

-----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 **182 publications**

-My articles belonging to the *Science Citation Index* (about 150) have been cited **4717 times**.

-My h-index is **31** according to the "Web of Science" on 1<sup>st</sup> June 2014.

**\*Selected Articles**

1) D.T. Adroja, B.D. Rainford, J.M. De Teresa, A. del Moral, M.R. Ibarra, and K.S. Knight, "First-order valence transition in  $\text{CeNi}_x\text{Co}_{1-x}\text{Sn}$  alloys", *Physical Review B* 52, 12790 (1995)

2) J.M. De Teresa, J. Blasco, M.R. Ibarra, J. García, C. Marquina, P. Algarabel, A. del Moral, "Giant magnetoresistance in bulk  $(\text{La}_{3/4}\text{Tb}_{1/4})_{2/3}\text{Ca}_{1/3}\text{MnO}_3$ " *Solid State Communications* 96, 627 (1995).

3) J. Blasco, J. García, J.M. De Teresa, M.R. Ibarra, P.A. Algarabel, C. Marquina, "A systematic study of structural, magnetic and electric properties of  $(\text{La}_{1-x}\text{Tb}_x)_{2/3}\text{Ca}_{1/3}\text{MnO}_3$  perovskites" *J. Physics: Condens. Matter* 8, 7427 (1996)

4) 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", *Physical Review Letters* 76, 3392 (1996)

5) J.M. De Teresa, Z. Arnold, A. del Moral, M.R. Ibarra, J. Kamarad, D.T. Adroja, B. Rainford, "Pressure and magnetic field effects on the volume anomaly associated with first-order valence change in  $\text{YbInCu}_4$ " *Solid State Communications* 99, 911 (1996)

6) J.M. De Teresa, M.R. Ibarra, J. Blasco, J. García, C. Marquina, P.A. Algarabel, Z. Arnold, K. Kamenev, C. Ritter, R. von Helmolt, "Spontaneous behavior and magnetic field and pressure effects on  $\text{La}_{2/3}\text{Ca}_{1/3}\text{MnO}_3$  perovskite", *Physical Review B* 54, 1187 (1996)

7) J.M. De Teresa, M.R. Ibarra, P.A. Algarabel, C. Marquina, S. Osseoff, "Crossover from charge-localized state to charge-ordered state in  $\text{Pr}_{2/3}\text{Ca}_{1/3}\text{MnO}_3$ " *Physical Review B rapid communications* 54, R12689 (1996)

