

Dr. Francesco Borgatti



Researcher

Consiglio Nazionale delle Ricerche

Istituto per lo Studio dei Materiali Nanostrutturati (CNR-ISMN)

via Piero Gobetti 101 – 41126 Bologna

Tel.: +39 051 639 8518

Fax : +39 051 639 8540

E-mail francesco.borgatti@cnr.it

Orcid ID <http://orcid.org/0000-0003-4659-4329>

Researcher ID <http://www.researcherid.com/rid/H-9777-2014>

I am physicist performing experimental research activity in condensed matter and materials science using x-ray based techniques for the structural, electronic and magnetic characterization of materials at the synchrotron radiation sources located worldwide.

In the last years I have contributed to several national and European research projects. My research, related to both of fundamental and technological topics, is oriented towards the **study of innovative materials for electronics and spintronics**, ranging from the surface and/or volume properties of the single material to the study of nanostructured systems (thin films and devices).

My interests currently concern: (a) **organic-inorganic interfaces** belonging to hybrid devices for electronics and organic spintronics; (B) redox reactions induced by **buried interfaces of memristor devices**; (C) **electronic structure and magnetic properties of highly correlated systems** (transition metal oxides, semiconductors with magnetic impurities, perovskites).

Education and Training

- | | |
|-----------|--|
| 1996 | Master Degree in Physics at Università degli studi di Modena e Reggio Emilia (Italy). Thesis: <i>Energy electron scattering in ordered systems: effects on secondary electron emission and auger intensity.</i> |
| 1997 | IV Scuola Nazionale di Luce di Sincrotrone , Società Italiana Luce di Sincrotrone (S.I.L.S.), S. Margherita di Pula (Italy) |
| 1997-1999 | Ph.D. in Physics at Università degli studi di Modena e Reggio Emilia (Italy). Thesis: <i>Magnetic properties of <u>Ni Mn</u> diluted alloy and many-body effects in final-state 4p excitation of the metal investigated by Resonant Soft X-ray Emission Spectroscopy.</i> |
| 2000 | Joint INFM - ABDUS SALAM ICTP school: Magnetic properties of condensed matter investigated by neutron scattering and synchrotron radiation techniques , Trieste (Italy) |
| 2002 | Higher European Research Course for Users of Large Experimental Facilities (H.E.R.C.U.L.E.S. 2002) , Grenoble (France) |

Employment

- Since 2006 **CNR Researcher at the Bologna Section of the Institute for Nanostructured Materials Study (ISMN)**. Research activities mainly oriented to the study of the electronic structure of inorganic-inorganic interfaces belonging to hybrid devices for electronics and organic spintronics, changes in chemical states induced to buried interfaces of *memristor* devices, and highly correlated electronic structure (transition metal oxides, semiconductors with magnetic impurities, perovskites).
- 2002 – 2005 **Researcher at the Laboratorio Nazionale TASC-INFM (Trieste, Italy)**. Joining to the staff of the BEAR beamline, I have gained large expertise of soft x-ray photoemission (PES) and absorption (XAS, NE-XAFS) spectroscopy techniques. Subsequently to the positive evaluation of three-years activity, the tenure track contract has been turned to **permanent position since December 31, 2004**.
- 2001 – 2002 **Post-doc fellowship** at the INFIM Operational Group at the European Synchrotron Radiation Facility dedicated to the study of *Electronic, magnetic and structural properties of solids, surfaces (in vacuum and in solution) and chemisorption of molecules*. The research activity focused mostly on the structural and spectroscopic characterization of organic/inorganic interfaces prepared *in situ* in ultra-high vacuum or by electrochemical processes in liquid environment, and the study of the shape and distribution of self-agglomerating nanostructures on metallic monocrystalline surfaces fabricated through ion-sputtering.
- 2000 – 2001 **Post-doc fellowship** at the INFIM Operational Group at the European Synchrotron Radiation Facility (Grenoble, France). The research activity was devoted to the structural characterization of inorganic-organic interfaces produced by adsorption of C₆₀ (Fullerene) molecules on metallic surfaces. From 23/10/2000 to 4/11/2000 **invited visitor** at the *Institut de Ciència de Materials de Barcelona* for the development of specific research topics.

