

# CURRICULUM VITAE

FORMATO EUROPEO/EUROPEAN FORMAT

## INFORMAZIONI PERSONALI/ PERSONAL INFORMATION

Nome, Cognome/Name, Surname ALESSANDRO LASCIALFARI  
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Nazionalità/Nationality italian  
Luogo e data di nascita/ Place and  
Date of birth Firenze, 09/07/1963

## WORK EXPERIENCE

In ordine di data /Dates (from – to) 01/10/2019 – current year  
Name and address of employer Università degli studi di Pavia, Strada Nuova 65, 27100 Pavia (Italy) c/o Department of Physics,  
Via Bassi 6, I-27100 pavia, Italy  
Type of business or sector Education and Research  
Main activities and responsibilities **Full professor.** Courses for University students in Physics and Medical Technicians. Research  
– MRI Laboratory scientific responsible.

In ordine di data /Dates (from – to) 01/10/2005 – 30/09/2019  
Name and address of employer Università degli studi di Milano, Via Festa del Perdono 7, 20122 Milano (Italy) c/o Department of  
Physics, Via Celoria 16, I-20133 Milano, Italy  
Type of business or sector Education and Research  
Main activities and responsibilities **Full professor** since 01/06/2015 (*Associate Professor from 01/10/2005 to 31/05/2015*)  
Courses for University students in Pharmacy, Physics. Research : Laboratories responsible  
Director of the Specialization School in Medical Physics

In ordine di data /Dates (from – to) 04/02/2003 – 30/09/2005  
Name and address of employer INFN - Consiglio Nazionale delle Ricerche (CNR), Genova (Roma), Italy  
Type of business or sector Research  
Occupation or position held Primo Ricercatore (2<sup>nd</sup> level researcher)  
Main activities and responsibilities Research  
Courses for University students in Physics

In ordine di data /Dates (from – to) 01/04/1999 – 04/02/2003  
Name and address of employer Università degli studi di Pavia, Strada Nuova 65, 27100 Pavia (Italy) c/o Department of Physics,  
Via Bassi 6, I-27100 Pavia, Italy  
Type of business or sector Education and Research  
Occupation or position held Postdoc grant, assegno di ricerca (01/04/99-04/02/2003) and fellowship (01/01/98-01/04/99)  
Main activities and responsibilities Research

Courses for University students in Physics

- In ordine di data /Dates (from – to) 16/01/1995 – 16/01/1998
- Name and address of employer Consorzio INSTM, Via Giusti 9, I-50121 Firenze, Italy c/o Department of Chemistry, Università degli studi di Firenze, Via Maragliano, Firenze, Italy, and CINS, Roma, Italy
- Type of business or sector Education and Research
- Occupation or position held Postdoc fellowships
- Main activities and responsibilities Research
- In ordine di data /Dates (from – to) 01/11/1989 – 31/10/1993
- Name and address of employer Università degli studi di Pavia, Strada Nuova 65, 27100 Pavia (Italy) c/o Department of Physics, Via Bassi 6, I-27100 Pavia, Italy
- Type of business or sector Education and Research
- Occupation or position held PhD in Physics fellowship from Italian Ministry (1 year interruption for Military Service)
- Main activities and responsibilities Education and Research
- In ordine di data /Dates (from – to) July 1988, October 1988, February 1989, March 1989, September 1989 and October 1989
- Name and address of employer Università degli studi di Pavia, Department of Physics (Sept 1989); Università degli studi di Firenze, Department of Physics, Firenze, Italy (Oct 1989) and Europa Metalli-LMI, Firenze, Italy
- Type of business or sector Education and Research
- Occupation or position held Scholarship
- Main activities and responsibilities Research

**EDUCATION AND TRAINING**

- In ordine di data /Dates (from – to) 1/11/1989-21/09/1994
- Name and type of organisation providing education and training Università degli studi di Pavia, Education and Research Institution
- Principal subjects occupational skills covered Physics, Solid State Physics, Magnetism, Superconductivity
- Level in National classification PhD degree in Physics (3 years duration, 1 year interrupted, see above)
- In ordine di data /Dates (from – to) 1/11/1982-15/06/1989
- Name and type of organisation providing education and training Università degli studi di Firenze, Education and Research Institution
- Principal subjects occupational skills covered Physics
- Level in National classification Master (laurea) degree in Physics

