

## PERSONAL INFORMATION

## Demetrio Roberto Cavicchia

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Sex Male | Date of birth 20/09/1987 | Nationality Italian

## EDUCATION AND TRAINING

01/2010–07/2012

**Dottore Magistrale in Fisica with 110/110 cum laude**

Università degli Studi dell'Aquila  
Via Vetoio 10, 67100 L'Aquila (Italy)

Thesis entitled "Preparation and magnetic characterization of exchange-biased FeMn/FeCo bilayer systems", Supervisors: Prof. Franco Lucari and Dott. Franco D'Orazio.

10/2006–12/2009

**Dottore in Fisica with 110/110 cum laude**

Università degli Studi dell'Aquila  
Via Vetoio 10, 67100 L'Aquila (Italy)

Thesis entitled "The variational profile of a thin folded sheet: application to the realization of an anharmonic oscillator", Supervisor: Prof. Adriano Filippini.

09/2001–07/2006

**Perito Industriale capotecnico per la specializzazione: Elettrotecnica ed Automazione with evaluation of 100/100**

Istituto tecnico industriale Luigi di Savoia  
Via G.D'Aragona 21, 66100 Chieti (Italy)

Design and construction of low and medium voltage electrical systems. Planning and programming of automatic PLC.

## WORK EXPERIENCE

01/2014–Present

**Research assistant**

Institut für Angewandte Physik (IAP), Universität Hamburg, Hamburg (Germany)

I am involved in a study of patterned magnetic systems (magnetic vortices, domain walls) and their dynamic properties, i.e. STT and field-driven magnetization dynamics. The investigations are carried out with a scanning electron microscope with polarization analysis (SEMPA) that allows to perform time resolved measurements. As a parallel activity, I have dealt with exchange-bias systems and the study of the magnetic dynamic at the interface. This studies were carried out by mean of XMCD and XMLD measurements at ESRF in Grenoble.

04/2013–04/2014

**Scientific collaborator**

Industrial and Information Engineering and Economics Department of the University of L'Aquila, L'Aquila (Italy)

Study of systems based on calcium hydroxide nanoparticles by neutron scattering techniques (Diffraction performed on D20 and D16 @ILL in Grenoble and Small angle neutron scattering performed on D11 @ILL and KWS-3 @FRMII in Munich) and TEM images.

01/2013–01/2014

**Research assistant**

Institut des Sciences de la Terre ISTerre, Grenoble (France)

Study of hydrogen adsorption and diffusion in natural and synthetic clay rocks for nuclear waste

disposal technology at high pressures and temperature.

- 09/2012–01/2013**    **Student placement**  
 INSTITUT LAUE-LANGEVIN (ILL)  
 6, rue Jules Horowitz, 38042 Grenoble (France)  
 Numerical Analysis of neutron spectroscopy data performed on samples of cellulose in ancient paper (Quasi-Elastic Neutron Scattering data performed on IN13 @ILL in Grenoble). Setting up of some MD simulations of amorphous systems of cellulose
- 10/2010–04/2011**    **Technical Industrial Engineer trainee (Praticante perito tecnico industriale)**  
 Studio tecnico Dott. Ing. Mario Di Matteo, Roccamorice (PE) (Italy)  
 Ordinary plant designs, i.e. residential buildings, industrial and medical locations. Elements of work accounting.
- 07/2005–08/2006**    **Apprentice electrician**  
 Impresa di costruzioni Co.Ge.I.Ma., Chieti Scalo (Italy)  
 Assistance through inspections of electrical plants in new and restored buildings.

**PERSONAL SKILLS**

Mother tongue(s) Italian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	C1	B2	C1	B2
German	A2	B1	A2	A2	B1
French	A2	A2	A2	A2	A2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user  
[Common European Framework of Reference for Languages](http://www.cedefop.europa.eu)

**Communication skills**

- Good ability to adapt to multicultural environments, gained through my participation in the organizing of international conferences as GraphIta 2011;
- Good communication skills gained through my experience in conferences such as XCVII National Congress of Italian Physical Society in 2011;
- Good ability to relate and team spirit, gained during a period of volunteering;
- Good decision-making skills in difficult situations, as evidenced by years of experience as a national referee of volleyball.

**Organisational / managerial skills**

- Leadership (during a period of volunteering I was responsible for a little team);
- Sense of organization, gained during my studies.

**Job-related skills**

- Good skills in electrical equipment, gained during my studies;
- Good knowledge of lab equipment (Oscilloscopes, spectrometers, magnetometers, equipment for MOKE measurements,...);
- Good knowledge of RF-magnetron sputtering apparatus, gained during my Master's thesis;
- Autonomy in the programming code for data analysis.
- Good knowledge of neutron scattering techniques (diffraction, quasi-elastic TOF, small angle

scattering (BRISP, IN13, IN10, D20 and D16 @ILL in Grenoble, SANS and USANS (KWS-3 @FRM II in Munich) acquired through my participation in the GD2012 organized by the Italian Society Neutron Spectroscopy (SISN), my student placement and my actual activity as collaborator;

- Knowledge of soft X-ray scattering techniques, gained doing some experiments on ID08 beamline @ESRF in Grenoble.