Skills and abilities

Experience in **design and implementation of experimental projects at synchrotron radiation facilities in collaboration with national and international teams**. Extended capability to manage the people joining the projects.

Large expertise of x-ray based experimental methods for electron spectroscopy and structural characterization of materials at synchrotron radiation sources:

- *Soft X-ray Absorption Spectroscopy and X-ray Magnetic Circular Dichroism (XAS, XMCD)*
- *Soft x-ray Resonant Inelastic X-ray Scattering (RIXS)*
- *Soft and Hard PhotoElectron Spectroscopy (PES, HAXPES)*
- *Grazing incidence Surface X-ray Diffraction (SXRD)*

Use of semi-empirical multi-electron model codes for the calculation of resonant absorption and photoemission spectra for the atoms of the *transition metals and rare earth groups*

Extensive experience in the use of data analysis and presentation (MatlabTM, OriginTM, IgorTM) and specific modeling of experimental results.

Management and Development of Ultra High Vacuum Systems dedicated to the manufacture and study of nanometric surfaces and interfaces:

→ Growth of organic and inorganic thin films and multilayers in ultra-high vacuum (*Molecular Beam Epitaxy*)

→ Fabrication of layered heterostructures and devices by (*Shadow Masking*) in UHV

→ Designing of ultra-high vacuum systems with Autodesk InventorTM

Projects

2010-2014	InterFacing OXides (IFOX)
Finanziatore	FP7 EUROPEAN PROJECT – FP7-NMP-246102
Role	Research activity
Project Description	<i>The goal of IFOX is to explore, create and control novel electronic and magnetic functionalities, with focus on interfaces, in complex transition metal oxide hetero-structures to develop the material platform for novel More than Moore (MtM) and beyond CMOS electronics, VLSI integration with performance and functionality far beyond the state-of-the-art.</i>
Activity	Study of the electronic structure of nanostructured thin film of oxide compounds and metal-oxide interfaces belonging to ReRAM resistive memory devices. Contributes to the analysis and interpretation of experimental results, and to the reporting of the results on international peer-review journals.
2009-2011	Organic Nanomaterials for Electronics and Photonics: design, synthesis, characterization, processing, fabrication and applications (ONE-P)
Finanziatore	FP7 EUROPEAN PROJECT – FP7-NMP-212311
Role	Research activity
Project Description	<i>Some applications such as light-emitting diodes, photovoltaic, and flexible electronic paper are now in an advanced stage of commercialization. However new functional organic materials are still missing to enable the next generation of applications. These materials should allow new or enhanced properties in electron transport, conversion of photons into electrons and/or conversion of electrons into photons and being printed in a continuous process. The Organic Nanomaterials for Electronics and Photonics (ONE-P) project aims at developing the missing high-performance, low-cost multifunctional materials and their process technology to strengthen industrialization of the electronics and photonics sector in Europe.</i>