**PERSONAL SKILLS**

Mother tongue (s) ITALIAN

Other languages (s) ENGLISH

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
C1	C1	C1	C1	C1

Communication skills Good communication skills gained during my experience the Univerisity teacher and as

researcher. Communication skills for congresses talks and organization

Organisational / managerial skills

- \* Scientific Responsible of MRI laboratory c/o Università degli studi di Pavia, since 2020
- \* Responsible of AFM/NMR research laboratory c/o Università degli studi di Milano, 2007-2019.
- \* Director of the Specialization School in Medical Physics c/o Università degli studi di Milano, 2016-2019
- \* Organization/management of research projects
- \* Organization of congresses and schools
- \* Member of the Scientific Council of Italian Association of Medical Physics (AIFM), since 2018
- \* Vice-president of Italian Association of Magnetism (2013-15)
- \* Member of Department Councils, Università degli studi di Milano

Driving licence

Licence B for car and A for motorcycle

## RESEARCH ACTIVITIES

Research fields

### MAIN SCIENTIFIC FIELDS OF RESEARCH

- a) Magnetic properties and spin dynamics via NMR, MUSR spectroscopy and magnetometry of mesoscopic magnetic molecules (nanomagnets) with low and high spin;
- b) Study through magnetization, susceptibility and NMR/NQR of the role of superconducting fluctuations in HTSC-Fe-based, NbN, SmBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub>:Al, YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub>-d, BSCCO, YNi<sub>2</sub>B<sub>2</sub>C, MgB<sub>2</sub>:Al, and metallic nanoparticles;
- c) Magnetic properties and spin dynamics via NMR, MUSR spectroscopy and magnetometry of molecular magnetic chains including rare-earth ions and/or metals alternated to radical groups, for peculiar phase transitions;
- d) Magnetic properties and spin dynamics via NMR, MUSR spectroscopy and magnetometry of magnetic nanoparticles (NPs) based on iron oxides with different coatings (sugars, polymers,...) and hybrid Au-iron oxide NPs;
- e) Magnetic properties and spin dynamics via NMR, MUSR spectroscopy and magnetometry of magnetic dilute systems like LiY<sub>1-x</sub>HoxF<sub>4</sub>, for quantum tunneling and phase transitions analysis;
- f) Magnetic properties and spin dynamics via NMR, MRI and magnetometry of new paramagnetic and superparamagnetic (NPs) compounds for uses in MRI, Magnetic Fluid Hyperthermia, possibly multifunctional and for Optical Imaging and drug delivery;
- g) Effects of novel MRI contrast agents based on magnetic NPs, in animal model in vivo;
- h) novel magnetic-field-effect biosensors, with possible applications in biomedical field;

### SCIENTIFIC EQUIPMENT

- Spectrometers for Nuclear Magnetic Resonance (NMR) and Nuclear Quadrupolar Resonance (NQR), for Muon Resonance (MUSR), Electronic Paramagnetic Resonance (EPR), MRI
- Adiabatic calorimeter
- SQUID magnetometer for measurements of magnetization and susceptibility.
- Magnetic Fluid Hyperthermia calorimeter for SAR measurements
- Mutual Inductance Bridge for AC susceptibility.
- Resistivity measurements of bulk systems.
- Atomic Force Microscope (AFM)
- Electromagnets and superconducting magnetis.
- Electronic and cryogenic apparatuses.

Congresses/conferences

\* about 200 participations to congresses/workshops, national and international, orals and posters

Talks/Seminars

• more than 60 talks at national/international congresses, workshops, schools and research institutes.

Projects

### NATIONAL AND INTERNATIONAL RESEARCH PROJECTS

**Responsible** of the INFN project « Hadrocombi/Hadromag » (2016-19)

**Responsible** of the project INSTM-Regione Lombardia "Development of high performances ignition coils for applications in Motorsport", (2016-2018)

**Responsible** of the project INSTM-Regione Lombardia "Tailoring MAGnetic NANOparticles physical properties for advanced clinical application", (2013-2015)

**Responsible** for UNIMI Unit, of the project FIRB "Rete Integrata per la Nano Medicina" –

RINAME (2012 – 2015)

**Responsible** for UNIMI Unit, of the project Fondazione Cariplo 2010 (2011- 2013) "Chemical synthesis and characterization of magneto-plasmonic nano-heterostructures"

**Responsible** for UNIMI Unit, of the project PRISMA-INSTM (2006-2008) "Nanoparticelle magnetiche funzionali come mezzi di contrasto per Risonanza Magnetica Imaging"

