

-----BEGINNING OF CURRICULUM VITAE-----

NAME: Dr. JOSÉ M. DE TERESA
DATE AND PLACE OF BIRTH: 14/09/1970 IN ZARAGOZA (SPAIN)
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SCIENTIFIC BACKGROUND

1988-1993: Physics Studies at the University of Zaragoza (Spain). During the last year I enjoyed a *Research Collaboration Grant* funded by the Council of Research of Spain

01/01/1994 - 31/12/1997: PhD student at the University of Zaragoza (Spain). Supervisors: Prof. M.R. Ibarra and A. del Moral. Title: "Study of rare-earth intermetallic compounds with valence and magnetic moment instability and of manganites with colossal magnetoresistance". Mark: "Apto cum laude"

10/01/1998 - 23/03/1998: Postdoctoral stay (3 months) at Dresden (Germany). Supervisors: Prof. L. Schultz, Dr. K. H. Mueller and K. Doerr (Institute of Solid State Physics). Subject: "Transport and magnetic properties in La-Ca-Mn-O thin films".

01/04/1998 - 31/03/2000: Postdoctoral stay (2 years) at "Unite Mixte de Recherche CNRS-Thomson" in Orsay (France). Supervisor: A. Fert. Subject: "Spin Electronics".

01/04/2000 - 29/06/2001: Non-permanent researcher at the Council of Research of Spain [Institute of Materials Science in Zaragoza (ICMA), Spain].

30/06/2001 - 15/02/2006: Permanent researcher: "Científico Titular" in the Council of Research of Spain, CSIC, at the Institute of Materials Science in Zaragoza (ICMA), Spain.

12/07/2006 - 2010: Permanent researcher: "Investigador Científico" (equivalent to Associate Professor) in the Council of Research of Spain, CSIC, at the Institute of Materials Science in Zaragoza (ICMA), Spain.

2010 - present: Permanent researcher: "Profesor de Investigación" (equivalent to Full Professor) in the Council of Research of Spain, CSIC, at the Institute of Materials Science in Zaragoza (ICMA), Spain.

PUBLICATIONS:

-I am first author or co-author of **203 publications**

-My articles belonging to the **Science Citation Index (193)** have been cited **6952 times**.

-My h-index is **40** according to the *Web of Science* and **45** according to *Google Scholar*

***Selected Articles**

1) J. M. De Teresa, M.R. Ibarra, J. García, J. Blasco, C. Ritter, P.A. Algarabel, C. Marquina, A. del Moral, "Spin-glass insulator state in $(\text{La-Tb})_{2/3}\text{Ca}_{1/3}\text{MnO}_3$ perovskite", **Phys. Rev. Lett.** 76, 3392 (1996)

2) J. M. De Teresa, M.R. Ibarra, P.A. Algarabel, C. Ritter, C. Marquina, J. Blasco, J. García, A. del Moral, Z. Arnold, "Evidence for magnetic polarons in the magnetoresistive perovskites", **Nature** 386, 256 (1997)

3) J. M. De Teresa, A. Barthélemy, A. Fert, J.P. Contour, F. Montaigne, P. Seneor, "Role of the metal-oxide interface in determining the spin polarization of magnetic tunnel junctions" **Science** 286, 50 (1999)

4) J. M. De Teresa, A. Barthélemy, A. Fert, J.P. Contour, R. Lyonnet, P. Seneor, A. Vaurès, F. Montaigne, "Inverse tunnel magnetoresistance in $\text{Co}/\text{SrTiO}_3/\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$: new ideas on spin-polarised tunneling", **Phys. Rev. Lett.** 82, 4288 (1999)

5) J. M. De Teresa, P.A. Algarabel, C. Ritter, J. Blasco, M.R. Ibarra, L. Morellon, J.I. Espeso, J.C. Gómez-Sal, "A possible quantum critical point in $\text{La}_{0.67}\text{Ca}_{0.33}\text{Mn}_{1-x}\text{Ga}_x\text{O}_3$ ", **Phys. Rev. Lett.** 94, 207205 (2005)