Activity	Study of the crystalline structure and the morphology of thin organic films to be used for the fabrication of field-effect organic transistors (OFETs).Contributes to the analysis and interpretation of experimental results, and to the reporting of the results on international peer-review journals.
2004-2008	NANOSCALE INTEGRATED PROCESSING OF SELF-ORGANIZING MULTIFUNCTIONAL ORGANIC MATERIALS (NAIMO)
Finanziatore	PROGETTO EUROPEO DEL VI PROGRAMMA QUADRO – FP6-NMP-500355
Role	Research activity
Project Description	<i>The EU-funded NAIMO project will add ground-breaking multifunctionalities to nanoelectronics materials in cost-effective and environmentally friendly ways. Its distinctiveness lies in transforming a plastic film substrate into a multifunctional composite. The four-year funded project will contribute to the development of new products, such as organic electronic integrated circuits and displays, sensors, flexible solar cells, and magnetic structures that will directly benefit health, welfare, security and the environment, while improving the competitiveness of the European industry. The NAIMO research project has the potential to create new impetus for the European industry and evolution in the field of science and technology by combining smart materials with solution-based additive manufacturing techniques.</i>
Activity	Electron spectroscopy study of thin films of oxide compounds.Contributes to the analysis and interpretation of experimental results, and to the reporting of the results on international peer-review journals.
2007-2011	DYNAMICS OF MOLECULES ON ORGANIC TRANSISTORS (DYMOT)
Finanziatore	ESF- EURYI AWARD 2007
Role	Research activity
Project Description	<i>DYMOT develops a new integrated approach suitable for investigating the dynamics of nanostructures, low-dimensional systems, aggregates and single molecules (including bio-molecules) on a surface in real time. Dynamics at surfaces is relevant to many soft matter problems in fields as nanotechnology, biology, pathology assays. The experimental approach based on the integration of organic electronics, multifunctional materials, unconventional nanofabrication. The objectives of DYMOT are: (a) new fabrication/manipulation methods for multifunctional and biological materials with nanometer-scale resolution; (b) design and fabrication of new devices with enhanced sensing and recognition capabilities; (c) integration of materials, devices, technologies across length scales; (d) use of the devices to study dynamics of relevant systems at interfaces with electrical transduction; (e) assess the new approach versus other existing observation of single molecule phenomena.</i>
Activity	Characterization of thin nanostructured films by X-ray photoelectron spectroscopy. Contributes to the analysis and interpretation of experimental results, and to the reporting of the results on international peer-review journals.
2006-2008	DISPOSITIVI INTEGRATI PER REGISTRARE LA STORIA TERMICA DEL FARMACO (DISTEF)
Finanziatore	MIUR E REGIONE EMILIA-ROMAGNA

Role	Teacher/Trainer
Project Description	<i>La visione del progetto DISTEF è l'integrazione della ricerca avanzata nelle nanotecnologie, nella visione artificiale e riconoscimento di immagine, con la tecnologia meccanica del packaging farmaceutico. L'obiettivo finale è dimostrare un nuovo dispositivo passivo, nella forma di etichetta, capace di registrare il tempo di esposizione di un prodotto alla temperatura.</i>
Activity	Teaching course concerning the <i>Introduction of electron spectroscopy for surfaces and interfaces</i>

Experiments performed at synchrotron radiation facilities

All of the experiments concern collaborations with national and international research groups.

(PI) = (*principal investigator*)

2000	1	Absorption local geometry determination of 2-mercaptobenzoxazole on Pt(111) European Synchrotron Radiation Facility (ESRF, France)
2001	2	Determination of the absorption geometry of K onto the Si(111)-H surface European Synchrotron Radiation Facility (ESRF, France)
	3	A NIXSW and XAFS study of Fe nano-scale islands formed on N-precovered Cu(100) surface European Synchrotron Radiation Facility (ESRF, France)
	4	Structural study of C₆₀-Ge(001) interface European Synchrotron Radiation Facility (ESRF, France)
	5	In situ grazing incidence X-ray diffraction studies of S and S-containing molecules adlayers on Au(111) in electrolyte solutions under potential control European Synchrotron Radiation Facility (ESRF, France)
2002	6	Structural investigation of C₆₀ ordered overlayers on Pd(110) substrate by surface x-ray diffraction European Synchrotron Radiation Facility (ESRF, France)
	7	Formation and dynamics of self-organized nanostructures European Synchrotron Radiation Facility (ESRF, France)
	8	Surface X-ray diffraction Structural Characterization of CdS Electrochemical Growth on Ag(111) European Synchrotron Radiation Facility (ESRF, France)
	9	GIXD study of the formation of Fe films and nanostructures on Cu(100) and N-precovered Cu(100) European Synchrotron Radiation Facility (ESRF, France)
2003	10	Structural characterization of SiC thin films growth on Si(111) and Si(100) using C₆₉ as precursor European Synchrotron Radiation Facility (ESRF, France)
2006	11	In situ monitoring of crystallization process of nano-confined organic molecules: from the precursors to the final structure. European Synchrotron Radiation Facility (ESRF, France)

