

Curriculum Vitae

Felipe Garcia Sanchez

Current Position

Postdoc fellow funded by ANR project from April 2013
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Education

M. Sc. in Physics, University of Zaragoza, Spain, 1998
Ph. D. in Physics, Autonomous University of Madrid, 2007

Past Positions

11-1999-02-2001	Programmer	CORITEL, S.A. Barcelona, Spain
03-2001-01-2002	Senior Programmer	AFI, S.L. Madrid, Spain
10-2002-09-2006	Ph. D. Student	Material Science Institute of Madrid, CSIC, Spain (sponsored by Seagate Technology)
10-2006-12-2006	Intern	Seagate Research, Pittsburgh, PA, USA
01-2007-06-2008	Contracted researcher	Material Science Institute of Madrid, CSIC, Spain
09-2008-05-2009	Postdoc researcher	Spintec, CEA/CNRS, Grenoble, France
05-2009-05-2011	Postdoc researcher	PGI-6, Forschungszentrum Juelich, Juelich, Germany
09-2011-02-2013	Postdoc researcher	Spintec, CEA/CNRS, Grenoble, France

LIST OF PUBLICATIONS

Articles

1. O.A.Chubykalo-Fesenko, F.Garcia Sánchez and R.W.Chantrell
“Implementation of the "Hyperdynamics of infrequent events" method for acceleration of thermal switching dynamics of magnetic moments”
IEEE Trans Magn Volume: 40 , 4 , July 2004 2140 - 2142.
2. J.M. Torres Bruna, J. Bartolome, L. M. Garcia Vinuesa, F. Garcia Sanchez, J.M. Gonzalez and O.A. Chubykalo-Fesenko
“A micromagnetic study of the hysteretic behaviour of antidot lithographed Fe films”
Journal of Magnetism and Magnetic Materials Volume: 290-291 , 1 , April 2005 149 - 152.

3. F. Garcia Sanchez, O. Chubykalo-Fesenko, P. Crespo, A. Hernando and J.M. Gonzalez
“Magnetization reversal in textured Fe nanoparticles having different aspect ratios”
Journal of Magnetism and Magnetic Materials Volume: 290-291 , 1 , April 2005 479 - 481.
4. O.V. Usatenko, O.A. Chubykalo-Fesenko and F. Garcia
“Adiabatic dynamics of small ferromagnetic particles”
Journal of Applied Physics Volume: 97 , May 2005 10A711.
5. F. Garcia, O. Chubykalo-Fesenko, O. N. Mryasov, R. W. Chantrell and K. Yu. Guslienko
“Multiscale versus micromagnetic calculations of the switching field reduction in FePt/FeRh bilayers with perpendicular exchange spring”
Journal of Applied Physics Volume: 97 , May 2005 10J101.
6. Jesus M. Gonzalez, Oksana A. Chubykalo-Fesenko, Felipe Garcia, Jose M. Torres Bruna, Juan Bartolomé and Luis M. García Vinuesa
“Reversible Magnetization Variations in Large Field Ranges Associated to Periodic Arrays of Antidots”
IEEE Trans Magn Volume: 41, 10 , October 2005 3106 - 3108.
7. F. Garcia, O. Chubykalo-Fesenko, O. N. Mryasov and R. W. Chantrell
“Multiscale modeling of hysteresis in FePt/FeRh bilayer”
Physica B Volume: 372, February 2006 328-331.
8. F. Garcia Sanchez, O. Chubykalo-Fesenko, O.N. Mryasov, K.Yu. Guslienko and R.W. Chantrell
“Exchange spring structures and coercivity reduction in FePt/FeRh bilayers: multiscale and micromagnetic calculations”
Appl. Phys. Lett Volume: 87, September 2005 122501.
9. F. Pigazo, F. Garcia Sanchez, F.J. Palomares, J.M. Gonzalez, O. Chubykalo-Fesenko, F. Cebollada, Jose M. Torres Bruna, Juan Bartolomé and Luis M. García Vinuesa
“Experimental and computational analysis of the angular dependence of the hysteresis processes in an antidots array”
Journal of Applied Physics Volume: 99, April 2006 08S503.
10. F. Garcia Sanchez, O. Chubykalo-Fesenko, O.N. Mryasov and R.W. Chantrell
“Multiscale models of hard-soft composite media”
Journal of Magnetism and Magnetic Materials Volume: 303, August 2006 pp 282 - 286.
11. O.V. Usatenko, O.A. Chubykalo-Fesenko and F. Garcia Sanchez
“Nonlinear adiabatic dynamics of small ferromagnetic particles”
International Journal of Modern Physics B Volume: 20, December 2006 pp 5391-5404.
12. E. Paz, F. Garcia-Sanchez and O. Chubykalo-Fesenko
“Numerical evaluation of energy barriers in nano-sized magnetic elements with Lagrange multiplier technique”

Physica B Volume: 403, 2008 pp 330-333.