**Principal Investigator** (UNIMI) of the project Fondazione Cariplo (2007-2009) "Progettazione di nuovi biosensori magnetici per l'applicazione in scienze della salute e ambientali"

**Responsible** for UNIMI Unit, of the project Fondazione Cariplo (2007-2009) "Processi di funzionalizzazione di polimeri per la modifica della biocompatibilità e dell'adesione di proteine"

**Responsible** for INSTM-Milano-Pavia Unit, of the European project LSCP-FP7 "Nanother" (2008-2012)

**Responsible** for INSTM-Milano Unit, of the project INSTM-Regione Lombardia "Nanovettori multifunzionali di nuova sintesi per MRI, rilascio di farmaci e targeting cellulare e molecolare" (2010-2012)

**Responsible** of grants for projects FIRST/PUR (2006-2008), Università degli studi di Milano

**Responsible** of sub-project MAGHYP, responsible of WP 2.2 (Instrumentation Platforms) and responsible of sub-project BIOMAG within the NETWORK OF EXCELLENCE "MAGMANET" (2005-2009) - Molecular Approach to Nanomagnets and Multifunctional Materials, European FP6

**Responsible** of the project Fondazione Banca del Monte di Lombardia (Università degli studi di Milano) "Caratterizzazione tramite Risonanza Magnetica Nucleare e indagine morfodimensionale di nuove nanoparticelle magnetiche per applicazioni biomediche" 2007-2009

**Scientific local responsible**, Università degli studi di Pavia, of the project INTAS (2005-2007) "The quantum dynamics of rare-earth compounds: from a single-ion mesoscopic behavior to many-body effects"

**Participant** (writing and research) to several Italian FIRB and PRIN projects, European Research Training Network & Training Site Marie Curie, Italian PRA-INFN and PAIS-INFN

#### Publications and books

Author of more than 210 peer-reviewed articles, 1 abstract, 4 contributions in books (chapters), 4 contributions in proceedings, 1 monograph on General Physics. Presenter of more than 35 invited over >60 orals. *h*-index (WoS)= 36; citations = 4229

#### Memberships

- \* CNR – Consiglio Nazionale delle Ricerche – Nano Institute-S3, Modena (Italy)
- \* INFN – Istituto Nazionale di Fisica Nucleare
- \* INSTM – Consorzio Interuniversitario Nazionale di Scienza e Tecnologia dei Materiali
- \* AiMagn – Associazione Italiana di Magnetismo
- \* AIFM – Associazione Italiana di Fisica Medica

#### TUTORING AND SUPERVISING

Tutor/co-tutor *c/o* Università degli studi di Milano, Pavia, Torino e Firenze, of :

- \* 10 postdoc researchers
- \* 23 PhD students
- \* 3 graduate/pre-doc students
- \* 5 research collaborators
- \* 37 master degree students
- \* 32 bachelor degree students

#### TEACHING

##### Overall responsibilities and duties

- \* Member of CONDIR, national coordination of Specialization Schools in Medical Physics
- \* Member of the board of the PhD in Physics, Astrophysics and Applied Physics of the University of Milan, from 2007 to 2019
- \* Member of Laurea Councils (Physics, Pharmacy), Università degli studi di Milano

##### Graduate courses

- \* Diagnostic techniques (6 CFU), laurea master degree in Physics, Università degli studi di Pavia, AY 2004/05-current
- \* Applied Physics (3 CFU), laurea BD in Radiological Techniques, Università degli studi di Pavia, AY 2019-current
- \* Electric and Electronic Measurements (2+2 CFU), laurea BD in Radiological Techniques and Neurophysiopathological Techniques, Università degli studi di Pavia, AY 2019-current
- \* Physics (6 CFU), laurea degree in Pharmacy, Università degli studi di Milano, AY 2005/2006-2019