- 6) N. Marcano, J.C. Gómez-Sal, J.I. Espeso, J. M. De Teresa, P.A. Algarabel, C. Paulsen, J.R. Iglesias, "Mesoscopic magnetic states in substitutional strongly correlated electron metals: a percolative scenario for CeNi_{1-x}Cu_x", **Phys. Rev. Lett.**, 98, 166406 (2007)
- 7) I. Guillamón, H. Suderow, A. Fernández-Pacheco, R. Córdoba, J. Sesé, J. M. De Teresa, M R Ibarra, S. Vieira, "Direct observation of melting in a 2-D superconducting vortex lattice", **Nature Physics** 5, 651 (2009)
- 8) I. Guillamón, H. Suderow, S. Vieira, J. Sesé, R. Córdoba, J. M. De Teresa, M R Ibarra, "Direct observation of stress accumulation and relaxation in small superconducting vortex bundles", **Phys. Rev. Lett.** 106, 077001 (2011)
- 9) L. Serrano, R. Córdoba, L.A. Rodríguez, C. Magen, E. Snoeck, C. Gatel, I. Serrano, M.R. Ibarra, J. M. De Teresa, "Ultra-Small Functional Ferromagnetic Nanostructures Grown by Focused-Electron-Beam-Induced deposition", **ACS Nano** 5, 7781 (2011)
- 10) R. Córdoba, T. I. Baturina, J. Sesé, A.Yu. Mironov, J. M. De Teresa, M. R. Ibarra, D. A. Nasimov, A. K. Gutakovskii, A.V. Latyshev, I. Guillamón, H. Suderow, S.Vieira, M. R. Baklanov, J. J. Palacios and V. M.Vinokur, "Magnetic field induced dissipation free state in superconducting nanostructures", **Nature Communications** 4, 1437 (2013)
- 11) A. Fernández-Pacheco, Luis Serrano-Ramón, Jan Michalik, M. Ricardo Ibarra, J. M. De Teresa, Liam O' Brien, Dorothee Petit, Jihyun Lee, Russell P. Cowburn "Three dimensional magnetic nanowires grown by focused electron-beam induced deposition", **Scientific Reports** 3, 1492 (2013)
- 12) J.C. Rojas Sánchez, L. Vila, G. Desfonds, S. Gambarelli, J.P. Attané, J. M. De Teresa, C. Magén, A. Fert, "Spin to charge conversion using Rashba coupling at the interface between non-magnetic materials", **Nature Communications** 4, 3944 (2013)
- 13) L. Marín, L.A. Morellón, P. Algarabel, L.A. Rodríguez, C. Magén, J. M. De Teresa, M.R. Ibarra, "Enhanced magnetotransport in nanopatterned manganite nanowires", **Nano Letters** 14, 423 (2014)
- 14) J. M. De Teresa, R. Córdoba, "Arrays of densely-packed isolated nanowires by Focused Beam Induced Deposition plus Ar⁺ milling", **ACS Nano** 8, 3788 (2014)
- 15) I.Guillamón, R. Córdoba, J. Sesé, J. M. De Teresa, M. R. Ibarra, S. Vieira, H. Suderow "Enhancement of long range correlations in a 2D vortex lattice by incommensurate 1D disorder potential", **Nature Physics** 10, 851 (2014)
- 16) P. Peinado, S. Sangiao, J. M. De Teresa, "Focused Electron and Ion Beam Induced Deposition on Flexible and Transparent Polycarbonate Substrates", **ACS Nano** 9, 6139 (2015)
- 17) L. Marín, L.A. Rodríguez, C. Magén, E. Snoeck, R. Arrás, I. Lucas, L. Morellón, P.A. Algarabel, J. M. De Teresa, M. R. Ibarra" Observation of the strain induced magnetic phase segregation of manganite thin films ", **Nano Letters** 15, 492 (2015)
- 18) D. Wolf, L. A. Rodríguez, A. Béché, E. Javon, L. Serrano, C. Magen, C. Gatel, A. Lubk, H. Lichte, S. Bals, G. van Tendeloo, A. Fernández-Pacheco, J. M. De Teresa, E. Snoeck "3D magnetic induction maps of nanoscale materials revealed by electron holographic tomography", **Chemistry of Materials** 27, 6771 (2015)
- 19) S. Sangiao, S. Martín, A. González-Orive, C. Magén, P. J. Low, J. M. De Teresa, P. Cea, "All-Carbon Molecular Electronic Devices based on Langmuir-Blodgett Monolayers", **Small** 7, 1603207 (2017)
- 20) A. I. Dago, S. Sangiao, R. Fernández-Pacheco, J. M. De Teresa, R. García, "Chemical and structural analysis of sub-20 nm graphene patterns generated by scanning probe lithography", **Carbon** 129 (2018) 281
- 21) R. Córdoba, A. Ibarra, D. Mailly, J. M. De Teresa, "Vertical growth of superconducting crystalline hollow nanowires grown by He⁺ focused ion beam induced deposition", **Nano Letters** 18 (2018) 1379

***Selected Review Articles:**

1) J.M. De Teresa, A. Fernández-Pacheco, R. Córdoba, L. Serrano-Ramón, S. Sangiao, M. R. Ibarra, "Review on magnetic nanostructures grown by Focused Electron Beam Induced Deposition", **J. Phys. D: Appl. Mater.** 49, 243003 (2016)

2) J.M. De Teresa, A. Fernández-Pacheco, "Present and future applications of magnetic nanostructures grown by FEBID", **Applied Physics A** 117, 1645 (2014).

