper published in international Journal with a H index =23.

Most relevant papers:

- 1 Scientific paper. Rao, M.P.; et al. 1999. "Laminar ceramics that exhibit a threshold strength" Science. 286-5437, pp.102-105. ISSN 00368075.
- 2 Scientific paper. Sánchez-Herencia, A.J.; et al. 1999. "ZrO2/ZrO2 layered composites for crack bifurcation" J. Am. Ceram. Soc., 82-6, pp.1512-1518. ISSN 00027820.
- 3 Scientific paper. P. Alvaredo; et al. 2018. "Steel binder cermets processed by combination of colloidal processing and powder metallurgy" Int. J. Refract. Metals Hard Mater. 74, pp.1-6.
- 4 Scientific paper. Gonzalez, Z.; et al. 2017. "Electrochemical performance of pseudo-capacitor electrodes fabricated by Electrophoretic Deposition inducing Ni(OH)2 nanoplatelets agglomeration by Layer-by-Layer" Electrochim. Acta. 247, pp.333-343.
- 5 Scientific paper. Molero, E.; et al. 2017. "Ti/Ti3SiC2(TiC) Bulk and Foam Composites by Pyrolysis of Polycarbosilane and TiH2 Mixtures" Adv. Eng. 19-6, pp.1600700.
- 6 Scientific paper. Gonzalez, Z.; et al. 2016. "Use of Polyelectrolytes for the Fabrication of Porous NiO Films by Electrophoretic Deposition for Supercapacitor Electrodes". Electrochim. Acta. 221, pp.110-118.
- 7 Scientific paper. Frajkorová, F.; et al. 2015. "Biodegradable bi-layered coatings shaped by dipping of Ti films followed by the EPD of gelatin/hydroxyapatite composites" J. Eur. Ceram. Soc. 36 -2, pp.343-55.
- 8 Scientific paper. Escribano, J.A.; et al. 2015. "FGM stainless steel-Ti(C,N) cermets through colloidal processing" Int. J. Refract. Metals Hard Mater. 49-1, pp.143-152.
- 9 Scientific paper. Neves, R.G.; et al. 2014. "Role of stabilisers in the design of Ti aqueous suspensions for pressure slip casting" Powder Tech. 263, pp.81-88.
- 10 Scientific paper. Neves, R.G.a; et al. 2013. "Colloidal approach for the design of Ti powders sinterable at low temperature" Mater. Letters. 107, pp.75-78. ISSN 0167577X.
- 11 Scientific paper. Parente, P.; et al. 2013. "Functionalizing Ti-surfaces through the EPD of hydroxyapatite/Nano Y2O3" J. Phys Chem B. 117-6, pp.1600-1607. ISSN 15206106.
- 12 Scientific paper. Cabanas-Polo, S.a; et al. 2012. "Ni-NiO composites obtained by controlled oxidation of green compacts" Corrosion Sci. 55, pp.172-179. ISSN 0010938X.
- 13 Scientific paper. Gonzalo-Juan, I.; et al. 2010. "Colloidal processing and sintering of porous percolative Ni-YSZ layers" J. Membrane Sci. 352-1-2, pp.55-62. ISSN 03767388.
- 14 Scientific paper. García, P.; et al. 2007. "YSZ/Ni-YSZ semi-cells shaped by electrophoretic deposition" J. Eur. Ceram. Soc. 27-13-15, pp.4241-4244. ISSN 09552219.
- 15 Scientific paper. Sánchez-Herencia, A.J.; Gurauskis, J.; Baudín, C.2006. "Processing of Al2O3/Y-TZP laminates from water-based cast tapes" Composites Part B: Engineering. 37-6, pp.499-508. ISSN 13598368.
- 16 Scientific paper. Sánchez-Herencia, A.J.; et al. 2001. "Aqueous colloidal processing of nickel powder" Acta Mater. 49-4, pp.645-651. ISSN 13596454.
- 17 Scientific paper. Sánchez-Herencia, A.J.a; et al. 2000. "Gel-forming of nickel powders from

aqueous slurries" Adv. Mater. 12-16, pp.1192-1195. ISSN 09359648.

**Projects** Projects as **Principal Investigator:**

1. 201760E038, Processing for Additive Manufacturing techniques of metal-ceramics composites and refractory alloys for severe atmosphere and temperature environments. Funded by Consejo Superior de Investigaciones Científicas. 15/02/2017-15/02/2019. 12.000 €.
2. IPT-310000-2010-012, Shielding of magnetic field. 01/06/2010-30/06/2013. Funded by Spanish Ministry of Science and Innovation. 218.256 €.
3. MAT2009-14448-C02-01, Processing by association of colloid-chemical and power-metallurgical techniques of metal-ceramic nanocomposite structures. Funded by Spanish Ministry of Science and Innovation. 01/01/2010-31/12/2012. 302.000 €. Co-ordinator.
4. MAT2006-01038, Colloidal Processing of Ceramics and Ceramic-metal (Cermet) Materials with Nanometric Structures. Funded by Spanish Ministry of Science and Innovation. 01/10/2006-01/03/2010. 124.000 €.