13. F. Garcia-Sanchez, O. A. Chubykalo-Fesenko, A. Martinez and J.M. Gonzalez
“Hysteresis in Fe particles with surface and magnetoelastic anisotropies: experiment and micromagnetic modelling”

Physica B Volume: 403, 2008 pp 469-472.

14. F. Garcia-Sanchez, O. Chubykalo-Fesenko, O. Mryasov, P. Asselin and R.W. Chantrell
“Switching and thermal stability properties of bi-layer thin films: single vs. multi-grain cases” J. Appl. Phys. Volume: 103, 2008 p. 07F505.

15. F. Garcia-Sanchez and O. Chubykalo-Fesenko “Thermal coercivity mechanism in Fe nanoribbons and stripes” Appl. Phys. Lett. Volume: 93, 2008 p. 192508.

16. F. Garcia-Sanchez, E. Paz, F. Pigazo, O. Chubykalo-Fesenko, F.J. Palomares, J.M. Gonzalez, F. Cebollada, J. Bartolomé and L. M. Garcia “Coercivity mechanisms in lithographed antidot arrays” EPL Volume: 84, 2008 p. 67002.

17. T. Deakin, F. Garcia-Sanchez, S.Z. Wu, O. Chubykalo-Fesenko and K. O'Grady
“Magnetization Reversal in Exchange-Coupled Composite Media-Experiment and Modeling” IEEE Trans. Magn. Volume: 45, 2009 p. 856.

18. R. Yanes, R. Rozada, F. Garcia-Sanchez, O. Chubykalo-Fesenko, P. Martin Pimentel, B. Leven and B. Hillebrands “Modeling of microwave-assisted switching in micron-sized magnetic ellipsoids” Phys. Rev. B Volume: 79, 2009 p. 224427.

19. C. Burrowes, A.P. Mihai, D. Ravelosona, J.-V. Kim, C. Chappert, L. Vila, A. Marty, Y. Samson, F. Garcia-Sanchez, L.D. Buda-Prejbeanu, I. Tudosa, E.E. Fullerton and J.P. Attane
“Non-adiabatic spin-torques in narrow magnetic domain walls” Nature Phys. Volume: 6, 2010 p. 17.

20. F. Garcia-Sanchez, H. Szabolics, A.P. Mihai, L. Vila, A. Marty, J.P. Attane, J.C. Toussaint and L.D. Buda-Prejbeanu “Effect of crystalline defects on domain wall motion under field and current in nanowires with perpendicular magnetization” Phys. Rev. B Volume: 81, 2010 p. 134408.

21. E. Paz, F. Cebollada, F.J. Palomares, F. Garcia-Sanchez and J.M. Gonzalez
“Control of magnetization reversal by combining shape and magnetocrystalline anisotropy in epitaxial Fe planar nanowires” Nanotechnology Volume: 21, 2010 p. 255301.

22. F. Garcia-Sanchez, A. Kákay, R. Hertel and Pierre Asselin
“Depinning of transverse domain walls from notches in magnetostatically coupled nanostrips” Applied Physics Express Volume: 4, 2011 p. 033001.

23. S. Park, N. M. Nguyen, C. Burrowes, E.E. Fullerton, C. Chappert, L.D. Buda-Prejbeanu, F. Garcia-Sanchez and D. Ravelosona “Asymmetric domain wall depinning under current in spin

valves with perpendicular anisotropy” Appl. Phys. Lett. Volume: 98, 2011 p. 232512.

24. A.P. Mihai, F. Garcia Sanchez, L. Vila, A. Marty, L.D. Buda-Prejbeanu, J.C. Pillet, C. Beigne, D. Ravelosona, C. Mannequin, J.C. Toussaint and J.P. Attane “Stochastic domain-wall depinning under current in FePt spin valves and single layers” Phys. Rev. B Volume: 84, 2011 p. 014411.

25. M. Yan, C. Andreas, A. Kákay, F. Garcia-Sanchez and R. Hertel “Fast domain wall dynamics in magnetic nanotubes: Suppression of Walker breakdown and Cherenkov-like spin wave emission” Appl. Phys. Lett. Volume: 99, 2011 p. 122505.