- 8) 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)
- 9) J.M. De Teresa, C. Ritter, M.R. Ibarra, P.A. Algarabel, J.L. García-Muñoz, J. Blasco, J. García, C. Marquina, "Charge localization, magnetic order, structural behavior and spin dynamics of  $(\text{La-Tb})_{2/3}\text{Ca}_{1/3}\text{MnO}_3$  manganese perovskites probed by neutron diffraction and muon relaxation", *Physical Review B* 56, 3317 (1997)
- 10) J. Blasco, J. Garcia, J.M. De Teresa, M.R. Ibarra, C. Ritter, J. Pérez, P.A. Algarabel and C. Marquina, "Structural, magnetic and transport properties of giant magnetoresistive perovskites  $\text{La}_{2/3}\text{Ca}_{1/3}\text{Mn}_{1-x}\text{Al}_x\text{O}_3$ ", *Physical Review B* 55, 8905 (1997)
- 16) C. Ritter, M.R. Ibarra, J.M. De Teresa, P.A. Algarabel, C. Marquina, J. Blasco, J. Garcia, S. Oseroff and S.W. Cheong, "Influence of the oxygen content on the structural, magnetotransport and magnetic properties of  $\text{LaMnO}_{3+\delta}$ ", *Physical Review B* 56, 8902 (1997)
- 11) M.R. Ibarra, J.M. De Teresa, C. Ritter, J. Blasco, P.A. Algarabel, C. Marquina, J. Garcia, J. Stankiewicz "Lattice effects and stability under high magnetic field of the charge-ordered state in the mixed-valence  $\text{La}_{0.35}\text{Ca}_{0.65}\text{MnO}_3$  perovskite", *Physical Review B* 56, 8252 (1997)
- 12) J.M. De Teresa, K. Doerr, K.H. Mueller, L. Schultz, R.I. Chakalova, "Strong influence of the  $\text{Mn}^{+3}$  content on the binding energy of the lattice polarons in manganese perovskites", *Physical Review B rapid communications* 58, R5928 (1998)
- 13) M.R. Ibarra, G. Zhao, J.M. De Teresa, B. Garcia Landa, Z. Arnold, C. Marquina, P.A. Algarabel, H. Keller, and C. Ritter, "Oxygen isotope effects in  $(\text{La}_{0.5}\text{Nd}_{0.5})_{2/3}\text{Ca}_{1/3}\text{MnO}_3$ : relevance of the electron-phonon interaction to the phase segregation" *Physical Review B* 57, 7446 (1998)
- 14) M.R. Ibarra, J.M. De Teresa, "Colossal magnetoresistance in manganese oxide perovskites", *J. Magn. Magn. Mater.* 177-181, 846 (1998)
- 15) 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)
- 16) J.M. De Teresa, A. Barthélemy, A. Fert, J.P. Contour, R. Lyonnet, P. Seneor, A. Vaurès, F. Montaigne, "Inverse tunnel magnetoresistance in  $\text{Co/SrTiO}_3/\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ : new ideas on spin-polarised tunneling", *Physical Review Letters* 82, 4288 (1999)
- 17) Cz Kapusta, P.C. Riedi, W. Kocemba, G.J. Tomka, M.R. Ibarra, J.M. De Teresa, M. Viret and J.M.D. Coey, "A  $^{55}\text{Mn}$  nuclear magnetic resonance study of mixed-valence manganites", *J. Physics: Condens. Matter* 11, 4079 (1999)
- 18) J. Blasco, C. Ritter, J. García, J.M. De Teresa, J. Pérez Cacho, M.R. Ibarra. "Structural and magnetic phase diagram of  $\text{Tb}_{1-x}\text{Ca}_x\text{MnO}_3$ ", *Physical Review B* 62, 5609 (2000)
- 19) C. Ritter, M.R. Ibarra, L Morellon, J. Blasco, J. Garcia, J.M. De Teresa, "Structural and magnetic properties of double perovskites  $\text{AA}'\text{FeMoO}_6$  ( $\text{AA}'=\text{Ba}_2, \text{BaSr}, \text{Sr}_2$  and  $\text{Ca}_2$ )", *J. Phys.: Condens. Matter* 12, 829 (2000)
- 20) K. Doerr, J.M. De Teresa, K.-H. Müller, D. Eckert, T. Walter, E. Vlahov, K. Nenkov, L. Schultz, "Preparation and properties of epitaxial  $\text{La}_{0.7}\text{Ca}_{0.3}\text{MnO}_{3-\delta}$  films with reduced carrier density", *J. Physics: Condens. Matter* 12, 7099 (2000)
- 21) M. Bowen, V. Cros, F. Petroff, A. Fert, C. Martínez Boubeta, J.L. Costa-Krämer, J.V. Anguita, A. Cebollada, F. Briones, J.M. de Teresa, L. Morellón, M.R. Ibarra, F. Güell, F. Peiró, A. Cornet, "Large tunnel magnetoresistance in  $\text{FeCo/MgO/Fe}$  (001) epitaxial junctions on  $\text{GaAs}(001)$ ", *Appl. Phys. Lett.* 79, 1655 (2001)
- 22) A. Fert, A. Barthelemy, J. Benyoussef, J.P. Contour, V. Cros, Deteresa-JM, A. Hamzic, J.M. George, G. Faini, J. Grollier, H. Jaffres, H. Legall, F. Montaigne, F. Pailloux, F. Petroff, "Review on recent results on spin-polarised tunnelling and magnetic switching by spin injection", *Materials Science and Engineering B-Solid State Materials for Advanced Technology* 84, 1 (2001)