**Computer skills**

- Very good command of Microsoft Office™ tools (Word™, Excel™ and PowerPoint™);
- Good knowledge of Linux OS and Mac Os X;
- Very good programming skills with Fortran and C;
- Good knowledge of the programs MATLAB and LABVIEW.

**Driving licence** B

**ADDITIONAL INFORMATION**

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**Certifications** [1] - General Course on Intellectual Property. World Intellectual Property Organization WIPO. Grade: Excellent.

**Honours and awards** [1] - Premio di Laurea Pagella D'Oro 2010 "Vincenzo Di Rocco" assigned by Confartigianato Pescara (Italian organization).

**Publications**

[1] - A. Filippini and D. R. Cavicchia, 'Anharmonic dynamics of a mass O-spring oscillator', American Journal of Physics 79, 730-735 (2011).

[2] - D. R. Cavicchia, F. D'Orazio, L. Rossi, F. Ricci, and F. Lucari, 'Influence of Cu seed layer on the magnetization reversal in exchange-biased FeMn/FeCo systems', EPJ Web of Conferences 40 13002 (2013).

[3] - F. Bardelli, C. Mondelli, M. Didier, J. G. Vitillio, D. R. Cavicchia, J. Robinet, L. Leone and L. Charlet, 'Hydrogen uptake and diffusion in Callovo-Oxfordian clay rock for nuclear waste disposal technology', Applied Geochemistry 49, 168-177 (2014).

[4] - C. Mondelli, F. Bardelli, J. G. Vitillo, M. Didier, J. Brendle, D. R. Cavicchia, J. Robinet and L. Charlet, 'Hydrogen adsorption and diffusion in synthetic Na-montmorillonites at high pressures and temperature', Int. J. of Hydrogen Energy, in press

[5] - E. Jimenez, N. Mikuszeit, D. R. Cavicchia, L. Rossi and F. D'Orazio, 'Room temperature instability of exchange anisotropy in FeMn/FeCo system', Solid State Phenomena (Trans. Tech. Publication), in press

**Presentations**

[1] - Communication 'Anharmonic dynamics of a mass O-spring oscillator' at XCVII National Congress of Italian Physical Society (2011) at L'Aquila, Italy.

[2] - Poster presentation 'Magnetization reversal mechanisms in exchange-biased FeMn/FeCo systems' at 6th International IEEE Magnetics Society Summer School (2013) at Assisi, Italy.

**Conferences**

[1] - Participation to the International workshop Graphita2011 on fundamental and applications of Graphene in Assergi-L'Aquila, Italy from 15/05/2011 to 18/05/2011.

[2] - Participation to the International NanoMagma school 2011 in Florence (Italy) (8/06/2011).

[3] - Participation to the XCVII National Congress of Italian Physical Society 2011 in L'Aquila, Italy.

[4] - From 23/06/2012 to 3/07/2012 I participated to the GD2012 with the aim to have an introduction to neutron techniques for the study of the microscopic matter, with applications to Physics, Chemistry, Biology and Geology in San Giovanni in Valle Aurina (BZ), Italy from 22/09/2013 to 27/09/2013.

[5] - Participation to the International Add2013 school (Analysis of Diffraction Data in real space) in Grenoble at Institut Laue-Langevin (ILL), France from 18/03/2013 to 22/03/2013.

[6] - Participation to the 6th International IEEE Magnetics Society Summer School in Assisi, Italy from 09/06/2013 to 14/06/2013.

[7] - Participation to the International InMRAM 2013 school (Introductory course on Magnetic Random Access Memory) at SPINTEC (Grenoble, France) from 01/07/2013 to 03/07/2013.

[8] - Participation to the SISN Summer School 2013 on Inelastic Neutron Scattering in San Giovanni in Valle Aurina (BZ), Italy from 22/09/2013 to 27/09/2013.

[9] - Participation to the FullProf School 2013 (6th ILL Annual School on Advanced Neutron Diffraction Data Treatment using the FullProf Suite) at Institut Laue-Langevin (ILL) in Grenoble, France from 18/11/2013 to 22/11/2013.

[10] - Participation to the SFB-Workshop 2014 in Wittenbeck, Germany from 09/06/2014 to 12/06/2014.

[11] - Participation to the Marie Curie School on Spintronics 2014 at Réfectoire des Cordeliers in Paris, France from 16/09/2014 to 18/09/2014.

**Hobbies** New technologies, R&D, Applied technologies, Patent and IP rights, Travel, Volleyball and Rugby, Graphic novels.