***Selected Book Chapters:**

1) J.M. De Teresa, A. Fernández-Pacheco, R. Córdoba, and M.R. Ibarra, "Electrical transport properties of metallic nanowires and nanoconstrictions created with FIB/SEM dual beam", chapter in book "Nanofabrication using focused ion and electron beams: principles and applications (2009), Editors: Phillip E. Russell, Ivo Utke, Stanislav Moshkalev, **Oxford University Press**, 2011

2) J.M. De Teresa, R. Córdoba, A. Fernández-Pacheco, S. Sangiao, M.R. Ibarra, "Nanoscale Electrical Contacts Grown by Focused Ion Beam (FIB)-Induced Deposition", : "FIB Nanostructures", Lecture Notes in Nanoscale Science and Technology 20, Editor. Wang, Z.M, Switzerland, **Springer International Publishing Switzerland** 2013, Pages 95-122.

TRANSFER OF KNOWLEDGE:

-2017. Patent on "Advanced magnetic tips for Magnetic Force Microscopy" (ES1641.1290), licensed and under exploitation since July 2018 by the company *Graphene and Nanotechnologies* (www.gpnt.es).

-2014-present. Co-founder and member of the Scientific Committee of the start-up company *Graphene and Nanotechnologies*. Joint projects since 2014 until now.

-2014-2016. Joint projects on the use of nanostructured surfaces for application in electrical appliances with the company *BSH* (<https://www.bsh-group.com>), producer of electrical appliances.

-2006-2013. Patent on a "Device for the quantitative detection of an analyte using magnetoresistive sensors" (P200603259), granted on 14th April 2009. Joint projects for the development of this patent with the companies *Certest Biotec* (www.certest.es) and *Sallen Tech* (<http://www.sallen.es>).

CONTRIBUTIONS TO CONFERENCES AND WORKSHOPS:

I have given myself 77 invited conferences in congresses. Below, I list a few selected ones:

2018. The 44th Micro and Nano Engineering Conference MNE 2018 in Copenhagen (Denmark); 2nd European FIB network workshop in Grenoble (France); Int. Conference on Superconductivity and Magnetism ICSM2018 in Antalya (Turkey); Advances in Gas-ion Microscopy (PicoFIB workshop) in Dresden (Germany) Nano **2016.** Nano-confined Superconductors and their application, Garmisch-Partenkirchen (Alemania); Sixth Workshop on Focused Electron Beam Induced Processing, Viena (Austria); Emerging Technologies 2016, Montreal (Canadá); 2nd Annual World Congress Smart Materials, Singapur **2015.** EIPBN, San Diego (USA); IWMNN, Meersburg (Alemania); ICM2015, Barcelona **2014.** Intermag, Dresden (Alemania); Condensed Matter Physics in Paris (Francia); 14th REIMEI Workshop on Spin Currents and Related Phenomena, Grenoble (Francia). **2013.** Energy-Materials-Nanotechnology East Meeting, Beijing (China). **2012.** E-MRS Fall Meeting, Warsaw (Polonia); 76th DPG conference, Berlin (Alemania). 2011. The American Physical Society March Meeting, Dallas (USA).

PARTICIPATION IN RESEARCH PROJECTS:

I have been involved in more than 50 projects. I list below some selected recent projects:

TITLE: Electrical fields to improve imaging and nanofabrication using Focused Electron and Ion beams
PROJECT LEADER: José M. De Teresa
FUNDING BY: Spanish Ministry of Science and Education

DURATION: 01/01/2017- 31/12/2018

TITLE: Nanoelectronic devices for Energy applications

PROJECT LEADER: José M. De Teresa

FUNDING BY: CSIC

DURATION: 01/01/2017- 31/12/2018

TITLE: Spintronic elements and devices for low-power-consumption applications

PROJECT LEADER: José M. De Teresa

FUNDING BY: Spanish Ministry of Science and Education

DURATION: 01/01/2015- 31/12/2017

TITLE: Spanish Network on Nanolithography (NANOLITO)

PROJECT LEADER: José M. De Teresa

FUNDING BY: Spanish Ministry of Science and Education

DURATION: 01/12/2015- 30/11/2017

TITLE: INTERNEW— Innovative interfaces for energy-related applications

PROJECT LEADER: José M. De Teresa

FUNDING BY: European Commission

DURATION: 01/01/2014 – 31/12/2017

TITLE: Magnetic-domain-wall dynamics in cobalt nanowires grown by focused-electron-beam-induced deposition