- 39) Cz. Kapusta, P.C. Riedi, D. Zajac, M. Sikora, J.M. de Teresa, L. Morellon, M.R. Ibarra, "NMR study of double perovskite  $\text{Sr}_2\text{FeMoO}_6$ " J. Magn. Magn. Mater. 242-245, 701 (2002)
- 23) J.M. de Teresa, M.R. Ibarra, P.A. Algarabel, L. Morellón, B. García-Landa, C. Ritter, A. Maignan, C. Martin, B. Raveau, A. Kurbakov, V. Trounov, "Magnetic versus orbital polarons in colossal magnetoresistance manganites", Phys. Rev. B Rapid Communications 65, 100403 (2002)
- 24) P.A. Algarabel, J.M. de Teresa, B. García-Landa, L. Morellón, M.R. Ibarra, C. Ritter, R. Mahendiran, A. Maignan, M. Hervieu, C. Martin, B. Raveau, A. Kurbakov, V. Trounov, "Field effect on phase segregation in the electron-doped mixed valence manganites near a structural instability", Phys. Rev. B 65, 104437 (2002)
- 25) A. Barthelemy, A. Fert, J.P. Contour, M. Bowen, V. Cros, J.M. De Teresa, A. Hamzic, G. Faini, J.M. George, J. Grollier, F. Montaigne, F. Pailloux, F. Petroff, C. Vouille, "Magnetoresistance and spin electronics, J. Magn. Magn. Mater. 242-245, 68 (2002)
- 26) D. Serrate, J.M. De Teresa, J. Blasco, M.R. Ibarra, L. Morellón, and C. Ritter, "Large low-field magnetoresistance and  $T_C$  in polycrystalline  $(\text{Ba}_{0.8}\text{Sr}_{0.2})_{2-x}\text{La}_x\text{FeMoO}_6$  double perovskites", Appl. Phys. Lett. 80, 4573 (2002)
- 27) P.A. Algarabel, J.M. De Teresa, J. Blasco, M.R. Ibarra, C. Kapusta, M. Sikora, D. Zajac, P.C. Riedi and C. Ritter, "The peculiar ferromagnetic insulating state in the low hole doped manganites", Phys. Rev. B 67, 134402 (2003)
- 28) D. Serrate, J.M. De Teresa, J. Blasco, M.R. Ibarra, L. Morellon, C. Ritter, "Increase of Curie temperature in fixed ionic radius  $\text{Ba}_{1+x}\text{Sr}_{1-3x}\text{La}_{2x}\text{FeMoO}_6$  double perovskites", European Physical Journal B 39, 35 (2004)
- 29) J.M. De Teresa, D. Serrate, J. Blasco, M.R. Ibarra, L. Morellon, "Impact of the cation size on the magnetic properties of  $(\text{AA}')_2\text{FeReO}_6$  double perovskites", Phys. Rev. B 69, 144401 (2004)
- 30) J.M. De Teresa, D. Serrate, J. Blasco, M.R. Ibarra and L. Morellon, "Large magnetoresistance in  $(\text{AA}')_2\text{FeReO}_6$  double perovskites", J. Magn. Magn. Mater. 290-291, 1043 (2005)
- 31) D. Serrate, J.M. De Teresa, P.A. Algarabel, C. Marquina, L. Morellon, J. Blasco, and M.R. Ibarra, "Giant magnetostriction in  $\text{Ca}_2\text{FeReO}_6$  double perovskite", J. Magn. Magn. Mater. 290-291, 843 (2005)
- 32) D. Serrate, J.M. De Teresa, P.A. Algarabel, R. Fernández-Pacheco, M.R. Ibarra, J. Galibert, "Grain boundary magnetoresistance up to 42 Tesla in cold-pressed  $\text{Fe}_3\text{O}_4$  nanopowders", J. Appl. Phys. 97, 084322 (2005)
- 33) D. Serrate, J.M. De Teresa, P.A. Algarabel, M.R. Ibarra, J. Galibert, "Intergrain magnetoresistance up to 50 T in half-metallic  $(\text{Ba}_{0.8}\text{Sr}_{0.2})_2\text{FeMoO}_6$  double perovskite: spin-glass behaviour of the grain boundary", Phys. Rev. B 71, 104409 (2005)
- 34) J.M. De Teresa, D. Serrate, C. Ritter, J. Blasco, M.R. Ibarra, L. Morellon, W. Tokarz, "Explanation for the high Curie temperature in  $\text{Sr}_2\text{CrReO}_6$ ", Phys. Rev. B 71, 092408 (2005)
- 35) 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)
- 36) M. Sikora, D. Zajac, M. Borowiec, Cz. Kapusta, C.J. Oates, D. Rybicki, J.M. De Teresa, M.R. Ibarra, "Direct evidence of non-quenched Rhenium orbital moment in  $\text{AA}'\text{FeReO}_6$ ", Appl. Phys. Lett. 89, 062509 (2006)
- 37) D. Serrate, J.M. De Teresa and M.R. Ibarra, "Double-perovskites with ferromagnetism above room temperature", Phys.: Condens. Matter. 19, 023201 (2007)