	12	Structural and chemical order in epitaxial antiferromagnetic/ferromagnetic interface: MnPt/Fe(100) Elettra Synchrotron Radiation Facility (Italy)
2007	13	Growth dynamics of organic-organic heterostructures and structure formation at the organic-organic interface European Synchrotron Radiation Facility (ESRF, France)
	14	Study of pentacene/SAMs interfaces of organic field-effect transistors by NEXAFS and X-ray Photoelectron Spectroscopy Elettra Synchrotron Radiation Facility (Italy)
	15	Soft x-ray Resonant Magnetic Scattering by organic spin valves Elettra Synchrotron Radiation Facility (Italy)
2008	16	High-Energy Photoelectron Spectroscopy of buried organic/inorganic interfaces in organic spin valves European Synchrotron Radiation Facility (ESRF, France)
	17	X-ray electron spectroscopy of Alq3/Co interface for organic spintronic devices Elettra Synchrotron Radiation Facility (Italy)
	18	Antiparallel magnetic coupling across the Fe/GaMnAs(001) interface European Synchrotron Radiation Facility (ESRF, France)
	19	Magnetic and chemical depth profile of epitaxial Fe/GaMnAs(001) thin films Elettra Synchrotron Radiation Facility (Italy)
2009	20	Study of room-temperature ferromagnetic coupling occurring at the Fe/(Ga,Mn)As buried interface by X-ray Resonant Magnetic Scattering European Synchrotron Radiation Facility (ESRF, France)
	21	Understanding the thermally induced formation of organic nanostructures from ultra-thin sexythienyl films: a real time GIXD study. European Synchrotron Radiation Facility (ESRF, France)
	22	XAS/XMCD study of cobalt ferrite nanoparticles embedded by nano-oxidation lithography Elettra Synchrotron Radiation Facility (Italy)
	23	Soft x-ray Resonant Magnetic Scattering of buried organic-inorganic interfaces Elettra Synchrotron Radiation Facility (Italy)
	24	Role of an undoped GaAs spacer in the long ranged magnetic coupling across the Fe/GaAs/GaMnAs interface European Synchrotron Radiation Facility (ESRF, France)
2010	25	Distribution of Co ions among octahedral and tetrahedral sites in cobalt ferrite nanoparticles studied with high resolution Co and Fe L₃ RIXS European Synchrotron Radiation Facility (ESRF, France)
	26	In-situ study of the La_{0.7}Sr_{0.3}MnO₃/sexithiophene organic-inorganic interface by soft x-ray Photoelectron and Absorption Spectroscopy Elettra Synchrotron Radiation Facility (Italy)
	27	FM/AFM coupling in epitaxial Fe/MgO/Fe/(GaMn)As interfaces Elettra Synchrotron Radiation Facility (Italy)