26. K.M. Seemann, F. Garcia-Sanchez, F. Kronast, J. Miguel, A. Kákay, C.M. Schneider, R. Hertel, F. Freimuth, Y. Mokrousov and S. Blügel “Disentangling the Physical Contributions to the Electrical Resistance in Magnetic Domain Walls: A Multiscale Study” Phys. Rev. Lett. Volume: 108, 2012 p. 077201.

27. M. Yan, C. Andreas, A. Kákay, F. Garcia-Sanchez and R. Hertel “Chiral symmetry breaking and pair-creation mediated Walker breakdown in magnetic nanotubes” Appl. Phys. Lett. Volume: 100, 2012 p. 252401.

28. J.F. Sierra, M. Quinsat, F. Garcia-Sanchez, U. Ebels, I. Joumard, A.S. Jenkins, B. Dieny, M.-C. Cyrille, A. Zeltser and J.A. Katine “Influence of thermal fluctuations on the emission linewidth in MgO-based spin transfer oscillators” Appl. Phys. Lett. Volume: 101, 2012 p. 062407.

29. C. Morgan, K. Schmalbuch, F. Garcia-Sanchez, C.M. Schneider and C. Meyer “Structure and magnetization in CoPd thin films and nanocontacts” Journal of Magnetism and Magnetic Materials Volume: 325, 2013 pp. 112-116.

30. N. Vernier, J.-P. Adam, S. Eimer, G. Agnus, T. Devolder, T. Hauet, B. Ocker, F. Garcia and D. Ravelosona “Measurement of magnetization using domain compressibility in CoFeB films with perpendicular anisotropy” Appl. Phys. Lett. Volume: 104, 2014 p. 122404.

31. F. Garcia-Sanchez, P. Borys, A. Vansteenkiste, J.-V. Kim and R. L. Stamps “Nonreciprocal spin-wave channeling along textures driven by the Dzyaloshinskii-Moriya interaction” Phys. Rev. B Volume: 89, 2014 p. 224408.

32. J.-V. Kim, F. Garcia-Sanchez, J. Sampaio, C. Moreau-Luchaire, V. Cros and A. Fert “Breathing modes of confined skyrmions in ultrathin magnetic dots” Phys. Rev. B Volume: 90, 2014 p. 064410.

Thesis

F. Garcia-Sanchez, “Modeling of field and thermal magnetization reversal in nanostructured magnetic materials,” Ph.D. Dissertation, Universidad Autonoma de Madrid, December 2007.

CONFERENCES

May 28-30th 2003 Salamanca, Spain

4th International Symposium on Hysteresis and Micromagnetic Modeling

Presentation:

“Morphology and reversal modes in Fe nanoparticles” J.M. Gonzalez, O.Chubykalo, F. García Sánchez, P. Crespo, A. Hernando.

September 15-19th 2003 Salamanca, Spain

Trends in Nanotechnology 2003

Poster Presentation:

“Novel simulation technique to accelerate the thermal magnetisation reversal calculations in magnetic systems” F. García Sánchez, O.Chubykalo and R.W.Chantrell.

January 5-9th 2004 Anaheim, CA, USA

9th Joint MMM/Intermag Conference

Assistance Grant and Oral Presentation:

“Implementation of the "Hyperdynamics of infrequent events" method for acceleration of thermal switching dynamics of magnetic moments", F.García Sánchez ,O.Chubykalo-Fesenko and R. W.Chantrell.

June 2-4th 2004 San Sebastian, Spain

3rd Gefes Meeting

Poster Presentation:

“Magnetization reversal in textured Fe nanoparticles having different aspect ratios”, F. Garcia Sanchez, P. Crespo, A. Hernando, O. Chubykalo-Fesenko and J.M. Gonzalez.

September 5-10th 2004 Dresden, Germany

Joint European Magnetic Symposia 2004

Poster Presentation:

“A micromagnetic study of the hysteric behaviour of antidot lithographed Fe films” J.M. Torres Bruna, J. Bartolome, L.M.Garcia Vinuesa, F. Garcia Sanchez, O. Chubykalo-Fesenko and J.M. Gonzalez.

March 14-17th 2005 Barcelona, Spain

2nd NanoSpain Workshop

Poster Presentation:

“A micromagnetic study of the hysteric behaviour of antidot lithographed Fe films” J.M. Torres Bruna, J. Bartolome, L.M.Garcia Vinuesa, F. Garcia Sanchez, O. Chubykalo-Fesenko and J.M. Gonzalez.

