

Curriculum vitae (February 2023)

Prof. Dr. Victorino Franco
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Researcher-ID: <http://www.researcherid.com/rid/B-8982-2008>

Google scholar: <https://scholar.google.com/citations?hl=en&user=13bIGNoAAAAJ>



Current position:

Full Professor (“Catedrático de Universidad”).
Condensed Matter Physics Department. University of Seville
Since June 2012

Previous positions:

- Research fellow, University of Seville, 1995-1999
- Assistant Professor, University of Seville, 1999-2004
- Associate Professor, University of Seville, 2004-2012

Education:

- “Licenciado en Física” (5 years degree in Physics); Sevilla University, Sevilla (Spain). 1989-1994
- Ph.D. in Physics; Sevilla University, Sevilla (Spain). 1994-1999.

Awards:

- “Premio Extraordinario de Doctorado” (PhD Thesis Extraordinary Award). Sevilla University. 1999
- Young Scientist Award. Spanish Royal Physical Society. 2000
- Young Scientist Award. Royal Order of Chivalry of Sevilla and Royal Academy of Sciences of Sevilla. 2005
- Pesquisador Visitante Especial, CNPq (Brazil), 2014-2016
- IEEE Magnetics Society Distinguished Lecturer 2019 (delivering 66 invited lectures in the year <https://datastudio.google.com/reporting/608a39c6-f6ca-4954-825f-bdaa250172a1>)
- Chinese Academy of Sciences President’s International Fellowship, 2020

Publications:

- More than 220 papers in international refereed journals.
- Book: “Magnetic Measurement Techniques for Materials Characterization”. Editors: V. Franco, B. Dodrill. Springer. 2021 <https://link.springer.com/book/10.1007/978-3-030-70443-8>
- h-index: 47 in Google Scholar (44 in Web of Science);
- More than 11,000 citations in Google Scholar (more than 8,850 citations in Web of Science).
- Currently, 3 highly cited papers (Clarivate Analytics). 6 over the years.

Stanford University World Ranking of Top 2% Scientists (published in PLOS-Biology):

“Updated science-wide author databases of standardized citation indicators”.

<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3000918>.

Top ranked category: **Applied Physics** (2020, 2021 and 2022 editions)

Editor:

- Metals. Section Editor in Chief-Metallic Functional Materials (since 2022)
- Metallurgical and Materials Transactions E: Materials for Energy Systems (Springer) (2013-2017)

Guest editor: Scripta Materialia, JOM, Journal of Applied Physics (MMM conference), AIP Advances (MMM and Joint MMM-Intermag Conferences), Journal of Magnetism and Magnetic Materials (SMM conference)

Editorial Board Member: Materials (MDPI). Since 2018

Technology Transfer:

Patent: “The Method of Approximation of the Magnetocaloric Effect Temperature Dependence by Means of a Universal Curve” (RU2442975), currently exploited by AMT&C (Russia)

Patent: “Magnetokalorische Legierung, Verfahren zum Herstellen einer solchen Legierung sowie die Verwendung der Legierung” (Application DE 10 2020 104 938, 25/02/2020), owner: thyssenKrupp Steel Europe.

Software: Magnetocaloric Effect Analysis Software. Distributed by Lake Shore Cryotronics.

<https://www.lakeshore.com/products/product-detail/8600-series-vsm/mce-analysis-software>

Industrial Contracts:

- **ThyssenKrupp Steel Europe**, Germany: "Physical Characterization of Electrical Steels" and "Characterization of the Physical Properties of Materials"
- **EraSteel**, France: "Characterization of Magnetocaloric Materials"
- **Lake Shore Cryotronics Inc**, USA: "Magnetocaloric Research with Vibrating Sample Magnetometers: Algorithms for Data Analysis and Development of New Measuring Protocols". The resulting software is being currently distributed by Lake Shore Cryotronics.
- **ArcelorMittal** (confidential topic)
- **TDK**, Japan: collaboration agreement

Research projects as PI:

- HORIZON-EIC-2022-PATHFINDEROPEN-01 101099736 “CoCoMag - Multi-property Compositionally Complex Magnets for Advanced Energy Applications”. Horizon Europe. 6/2023-5/2025.
- KPN 336403. “HYLICAL – HYdrogen LIquefaction with CALoric Materials”. The Research Council of Norway. 01/07/2023-30/06/2027
- HORIZON-JTI-CLEANH2-2022-1 101101461 “Development and validation of a new magnetocaloric high-performance hydrogen liquefier prototype”. Horizon Europe. 01/01/2023-31/12/2027
- FA8655-21-1-7044. “Hysteresis and frequency response as limiting factors for efficient thermomagnetic energy conversion”. US Air Force Office of Scientific Research. 30/09/2021-29/9/2024.