- 28 **Evolution of interface states in Fe/(GaMn)As epitaxial heterostructures**
Elettra Synchrotron Radiation Facility (Italy)
- 29 **A study of band bending at SnO₂ and In₄Sn₃O₁₂ surfaces by hard X-ray photoemission**
European Synchrotron Radiation Facility (ESRF, France)
- 30 **1s XPS and 1s2p resonant photoemission of iron oxides**
European Synchrotron Radiation Facility (ESRF, France)
- 2011 31 **Electronic structure of buried organic-ferromagnetic interfaces by (PI) hard x-ray photoelectron spectroscopy**
PETRA III Facility – Deutsches Elektronen-Synchrotron (Germany)
- 32 **Recoil effect in hard x-ray photoelectron spectroscopy from metal hydrides: a probe for hydrogen-related densities of states.**
European Synchrotron Radiation Facility (ESRF, France)
- 33 **Hard X-ray photoemission spectroscopy used for the investigation of Ti/PrCaMnO₃ interfaces and their resistive switching behavior**
SPRING-8 Synchrotron Radiation Facility (Japan)
- 34 **Investigating the electronic properties of manganites upon application of external electric fields**
Elettra Synchrotron Radiation Facility (Italy)
- 2012 35 **Hard x-ray photoelectron spectroscopy of organic/inorganic multi- (PI) functional heterostructures**
PETRA III Facility – Deutsches Elektronen-Synchrotron (Germany)
- 36 **Interface analysis of resistive switching manganite based thin film heterostructures**
PETRA III Facility – Deutsches Elektronen-Synchrotron (Germany)
- 2013 37 **Chemical insights into resistive switching of hybrid multifunctional (PI) heterostructures by hard x-ray photoemission spectroscopy**
SOLEIL French National Synchrotron Facility (France)
- 38 **HAXPES investigation of LaF₃ and LaF₃-SrF₂ epitaxial heterostructures and solid solutions on Si for nano-ionic applications**
SOLEIL French National Synchrotron Facility (France)
- 39 **Valence band investigation across the metamagnetic transition in the magnetocaloric alloy LaFeCoSi**
Elettra Synchrotron Radiation Facility (Italy)
- 2014 40 **HAXPES study of resistive switching manganite-based thin film (PI) heterostructures**
SOLEIL French National Synchrotron Facility (France)
- 41 **XAS study of resistive switching TiO₂-based thin film heterostructures**
Elettra Synchrotron Radiation Facility (Italy)
- 42 **Electrical and magnetic switching in hybrid devices**
Elettra Synchrotron Radiation Facility (Italy)
- 43 **Investigations of state-of-the-art thermoelectric materials using HAXPES and HARPES**
DIAMOND National Synchrotron Facility (UK)
- 44 **HAXPES study of resistive switching manganite-based thin film heterostructures**
DIAMOND National Synchrotron Facility (UK)

2015	45 (PI)	Chemical insight into resistive switching behaviour of manganite heterostructures by hard x-ray photoelectron spectroscopy DIAMOND National Synchrotron Facility (UK)
	46	Metal to insulator transition as probed by HAXPES: Critical thickness of "bulk-only" features in transition metal oxides DIAMOND National Synchrotron Facility (UK)
	47	In-operando HAXPES study of resistive switching manganite-based thin film heterostructures SOLEIL French National Synchrotron Facility (France)
	48	Understanding the dynamics of metal-insulator transition in transition metal oxides and diluted ferromagnets via time-resolved HAXPES SPRING-8 Synchrotron Radiation Facility (Japan)
2016	49 (PI)	Chemical and magnetic depth profiling of spin-polarised Cobalt-C₆₀ interfaces through angle- and energy-dependent resonant soft x-ray reflectivity Elettra Synchrotron Radiation Facility (Italy)
	50	Critical thickness of "bulk-only" features in transition metal oxides across metal-insulator transition as probed by HAXPES SOLEIL French National Synchrotron Facility (France)
2017	51 (PI)	In-operando HAXPES study of resistive switching tantalum-based heterostructures SOLEIL French National Synchrotron Facility (France)

Teaching activity

2004		Experimental Training about <i>Resonant soft x-ray reflectivity of thin films and multilayers</i> for the students of the HERCULES school at the BEAR beamline of the Elettra Synchrotron (Trieste, Italy)
2005		Experimental Training about <i>Optical measurements in the soft X range including optical absorption and reflectivity</i> for the students of the HERCULES school at the BEAR beamline of the Elettra Synchrotron (Trieste, Italy)
2006		Teaching course entitled <i>Introduction to electron spectroscopy for surfaces and interfaces</i> assigned for the DISTEF project (Area di Ricerca CNR di Bologna, Bologna, Italy)
2008		Co-organizer at the Area di Ricerca CNR di Bologna of the itinerant exhibition <i>Dieci all'anno nove</i>
2012		Seminar about <i>X-ray electron spectroscopy with synchrotron radiation</i> for the school of the European Project FP7-NMP-246102 <i>InterFacing OXides</i> (IFOX)
2013 - 2014		Cycle of seminars about <i>Inelastic x-ray scattering spectroscopy</i> for the course <i>Fisica dei raggi X e luce di sincrotrone</i> at the Physics Department of the Università degli Studi di Bologna
2015-2017		Visiting professor at the Università degli Studi di Bologna, contributing to the course <i>Fisica dei raggi X e luce di sincrotrone</i> for the master degree in physics