- 38) S. M. Yusuf, J. M. De Teresa, P.A. Algarabel, M.D. Mukadam, I. Mirebeau, M.G. Mignot, C. Marquina, M. R. Ibarra, "Two and three dimensional ordering in the bilayer manganite  $\text{Ca}_{2.5}\text{Sr}_{0.5}\text{GaMn}_2\text{MnO}_3$ ", *Phys. Rev. B* 74, 184409 (2006)
- 39) J.M. De Teresa, C. Ritter, P.A. Algarabel, S.M. Yusuf, J. Blasco, M.R. Ibarra, "Detailed neutron study of the crossover from long-range to short-range ordering in  $(\text{Nd}_{1-x}\text{Tbx})_{0.55}\text{Sr}_{0.45}\text{MnO}_3$  CMR manganites", *Phys. Rev. B* 74, 224442 (2006)
- 40) S. M. Yusuf, J. M. De Teresa, M. D. Mukadam, J. Kohlbrecher, M. R. Ibarra, J. Arbiol, P. Sharma, and S. K. Kulshreshtha, "Structural and Magnetic Properties of Nanoparticles of  $\gamma\text{-Fe}_2\text{O}_3$ ", *Phys. Rev. B* 74, 224428 (2006)
- 41) S. M. Yusuf, J. M. De Teresa, C. Ritter, M. R. Ibarra, J. V. Yakhmi and V.C. Sahni, "Quantum critical point in  $(\text{La}_{1-x}\text{Dyx})_{0.7}\text{Ca}_{0.3}\text{MnO}_3$ ", *Phys. Rev. B* 74, 144427 (2006)
- 42) J. Michalik, J.M. De Teresa, C. Ritter, J. Blasco, D. Serrate, M.R. Ibarra, C. Kapusta, J. Freudenberger, and N. Kozlova, "Breakdown of the ionic model in  $\text{Sr}_2\text{CrReO}_6$  double perovskite probed by high-field magnetization measurements", *Europhysics Letters* 78, 17006 (2007)
- 43) D. Serrate, J.M. De Teresa, P.A. Algarabel, J. Galibert, C. Ritter, M.R. Ibarra, "Colossal magnetoresistance in  $\text{Ca}_{x}\text{Sr}_{2-x}\text{FeReO}_6$  double perovskites due to field-induced phase coexistence", *Phys. Rev. B* 75, 165109 (2007)
- 44) 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  $\text{CeNi}_{1-x}\text{Cux}$ ", *Phys. Rev. Lett.*, 98, 166406 (2007)
- 45) J.M. De Teresa, J. Michalik, J. Blasco, P.A. Algarabel, M.R. Ibarra, C. Kapusta, U. Zeitler, "Magnetization measurements of Re-based double perovskites: non-integer saturation magnetization disclosed", *Appl. Phys. Lett.* 90, 252514 (2007)
- 46) A. Fernández-Pacheco, J. M. De Teresa, L. Morellon, J. Orna, J. A. Pardo, P.A. Algarabel, M. R. Ibarra, "Universal scaling of the anomalous Hall effect in  $\text{Fe}_3\text{O}_4$  epitaxial thin films", *Phys. Rev. B* 77, 100403R (2008)