- PID2019-105720RB-I00. "Addressing the limitations of magnetocaloric materials towards their implementation in energy efficient applications". Ministerio de Ciencia, Innovación y Universidades. 01/06/2020-31/05/2024.
- P18-RT-746. "Thermomagnetic phase transitions for an efficient use of energy and resources". Regional Government of Andalucía. 01/01/2020-31/03/2023.
- US-1260179. "Influencia de excitaciones múltiples sobre transiciones de fase termomagnéticas para aplicaciones energéticas", Universidad de Sevilla-FEDER Andalucía. 1/02/2020-30/04/2022.
- W911NF1920212. "Optimization of magnetocaloric materials towards energy efficient applications", US Army Research Laboratory. 16/9/2019-15/09/2021.
- "Identification of projects for the improvement of awareness about energy efficiency and climate change mitigation in Thailand". University of Seville Office of International Cooperation. 2019
- FA9550-17-1-0226. "23rd Soft Magnetic Materials Conference". US Air Force Office of Scientific Research. 15/06/2017-14/06/2018.
- N62909-18-1-2001. "23rd Soft Magnetic Materials Conference". US Army Research Laboratory. 25/08/2017-24/02/2018.
- MAT2016-77265-R, "Modelling and control of hysteresis in magnetocaloric materials for refrigeration and energy conversion ". Ministerio de Economía y Competitividad. 30/12/2016-31/12/2020.
- MAT2013-45165-P, "Magnetic Materials and Energy Efficiency: Characterization and Models". Ministerio de Economía y Competitividad. 01/01/2014-31/12/2017.
- 313771/2013-8, "Thermomagnetic properties of nanostructured materials and composites for magnetic refrigeration", Conselho Nacional De Desenvolvimento Científico E Tecnológico - CNPq (Brasil). PIs: M. Knobel (UNICAMP) & V. Franco (Spanish part). 07/11/2013-06/11/2016.
- N00014-11-1-0311, "Magnetocaloric effect in amorphous and multiphase materials: experiments and models". U.S. Office of Naval Research. 01/05/2011-31/01/2013.
- 2010B050300008, "Magnetocaloric Materials and Magnetic Refrigeration Technology" (China-Singapore-Spain). Guangdong Province (China). 01/01/2010-31/12/2013
- PP2010-08-003, "Eficiencia Energética: Diseño y Realización de un Demostrador de Efecto Magnetocalórico para Refrigeración Magnética a Temperatura Ambiente". University of Seville. 01/07/2010-01/09/2010.
- FR2009-0101, "Estudio y optimización de nanocomposites para refrigeración magnética" (bilateral France-Spain). Ministerio de Ciencia e Innovación. 01/01/2010-31/12/2011.
- CIT-420000-2008-9, "Sistema de refrigeración magnética: optimización de materiales y diseño de un dispositivo". Ministerio de Ciencia e Innovación. 01/01/2008-31/12/2008.

Research stays at foreign institutions:

Ames Laboratory. Ames (USA); Carnegie Mellon University. Pittsburg (USA); Institut de Chimie de la Matière Condensée de Bordeaux. Bordeaux (France); Istituto Nazionale di Ricerca Metrologica (I.N.RI.M). Torino (Italy); Nanyang Technological University. (Singapore); National Institute of Standards and Technology (NIST). Gaithersburg (USA); Research Institute for Solid State Physics and Optics. Hungarian Academy of Sciences. Budapest (Hungary); Slovak Academy of Sciences. Kosice (Slovakia); South China University of Technology. Guangzhou (China); State Key Laboratory of

Magnetism. Chinese Academy of Sciences. Beijing (China); TU-Darmstadt. Darmstadt (Germany); University of South Florida. Tampa (USA); Universidade Estadual de Campinas (Brazil)

Teaching at foreign universities (postgraduate courses or series of lectures):

- Nanyang Technological University, Singapore. Series of conferences “Thermomagnetic Properties of Amorphous and Nanocrystalline Materials”, 2009-2010
- South China University of Technology, China. Postgraduate course “Functional materials: characterization and modeling”, 2011; “Magnetic Materials for Energy: Fundamentals and Applications”, 2019.
- Institute of Experimental Physics of the Slovak Academy of Sciences, Slovakia. Series of lectures “Different aspects of nanomaterials research using a Vibrating Sample Magnetometer”, 2012-2013
- Wroclaw University of Science and Technology, Poland. Series of lectures “Research in Magnetism and Magnetic Materials”, 2016.
- Lecturer at IEEE Magnetics Society Summer School 2019 (Richmond, USA)
- Lecturer at European School of Magnetism 2013 (Cargese, France) and 2022 (Saarbrücken, Germany)