Project as **Team Member:**

1. P2018/NMT-4411, ADITIMAT, Additive Manufacturing: from material to application. 2019-2023. Funded by Comunidad de Madrid. 150.000 €. IP: Begoña Ferrari.
2. PCIN-2017-036 Biodegradable PLA composites reinforced with micro and nano Mg particles: optimisation of processing and design, and industrial scale-up of temporary implants. 01/12/2017-30/11/2019. Funded by M-Eranet and MINECO, 172.000 €. IP: Dra. Marcela Lieblich.
3. MAT2015-70780-C4-1-P, Tungsten metal-ceramic composites and refractory alloys for its use under severe conditions: Microstructural Design and new processing routes. 01/01/2016-31/12/2019. Funded by Ministry of Economy and Competitiveness. 98.000 €. IP: Begoña Ferrari.
4. S2013/MIT-2862, MULTIMAT Challenge Multifunctional materials for the society challenges. 2014-2017. Funded by Comunidad de Madrid. 130.000 €. IP: Begoña Ferrari.
5. MAT2012-38650-C02-02, Design of the Microstructure and the Microarchitecture of metal-ceramic materials using colloidal and powder metallurgy technologies 01/01/2013-31/12/2015. Funded by Ministry of Economy and Competitiveness. 122.850 €. IP: Begoña Ferrari.

**Projects** Projects with companies:

1. Granulation of Fe by spray dry of slurries - Company AMES. IP: Begoña Ferrari. 01/09/2017-30/11/2017. 31.097 €.
2. Characterization and communiton of ceramic powders in aqueous suspensions to their digital use. Company: FERRO SPAIN S.A.; Ferro Enamel Española, S.A. IP: Begoña Ferrari. 08/05/2017-07/08/2017. 23.901,24 €.
3. Development of an alternative and advanteous process to fabricate whiteware throught thermal gelling. Company: ROCA RADIADORES, S.A. 01/04/2015-P1Y6M. 134.444,31 €.
4. Development of multifunctional glassy mosaic tiles. Company: HISPANO ITALIANA DE REVESTIMIENTOS, S.A. IP: Begoña Ferrari 10/04/2013-31/12/2016. 120.000 €.
5. Fabrication of coloured transparent polycrystalline ceramics for applications in decorative arts and new architectonic and industrial designs. Company: HISPANO ITALIANA DE REVESTIMIENTOS, S.A. IP: Felipe Orgaz. 15/12/2009-14/11/2011. 133.185 €.

**Patents**

1.- **Inventors:** A. Ferrández, B. Ferrari, A. J. Sanchez-Herencia, Z. González, F.J. González, J.L. Yus, J.L. González, M. Lieblich

**Title:** Procedure for the fabrication of samples by Fused Deposition Modeling

**Number:** P201 830 503 **Priority date:** 24-05-2018

**Owners:** Consejo Superior de Investigaciones Científicas (ES)

2.- **Inventors:** B. Ferrari, Y. Castro, A.J. Sanchez-Herencia, C. Mendoza, Z. González, M.J. Pérez, L.E. Lecue, L. San Miguel

**Title:** Procedure for the fabrication of fotoactive sintered ceramic coatings, coating fabricated and its uses

**Number:** ES2 546 891 **Publication date:** 29-09-2015 **Grant date:** 06-04-2016

**Owners:** Consejo Superior de Investigaciones Científicas (ES), Hispano Italiana de Revestimientos

S.A. Licensed: HISBALIT S.A.

**3.- Inventors**: S. Cabanas-Polo, A.J. Sanchez-Herencia, B. Ferrari.

Title: Síntesis instantánea de alfa-Ni(OH)<sub>2</sub> nanométrico en disolución amoniacal/ Instant synthesis of nanometric alpha-Ni(OH)<sub>2</sub> in ammonia solution.

Number: ES2 402 408 Publication date: 03-05-2013 Grant date: 04-03-2014

Owners: Consejo Superior de Investigaciones Científicas (ES)

**4.- Inventors**: F. Lange, M. Rao, A.J. Sanchez-Herencia;ç

Title: Method for improving the reliability of brittle materials through the creation of a threshold strength

Number: US6,878,466, Publication date: 29-09-2000 Grant date: 12-04-2005

Owners: The Regents of the University of California (Oakland, CA, EE.UU)

Licensed: NAVY, SECRETARY OF THE UNITED STATES OF AMERICA,

**5.- Inventors**: R. Moreno, A. Millán, A.J. Sanchez-Herencia, M.I Nieto.

Title: Procedure for control ceramic and/or metallic materials by carrageenan gelling.

Number: ES 2 184 552 Publication date: 01-04-2003 Grant date: 09-07-2004

Owner: Consejo Superior de Investigaciones Científicas (ES)

**6.- Inventors**: A. Millán, M.I. Santacruz, C. Alberto, A.J. Sanchez-Herencia, M.I. Nieto, R. Moreno.

Title: Continuous extrusion of ceramic and metal parts consists of treatment of aqueous suspensions containing polysaccharides, for gelling as thin wall parts

Number: ES 2 192 933 Publication date: 16-02-2005 Grant date: 29-12-2004

Owner: Consejo Superior de Investigaciones Científicas (ES)