PROJECT LEADER: José M. De Teresa

FUNDING BY: CSIC, program I-LINK 026 (ICMA-CSIC, University of Cambridge, ALS_Berkeley)

DURATION: 01/01/2011 – 31/12/2012

TITLE: Immunomagnetic biosensors

PROJECT LEADER: José M. De Teresa

FUNDING BY: Spanish Ministry of Science and Education

DURATION: 01/06/2010 – 31/12/2013

ORGANIZATION OF WORKSHOPS AND SUMMER SCHOOLS:

I have been organizer of 22 workshops and 5 summer schools. I list below some selected ones:

- Organizer of five summer schools on Nanofabrication in Jaca in 2011, 2012, 2013, 2016 and 2018
- Organizer of the “4th Workshop on Focused Electron Beam Induced Processing (FEBIP)” held in Zaragoza (Spain) in June 2012
- Organizer of the of the symposium “Magnetotransport, spin electronics and magnonic crystals” in the Joint European Magnetic Symposia (JEMS) conference, held in September 2012 in Parma (Italy).
- Organizer of the Focused Electron Beam Induced Processing” session in the MNE 2013, London (U.K.) held in September 2013
- Organizer of the Mini-Colloquium “Nanomaterials I: Nanofabrication using focused electron and ion beams”, held in Paris (France) in August 2014

PARTICIPATION IN INTERNATIONAL COMMITTEES:

I have participated in more than 30 international committees. I list below some selected recent ones:

- Member of the Condensed Matter Division Board of the Spanish Royal Physical Society since 2018
- Member of the Condensed Matter Division Board of the European Physical Society since 2014
- Member of the Steering Committee of the Focused Electron Beam Induced Processing Association since June 2012.
- Member of the International Program Committee of the 39th International Conference of Micro and Nano Engineering, Imperial College (London), September 2013.
- Spanish representative in the Scientific Committee of the COST project “CELINA”

SUPERVISING OF PhD THESIS AND MASTER THESIS:

-I have been the supervisor of the following PhD students, all of them getting the highest mark in the thesis defence: *Laurianne Gabillet (co-encadrant)*, *David Serrate*, *Jan Michalik*, *Amalio Fernández-Pacheco*, *Soraya Sangiao*, *Rosa Córdoba*, *L. Serrano-Ramón*, *Inés Serrano*, *Ismael García-Serrano*, *Javier Pablo-Navarro* (defence foreseen in 2019), *Pablo Orús* (defence foreseen in 2021), *José Ignacio Morales* (defence foreseen in 2022), *Rubén Gracia Abad* (defence foreseen in 2022).
-I have supervised 19 Master Thesis projects.

STAYS IN FOREIGN LABORATORIES:

-Short stays (up to one month) in various laboratories: Cambridge University (U. K.), INRS (Montreal, Canada), NUS (Singapore), LBL (Berkeley, USA), IMR (Sendai, Japan), AGH (Krakow, Poland), INSA (Toulouse, France).
-Two years with an individual Marie Curie fellowship in the “Unite Mixte de Recherche CNRS-Thomson” in Orsay (France) in 1998-2000. Supervisor: Nobel Laureate in Physics 2007, Prof. A. Fert.
-Three months in IFW institute in Dresden (Germany) under the supervision of Prof. L. Schultz.
-Three months in University of Southampton (U. K.) under the supervision of Prof. B. Rainford

OTHER:

Languages: I speak fluently Spanish, English and French.

Prizes:

*I obtained in 1997 the “Prize for Young Researchers” given by the *Spanish Royal Physical Society*.
*I obtained in 2004 the “Prize “Aragon Investiga” for Young Researchers given by the “*Gobierno de Aragon*” (*Government of Aragon*).

Management Activities:

*I am the coordinator of the Spanish Network of Nanolithography since 2009 (www.unizar.es/nanolito)
*I am responsible for the Nanolithography FIB-SEM Division of the Laboratory for Advanced Microscopies of the University of Zaragoza since 2009 and was coordinator of the three areas of the laboratory from April 2011 to August 2014.

Academic activities:

*Since 2009, teaching duties in the Master Courses on Nanomaterials (University of Zaragoza)
*Since 2007, teaching duties in the Master Courses on Physics (University of Zaragoza)
*I have been member of the Jury in 31 PhD Thesis and 3 Habilitation Thesis, defended in Spain, Portugal, Switzerland, The Netherlands and France.

-----**END OF CURRICULUM VITAE**-----