Service related work:

- Scientific Manager. Functional Materials. Spanish Research Agency (AEI), since 2022.
- Member of the Physics and Mathematics Panel. Spanish National Commission for the Evaluation of Research Activity (CNEAI), since 2022.
- Member of the International Scientific Council. South Ural State University, Chelyabinsk (Russia), since 2019
- Member of the 147th Committee on Amorphous and Nano-Crystalline Materials of the University-Industry Cooperative Research Committees, Japan Society for the Promotion of Science (JSPS) (since November 2018)
- The Minerals Metals and Materials Society (TMS)
 - Member of the Content Development & Dissemination Committee (CDDC) (from April 2023)
 - Member of the Functional Materials Division Council (from April 2023)
 - Chairman of the Magnetic Materials Committee (March 2012-February 2014)
 - Vice-Chairman of the Magnetic Materials Committee (October 2009 -March 2012)
- IEEE Spain Section, Conference Coordinator (March 2014-March 2016)
- IEEE Magnetic Society, Spain Chapter,
 - Chair (November 2016-March 2019)
 - Secretary and Treasurer (June 2014-November 2016)
- Spain Magnetism Club (CEMAG)
 - President (since November 2022)
 - Vice-President (December 2018-November 2020)
 - Secretary (November 2016-December 2018)
- The European School on Magnetism, Member of the Steering Committee (since April 2016)
- Guest Editor:
 - “Magnetic Materials for Energy Applications”, JOM, July 2012

- “Viewpoint set on Magnetic Materials for Energy”, Scripta Materialia, 2012.
- “The Role of Microstructure and Processing on Magnetic Properties of Materials”, JOM, July 2013
- External evaluator for:
 - National Agency for Quality Assessment and Accreditation of Spain, ANECA. Role: Coordinator for the Area Physics and Astronomy; FPU fellowships 2020
 - Agence Nationale de la Recherche, France
 - Czech Science Foundation, Czech Republic.
 - Department of Energy (DOE-EPSCoR and DOE-BES), USA.
 - Deutsche Forschungsgemeinschaft (DFG), Germany
 - European Union (COST Actions, Marie Curie Actions)
 - Hungarian Scientific Research Fund (OTKA), Hungary.
 - Member of the Expert Panel for the Spanish national program ACADEMIA (for the evaluation and accreditation of university professors)
 - National Agency for Evaluation and Prospective (ANEP), Spain.
 - National Agency for the Promotion of Science and Technology, Argentina.
 - Romanian National Council for Scientific Research, Romania.
 - Science & Engineering Research Council (SERC), Singapore.
 - Research Grants Council (RGC) of Hong Kong.
 - The National Science Centre, Poland
- Organization of Conferences (only leading roles selected):
 - 28th Biennial Conference of the Royal Physical Society of Spain Sevilla, 2001 (Secretary and Treasurer)
 - Symposium “Magnetic Materials for Energy Applications”, TMS Annual Meeting, San Diego, USA, 2011 (lead organizer)
 - 23rd Soft Magnetic Materials Conference, Sevilla, Spain, 2017 (**Chairman of the Organizing Committee**)
 - Member of the International Organizing Committee, Soft Magnetic Materials Conference series (since December 2018)
 - Symposium “Current Trends in Magnetocaloric Materials: An FMD Symposium in Honor of Ekkes Brueck”, TMS Annual Meeting, San Diego, USA, 2020 (lead organizer)
 - Publication Editor: MMM Conference (from 2011 until 2016 editions); Joint MMM-Intermag (2013 and 2016 editions); 24th Soft Magnetic Materials Conference (2019, Poland);
 - Publication Chair: MMM Conference (from 2017 until 2020 editions); 23rd Soft Magnetic Materials Conference (2017, Spain); 14th Joint MMM-Intermag (2019, USA)
 - 2022 Joint MMM-Intermag, New Orleans, USA, 2022 (**General Chair**)
 - 2022 MMM, Minneapolis, USA, 2022 (member of the Steering Committee)
 - 2023 JEMS, Madrid (Spain), Member of the Organizing Committee
 - The Magnetics Show North America, Pasadena, USA, 2024 (Advisory Board Member)