- 47) I. Guillamón, H. Suderow, S. Vieira, A. Fernández-Pacheco, R. Córdoba, J. Sesé, J M De Teresa, M R Ibarra, "Nanoscale superconducting properties of amorphous W-based deposits grown with focused ion beam", *New Journal of Physics* 10, 093005 (2008)
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- 49) A. Fernández-Pacheco, J. M. De Teresa, L. Morellon, J. Orna, J. A. Pardo, P.A. Algarabel, M. R. Ibarra, "Giant Planar Hall effect in  $\text{Fe}_3\text{O}_4$  thin films and its temperature dependence", *Phys. Rev. B* 78, 212402 (2008)
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- 59) A. Fernández-Pacheco, J. Orna, J. M. De Teresa, P. Algarabel, L. Morellón, J.A. Pardo and M. R. Ibarra, E. Kampert and U. Zeitler, "High-field Hall effect and magnetoresistance in  $\text{Fe}_3\text{O}_4$  epitaxial thin films up to 30 Tesla", *Appl. Phys. Lett.* 95, 262108 (2009)
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- 62) A. García-García, A. Vovk, P. Štrichovanec, J. A. Pardo, P. Algarabel, J. M. De Teresa, L. Morellón, and M. R. Ibarra, "Tunnelling magnetoresistance of Fe/MgO granular multilayers", *J. Appl. Phys.* 107, 033704 (2010)
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- 63) David Muñoz-Rojas, Rosa Córdoba, Amalio Fernández-Pacheco, José María De Teresa, Guillaume Sauthier, Jordi Fraxedas, Nieves Casañ, "High conductivity in hydrothermally grown mixed-valence  $\text{AgCuO}_2$  single crystals verified using Focused-Ion-Beam-Deposited nanocontacts", *Inorganic Chemistry* 49, 10977 (2010)
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- 74) D. Serrate, J.M. De Teresa, C. Marquina, J. Marzo, D. Saurel, F.A. Cardoso, S. Cardoso, P.P. Freitas, M.R. Ibarra, "Quantitative biomolecular sensing station based on magnetoresistive patterned arrays", *Biosensors and Bioelectronics* 35, 206 (2012)
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- 78) S. Sangiao, J. Michalik, L. Casado, M.C. Martinez-Velarte, L. Morellón, M.R. Ibarra, J.M. De Teresa, "Conductance steps in electromigrated Bi nanoconstrictions", *Physical Chemistry Chemical Physics* 15, 5132 (2013)
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83) J. M. De Teresa, R. Córdoba, "Arrays of densely-packed isolated nanowires by Focused Beam Induced Deposition plus Ar<sup>+</sup> milling", *ACS Nano* 8, 3788 (2014)