May 30th -June 1st 2005 Budapest, Hungary

5th International Symposium on Hysteresis and Micromagnetic Modeling

Poster Presentation:

“Multiscale modeling of hysteresis in FePt/FeRh bilayer” F. Garcia Sanchez, O. Chubykalo-Fesenko, O. N. Mryasov and R. W. Chantrell.

February 1st-3rd 2006 Alicante, Spain

4^a Reunion Gefes

Poster Presentation:

“Multiscale modelling of magnetization reversal in soft/hard bilayer”, F. Garcia Sanchez and O. Chubykalo-Fesenko

June 26-30th 2006 San Sebastian, Spain

Joint European Magnetic Symposia 2006

Oral Presentation:

“Coercivity mechanisms of Fe-based antidots arrays” F. García Sánchez, E. Paz, F. Pigazo, F.J. Palomares, O. Chubykalo-Fesenko, J.M. González and F. Cebollada

January 4-11th 2007 Baltimore, MD, USA

10th Joint MMM/Intermag Conference

Oral Presentation:

“Numerical evaluation of energy barriers in nano-sized magnetic elements”, F. Garcia Sanchez, E. Paz and O. Chubykalo-Fesenko.

June 4th-6th 2007 Naples, Italy

6th International Symposium on Hysteresis and Micromagnetic Modeling

Oral Presentation:

“Energy barriers in magnetic nanoelements using the Lagrange multiplier method”, F. Garcia Sanchez, E. Paz and Chubykalo-Fesenko.

May 4-8th 2008 Madrid, Spain

Intermag Europe 2008 Conference

Poster Presentation:

“Thermal coercivity mechanism in Fe nanoribbons and stripes”, F.Garcia-Sanchez and O.Chubykalo-Fesenko.

May 11-14th 2009 Gaithersburg, MD, USA

7th International Symposium on Hysteresis and Micromagnetic Modeling

Oral Presentation:

“Thermal activated depinning under field and current in wires with perpendicular anisotropy”, F. Garcia-Sanchez, L.D. Buda-Prejbeanu, H. Szabolics, A.P. Mihai, J.P. Attane, L. Vila, A. Marty and J.Ch. Toussaint.

March 21-26th 2010 Regensburg, Germany

DPG Frühjahrstagung, Regensburg

Poster Presentation:

“Influence of the magnetostatic coupling on the depinning field of geometrically pinned domain walls in adjacent magnetic nanostrips”, F. Garcia-Sanchez, A. Kakay and R. Hertel.

November 14-18th 2010 Atlanta, GA, USA

55th MMM Conference

Poster Presentation:

“Depinning of transverse domain walls from notches in magnetostatically coupled nanostrips”, F. Garcia-Sanchez, A. Kakay and R. Hertel.

September 9-14th 2012 Parma, Italy

Joint European Magnetic Symposia 2012

Oral Presentation:

“Estimation of the amplitude-phase coupling parameter from the temperature dependence of the linewidth in spin torque oscillators” F. Garcia-Sanchez, J.F. Sierra, U. Ebels, M. Quinsat, A.S. Jenkins, D. Gusakova, L.D. Buda-Prejbeanu, B. Dieny.

March 19-22nd 2013 Tours, France

XV Colloque Louis Néel

Oral Presentation:

“Estimation of the amplitude-phase coupling parameter from the linewidth of spin transfer oscillators”, F. Garcia-Sanchez, J.F. Sierra, M. Quinsat, A.S. Jenkins, D. Gusakova, L.D. Buda-Prejbeanu, B. Dieny, M.-C. Cyrille and U. Ebels.

April 9-11th 2014 Paris, France

Skymag 2014

Poster Presentation:

“Nonreciprocal propagation of spin waves in the presence of Dzyaloshinskii-Moriya interaction”, F. Garcia-Sanchez, J.-V. Kim, A. Vansteenkiste, P. Borys and R.L. Stamps.

May 4-8th 2014 Dresden, Germany

Intermag Europe 2014 Conference

Oral Presentation:

“Curved magnonic waveguides based on domain walls”, F. Garcia-Sanchez, J.-V. Kim, P. Borys and R.L. Stamps.

August 24-29th 2014 Paris, France

Condensed Matter in Paris CMD 25 JMC 14

Invited oral Presentation:

“Nonreciprocal propagation of spin waves in the presence of Dzyaloshinskii-Moriya interaction”, F. Garcia-Sanchez, J.-V. Kim, A. Vansteenkiste, P. Borys and R.L. Stamps.

September 23-26th 2014 Autrans, France

XVI Colloque Louis Néel

Oral Presentation:

“Curved magnonic waveguides based on domain walls”, F. Garcia-Sanchez, J.-V. Kim, P. Borys and R.L. Stamps.