	<ul style="list-style-type: none"> <li>* Medical Physics (2 CFU), laurea master degree in Physics, Università degli studi di Milano, AY 2016-2018</li> <li>* Methodologies of Applied Physics (3 CFU), laurea master degree in Physics, Università degli studi di Milano, AY 2016-2018</li> <li>* Introduction to health and medical Physics (3 CFU), laurea degree in Physics, Università degli studi di Milano, AY 2018/2019</li> <li>* Imaging techniques for Biomedical Applications (3 CFU), laurea master degree in Physics, Università degli studi di Milano, AY 2018/2019</li> <li>* Thermodynamics (6 CFU), laurea degree in Physics, , Università degli studi di Milano, AY 2012/2013-current</li> <li>* Physics (6 CFU), laurea degree in Chemistry and Pharmaceuticals Techniques, Università degli studi di Milano, AY 2005/2006 – 2012/13</li> </ul>
PhD courses	<ul style="list-style-type: none"> <li>* Experimental methods for the investigation of systems at the nanoscale, PhD School of Physics, Astrophysics and Applied Physics of the University of Milan AY 2015/16-current</li> <li>* Magnetic Resonance Imaging and other Imaging Techniques, PhD School in Physics, Università degli studi di pavia, since 2004, once per 3 years</li> </ul>
Specialization School courses	Techniques and principles of Magnetic Resonance, Specialization School in Medical Physics, AY 2014/15-current
National and International Schools	Several courses at National and International Schools (1998-current)

## ADDITIONAL INFORMATION

Laboratory coordination	<p>Scientific responsible of the MRI laboratory of the Università degli studi di Pavia, Pavia (Italy), since 2020</p> <p>Responsible of the AFM/NMR laboratory of the Università degli studi di Milano, Milano (Italy), 2007-2019</p>
Referee activity	<ul style="list-style-type: none"> <li>* Referee for international journals : Physical Review Letters, Physical Review B, Physical Review A, J. Physics: Condensed Matter, New Journal of Physics, J. Chemical Physics, ACS Nano, Chemical Reviews, Nanoletters, Contrast Media and Molecular Imaging, Materials Chemistry and Physics, Journal of Nanoparticle Research, Recent Patents on Nanotechnology, J. Materials Science, Solid State Communications, International Journal of Modern Physics, Journal of Magnetism and Magnetic Materials, MAGMA, IEEE-Transactions on Magnetics, Journal of Chemical Physics, Journal of Nuclear Materials, Review of scientific instruments, Powder Technology, Materials Science and Engineering C, Measurement science and technology, Metals, Biotechnology Research International, Journal of Nuclear Materials, International Journal of Molecular Sciences, Dalton Transactions, Inorganic Chemistry, etc.),</li> <li>* Referee for European projects (ERC, COST), Italian and International Universities projects, PRIN-MIUR projects</li> </ul>
Abroad experiences	<ul style="list-style-type: none"> <li>• NMR-NQR-MUSR researches at Dept. of Physics, Iowa State University , RAL (Rutherford Appleton Laboratory) - Chilton (Oxford - UK), LCMI- CNRS, Grenoble (France), PSI (Paul Scherrer Institute) - Villigen (Switzerland). 1993- current year.</li> <li>• XMCD spectroscopy at LURE (Paris) and ESRF (Grenoble).</li> <li>• Responsible of more than 15 Experiments muSR, NMR, XMCD at large scale facilities [ RAL-ISIS (UK), PSI (Switzerland), LCMI (Grenoble), ESRF (Grenoble) ], 1993-current year</li> </ul>
Organization/Coordination of Schools/Congresses	CHAIRMAN and CO-ORGANIZATION of several Italian and international congresses and workshops
Patents	1) Patent, leader Colorobbia-CERICOL, Sovigliana (FI). European patent: WO2009/156445, PCT/EP2009/057908, title : "USE OF COBALT FERRITES AS CONTRAST AGENTS FOR MAGNETIC RESONANCE", Baldi G./Bitossi M./Bonacchi D./Lascialfari A.. Italian patent :

FI2008A000117: " Uso di cobalto ferriti come agenti di contrasto per risonanza magnetica".  
 Participants: Baldi G./Bitossi M./Bonacchi D./Lascialfari A.  
 2) Patent query (no. 20120100419) joint among Università degli studi di Milano and FORTH (Foundation for Research and Technology Hellas – Greece), c/o patent office of Greece, on 7/8/2012, no. 2012 0100419. Title : "Ferrimagnetic colloidal nanoclusters of maghemite nanocrystals for MRI applications". Participants : A. Lappas, A. Kostopoulou ((Foundation for Research and Technology Hellas – Greece), A. Lascialfari, F. Orsini, S.K.P. Velu, K. Thangavel (Università degli studi di Milano).