#### **\*Selected Book chapters (from 8 published ones):**

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) M. Gabuerac, L. Bernau I. Utke, J.M. De Teresa, A. Fernández-Pacheco, "Focused Ion and Electron Beam induced deposition of magnetic structures", 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

3) A. Fernández-Pacheco, R. Córdoba, L.E. Serrano-Ramón, M. R. Ibarra, J. M. De Teresa, "Direct Patterning of Cobalt Nanostructures Using Focused Electron Beam-induced Deposition", "*Cobalt: Occurrence, Uses & Properties*", Eds. Y. Kobayashi y H. Suzuki (ed.), New York, Nova Science Publishers 2013, pages 225-272

4) 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.

#### **PATENTS:**

1) "Nanostructured magnetoresistive composite material with polymeric matrix as active element in sensors and transducers". M.R. Ibarra, J.M. De Teresa, L. Morellon, J.I. Arnaudas, G. Antorrena, J.R. Sevillano. Patent number: P200102905, presented on the 28<sup>th</sup> December 2001, Spain.

2) "Apparatus for the analysis and quantification of the concentration of analytes using magnetoresistive sensors". J.M. De Teresa, C. Marquina, M.R. Ibarra, J. Sesé, D. Serrate, D. Saurel. Patent number: OEPM 2301416, Spain.

3) "Apparatus for the analysis and quantification of the concentration of analytes using inductive sensors". J. Sesé, J.M. De Teresa, C. Marquina, M.R. Ibarra. Patent number: P200603262, Spain.

#### **CONTRIBUTIONS TO CONFERENCES AND WORKSHOPS:**

**I have given myself 60 invited conferences in congresses.** Below, I list ten selected ones:

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-2014. Intermag 2014, Dresden (Germany), "Electron Beam Induced Deposition of 3D nanowires"

-2014. 14<sup>th</sup> REIMEI Workshop on Spin Currents and Related Phenomena, Grenoble (France), "Focused Electron Beam Induced Deposition for experiments in Spintronics and Nanomagnetism"

-2013. Energy-Materials-Nanotechnology East Meeting, Beijing (China), "New perspectives in Focused Ion Beam Induced Deposition"

-2012. E-MRS 2012 Fall Meeting, Warsaw (Poland). "Functional nanostructures grown by focused electron and ion beam induced deposition techniques"

-2012. 76<sup>th</sup> DPG conference, Berlin (Germany), “Tailored cobalt nanostructures at the nanoscale grown by focused electron beam induced deposition”  
 -2011. 7th Int. Workshop on Nanomagnetism and Superconductivity, Coma-ruga (Spain). “Nanoscale characterization of ferromagnetic and superconducting nanostructures grown by FEBID/FIBID”  
 -2011. The American Physical Society March Meeting, Dallas (USA). “Focused Electron Beam Induced Deposition of Magnetic Nanostructures”  
 -2010. The 23<sup>rd</sup> General Conference of the Condensed Matter Division of the European Physical Society, Warsaw (Poland). “Functional magnetic and superconducting nanowires and nanostructures grown by focused electron/ion beam techniques”  
 -2010. Third Workshop on Focused Electron Beam Induced Processing, Albany (New York, USA). “Growth of ferromagnetic nanostructures by focused electron beam and the study of their properties”  
 -2007. European School on Magnetism: “New magnetic materials and their functions”, Cluj (Romania). “Magnetoresistance phenomena and related effects. Magnetic sensors and actuators”

**PARTICIPATION IN RESEARCH PROJECTS:**

I have been involved in more than 50 projects. I list below some of the projects:

TITLE: INTERNEW— Innovative interfaces for energy-related applications  
 PROJECT LEADER from my Institute: José M. De Teresa  
 FUNDING BY: FP7-PEOPLE-2013-IRSES  
 ALLOCATED MONEY: 58.800 € DURATION: 01/01/2014 – 31/12/2017

TITLE: Micro- y Nano-estructuración de sustratos metálicos mediante técnicas físicas para la modificación de las propiedades de mojado de líquidos: superhidrofobicidad y superhidrofilicidad  
 PROJECT LEADER: José M. De Teresa  
 FUNDING BY: Empresa BSH Electrodomésticos España S.A.  
 ALLOCATED MONEY: 15.659 € DURATION: 01/05/2014 – 30/09/2014

TITLE: Magnetic-domain-wall dynamics in cobalt nanowires grown by focused-electron-beam-induced deposition  
 PROJECT LEADER from my Institute: José M. De Teresa  
 FUNDING BY: CSIC, programa I-LINK 026 (ICMA\_CSIC, Universidad de Cambridge, ALS\_Berkeley)  
 ALLOCATED MONEY: 29.150 € DURATION: 01/01/2011 – 31/12/2012

TITLE: Immunomagnetic biosensors  
 PROJECT LEADER from my Institute: José M. De Teresa  
 FUNDING BY: Spanish Ministry of Science (reference: IPT-010000-2010-2)  
 ALLOCATED MONEY: 326.288 EURO to my group DURATION: 01/06/2010 – 31/12/2013

TITLE: Transpirenees Action on Advanced Infrastructures for Nanosciences and Nanotechnologies  
 PROJECT LEADER from my Institute: José M. De Teresa  
 FUNDING BY: SUDOE (TRAIN2-SOE2/P1/E-280)  
 ALLOCATED MONEY: 191.833,14 EURO to my group DURATION: 01/01/2011 – 31/10/2012

TITLE: Nanotechnology based on hybrid devices graphene-magnetic/superconducting materials  
 PROJECT LEADER: José M. De Teresa  
 FUNDING BY: Aragon regional Government (reference: PI046/09)  
 ALLOCATED MONEY: 70.000 EURO to my group DURATION: 01/09/2009 – 31/10/2011

TITLE: Spanish Network on Nanolithography (project merging 450 researchers, 10 centers and 10 companies)  
 PROJECT COORDINATOR: José M. De Teresa  
 FUNDING BY: Spanish Ministry of Science (reference: MAT2008-03636-E)  
 ALLOCATED MONEY: 12.000 EURO DURATION: 01/01/2009 – 31/12/2010

TITLE: Magnetic biosensors for competitive and highly-sensitive influenza lateral-flow tests (project coordinating 2 Spanish research groups and two companies)  
 PROJECT LEADER from my Institute: José M. De Teresa  
 FUNDING BY: Spanish Ministry of Science (reference: CIT 420000-2008-22)



ALLOCATED MONEY: 128.000 EURO to my group      DURATION: 01/01/2009 – 31/12/2010

TITLE: Magnetic and magnetotransport properties of Micro- and Nano-structures (project coordinating 2 Spanish research groups)

PROJECT LEADER from my Institute: José M. De Teresa

FUNDING BY: Spanish Ministry of Science (reference: MAT2008-06567-C02-02/NAN)

ALLOCATED MONEY: 121.000 EURO to my group      DURATION: 01/01/2009 – 31/12/2011

TITLE: Synthesis and characterization of magnetic materials for magnetoelectronic and magnetic refrigeration applications (project coordinating 2 Spanish research groups)

PROJECT LEADER from my Institute: José M. De Teresa

FUNDING BY: Spanish Ministry of Science (reference: MAT 2005-05565-C02-02)

ALLOCATED MONEY: 119.000 EURO to my group      DURATION: 31/12/2005 – 30/12/2008

TITLE: Study of magnetoresistive systems for magnetoelectronic applications

PROJECT LEADER: José M. De Teresa

FUNDING BY: Spanish Ministry of Science (reference: MAT 2002-04657)

ALLOCATED MONEY: 220.600 EURO      DURATION: 03/03/2003 – 02/03/2006

### **ORGANIZATION OF WORKSHOPS:**

I have been organized 16 workshops. I list below some of the most recent ones:

-Organizer of the “4<sup>th</sup> 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”, to be held in Paris (France) in August 2014

### **PARTICIPATION IN INTERNATIONAL COMMITTEES:**

I have participated in 22 international committees. I list below some of the most recent ones:

-Member of the “INTERNATIONAL PROGRAMME COMMITTEE” of the 33rd INTERNATIONAL CONFERENCE ON MICRO- AND NANO-ENGINEERING”, Copenhagen (Denmark), 23-26 September 2007.