Main current national and international collaborations

- \* Dipartimento di Fisica, Università degli studi di Milano, Prof. I. Veronese, D. Bettega, C.Lenardi, F. Groppi
- Dipartimento di Fisica, Università di Firenze, Dr. M. Fittipaldi, prof. A. Rettori
- \* Dipartimento di Fisica, Università degli studi di Pavia, Prof. P. Carretta, A. Rigamonti, F. Borsa
- Dipartimento di Fisica, Università di Modena, gruppo prof. M. Affronte
- Dipartimento di Fisica, Università di Parma, Dr. L. Romano', Prof.s R. De Renzi, G. Amoretti, P. Santini, S. Carretta
- Dipartimento di Fisica, Università di Torino, Prof. C. Guiot
- Dipartimento di Chimica, Università di Firenze, prof.s D.Gatteschi, A. Caneschi, R. Sessoli, L. Sorace
- \* Dipartimento di Chimica, Università di Genova, e ISM-CNR, Prof. D. Peddis
- Dipartimento di Chimica, Università di Cagliari, Dr. M.F. Casula
- Dipartimento di Chimica, Università degli studi di Milano, Prof. E. Licandro, E. Ranucci, Dr.s D. Maggioni, M. Panigati
- \* Dipartimento di Biologia, Università di Roma 3, Prof. A. Antocchia
- Dipartimento di Scienze Morfologiche-Biomediche, Università degli studi di Verona, Prof.s P. Marzola, A. Sbarbati
- INFN-CNR, National Nanotechnology Laboratory, Dr. T. Pellegrino
- ICCOM-CNR, Firenze, Dr. C. Sangregorio
- Université de Mons, Prof. Y. Gossuin, Dr. Q. L. Vuong
- FORTH (Foundation for Research and Technology – Heraklion, Greece), Prof. A. Lappas
- Dept. Chemistry, Manchester University (UK), Prof. R. Winpenny, Dr. G. Timco
- Dept. Chemistry, University of Valencia (Spagna), Prof. E. Coronado
- Dept. Physics, University of Oxford, Prof. S. Blundell
- Dept. of Physics, Iowa State University, Iowa-USA, Prof. Y. Furukawa
- Dept. of Physics, University of Zaragoza (Spagna), Prof. F. Palacio and Dr. A. Millan
- Department of Physics, Boston College (USA), Prof. M. J. Graf
- CNRS and University of Montpellier (Francia), Dr. J. Larionova, Dr. Y. Guari
- Policlinico S. Matteo, Pavia, Dr. R. Di Liberto
- Istituto Neurologico "Mondino", Pavia, and University of Pavia, Prof.s E. D'Angelo, C. Gandini and Dr F. Palesi
- Ospedale Niguarda, Milano, Dr. A. Torresin
- Istituto Neurologico Besta, Milano, Dr.ssa Bruzzone, Ing. Aquino, Dr. E. De Martin
- Policlinico di Milano, Prof. Y. Torrente
- Istituto Europeo di Oncologia (IEO), Milano, Dr.ssa D. Origgi, F. Botta, M. Cremonesi
- Fondazione CNAO, Pavia, Dr. A. Facchetti e M. Ciocca
- Stelar srl, Mede (PV) – Italia, Ing. G. Ferrante

Award and honours

Fellowship "Short-Term Mobility" of CNR for research activity c/o Department of Physics of Ames (Iowa State University –USA), December 1999

Editorial activity

Member of the Editorial Board of the journal « Nanomaterials »  
 Member of the Editorial Board of the journal UJLOPS  
 Member of the AAPP Editorial Advisory Board

**TRATTAMENTO DEI DATI  
PERSONALI, INFORMATIVA E  
CONSENSO**

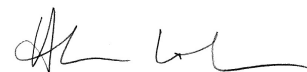
Il D.Lgs. 30/6/2003, n. 196 "Codice in materia di protezione dei dati personali" regola il trattamento dei dati personali, con particolare riferimento alla riservatezza, all'identità personale e al diritto di protezione dei dati personali; l'interessato deve essere previamente informato del trattamento .

La norma in considerazione intende come "trattamento" qualunque operazione o complesso di operazioni concernenti la raccolta, la registrazione, l'organizzazione, la conservazione, la consultazione, l'elaborazione, la modifica, la selezione, l'estrazione, il raffronto, l'utilizzo, l'interconnessione, il blocco, la comunicazione, la diffusione, la cancellazione e la distruzione di dati, anche se non registrati in una banca dati.

In relazione a quanto riportato, autorizzo l'Università degli studi di Milano al trattamento dei dati contenuti nel presente *curriculum vitae* e nella documentazione della quale fa parte integrante

( *barrare la casella* )

**Si, acconsento**



Milano, 17/04/2020