-Member of the PROGRAMME COMMITTEE in the first, second, third, fourth and fifth Spanish Workshops on Nanolithography, held respectively in Zaragoza, Barcelona, Madrid, Oviedo and San Sebastián in 2007, 2008, 2009, 2010, 2012.

-Member of the “INTERNATIONAL ADVISORY COMMITTEE” of the 12<sup>th</sup> INTERNATIONAL CERAMICS CONGRESS (CIMTEC), Montecatini terme (Florence, Italy), June 2010.

-Permanent member of the “INTERNATIONAL COMMITTEE of Focused Electron Beam Induced Processing Association” since June 2012.

-Member of the “INTERNATIONAL PROGRAMME COMMITTEE” of the 39<sup>th</sup> INTERNATIONAL CONFERENCE ON MICRO- AND NANO-ENGINEERING, Imperial College (London), September 2013.

-Member of the “INTERNATIONAL ADVISORY COMMITTEE” of the 13<sup>th</sup> INTERNATIONAL CERAMICS CONGRESS (CIMTEC), Montecatini terme (Florence, Italy), June 2014.

- Member of the Scientific Committee of the Symposium B "Organized Nanostructures and Nano-objects: Fabrication, Characterization and Applications" within the framework of the E-MRS 2014 Fall Meeting, Warsaw (Poland), September 2014

-Editor-in-chief of the journal “Nanofabrication” since 2013 (<http://www.degruyter.com/view/j/nanofab>)

### **SUPERVISING OF PhD THESIS:**

\*I was the supervisor of the following PhD students, all of them getting the highest mark in the thesis defence: *Laurianne Gabillet, David Serrate, Jan Michalik, Amalio Fernández-Pacheco, Soraya Sangiao, Rosa Córdoba, L. Serrano-Ramón.*

\*I am currently supervising two doctoral thesis, carried out by Inés Serrano and Ismael García.

### **STAYS IN FOREIGN LABORATORIES:**

Two years in the “Unite Mixte de Recherche CNRS-Thomson” in Orsay (France) in 1998-2000. Supervisor: Nobel Laureate in Physics 2007, Prof. A. Fert.

### **COLLABORATIONS WITH EUROPEAN COMPANIES FOR TRANSFER OF KNOWLEDGE:**

\*Development of “Non-contact magnetoresistive potentiometers” through joint research projects with the *ACP company* ( <http://www.acptechnologies.com/> ). Period: 2002-present

\*Development of “Quantitative immunoassay tests based on magnetoresistive devices” through joint research projects with the Biotechnology company *CerTest Biotec company* ( <http://www.certest.es/> ) and with the Electronics company *Sallen Electronica* ( <http://www.sallenelectronica.es/> ). Period: 2005-present

\*Development of “Nanostructured surfaces for applications in electrical appliances” through joint research project with the company *BSH Electrodomésticos España S.A.* ( <http://www.bsh-group.es/> )

\*Development of “Applications based on epitaxial graphene” in cooperation with the company “Graphene Nanotech” ( [www.graphenenanotech.eu](http://www.graphenenanotech.eu) )

### **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 referee of the European Science Foundation since 2006

\*I am referee of the Spanish Education Ministry Agency (ANEP) since 2006

\*I am the coordinator of the Spanish Network of Nanolithography since 2009 ( [www.unizar.es/nanolito](http://www.unizar.es/nanolito) )

\*I am responsible for the Nanolithography Division of the Laboratory for Advanced Microscopies of the University of Zaragoza since 2009 and coordinator of the three areas of the laboratory from 2011.

### **Academic activities:**

\*Since 2002 I give lectures on “Nanotechnology” in two Master Courses of the University of Zaragoza.

\*I am member of the committee of Doctoral Studies in the Condensed Matter Physics Department of the University of Zaragoza

\*I have been member of the jury in 25 Doctoral Thesis, defended in Spain, Portugal, Switzerland and France.

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