Invited presentations

- 2014 **Department of Physics and Materials Science of the City University of Hong Kong**, *Hard X-ray PhotoEmission Spectroscopy: applications for basic and applied science*
Rif.: Prot. ISMN N. 4622 del 09/12/2014
- 2008 **Naimo EU-project meeting**, *Structural study of pentacene growth on SAM and correlation with the charge injection*
- 2005 **Elettra Synchrotron Radiation Facility**, *Extreme ultraviolet Reflectivity and diffuse scattering from Mo/Si and Mo/Si/B₄C multilayers*
- 2002 **European Synchrotron Radiation Facility (ESRF), Grenoble (FR)**, *C₆₀/Pt(111) ordered interfaces studied by Surface X-ray Diffraction experiments*
- Università degli studi di Modena e Reggio Emilia - Dip. di fisica (IT)**, *Structural characterization of surfaces and interfaces by x-ray synchrotron radiation techniques*
- 2001 **Università degli studi di Genova - Dip. di fisica (IT)**, *Introduction to Grazing Incidence Small-Angle X-ray Scattering (GISAXS)*
-

Conferences







(O): Oral presentation / (P): Poster presentation

- 1994 **Advances in Surface and Interface Physics**, Modena (IT)
(P) *Scattering-Interference of energetic electrons for surface structure characterisation: a comparative study of PDMEE and AED/PD performances*
- 1995 **Advances in Surface and Interface Physics**, Modena (IT)
(P) *In-depth angular modulation of primary-beam excited Auger electron yield*
- 15th European Conference on surface Science**, Lille (FR)
(P) *Epitaxial Co layers on Fe(100): an electron spectroscopy study*
- 1996 **16th European Conference on surface Science**, Genova (IT)
(P) *Incoherent effects in electron beam excited electron emission*
- 5th International Conference on the Structure of Surfaces**, Aix en Provence (FR)
(P) *Structural studies of the Ni(100)-(K+O) and Ni(100)-(K+N) coadsorption systems*
- 2000 **Advances in Surface and Interface Physics**, Modena (IT)
(P) *Adsorption of C₆₀ on Pt(111) studied by Surface X-Ray Diffraction*
(P) *Study of C₆₀/Au(110) p(6x5) reconstruction from in-plane X-ray diffraction data*

- 8th International Conference on electronic spectroscopy and structure**, Berkeley (USA)
 (P) *M_{4,5} Resonant Raman Scattering with final 4p-4d holes in Te, La and Gd: Trends of the many body effects*
- INFM Meeting**, Genova (IT)
 (P) *Dichroism in resonant Raman scattering of soft x-rays from magnetic systems*
- Convegno della Societa Italiana Luce di Sincrotrone**, Roma (IT)
 (P) *Adsorption local geometry determination of 2-mercaptobenzoxazole on Pt(111) by normal incidence X-ray standing wave*
- 2001 **INFM Meeting**, Genova (IT)
 (P) *Ordered interfaces of C₆₀ on Pt(111) from X-ray diffraction experiments*
 (P) *Study of the ground state properties of magnetic systems through angular dependence of Resonant Raman Scattering*
- IX Convegno della Società Italiana Luce di Sincrotrone**, Firenze (IT)
 (O) *Study of the C₆₀/Pt(111) interface by Surface X-ray diffraction*
- Strongly correlated electron systems 2001**, Ann Arbor (USA)
 (P) *M_{4,5} X ray resonant Raman Scattering from Ce-intermetallics with final 4p hole: theory and experiment*
- VIIth European Conference on Surface Crystallography and Dynamics**, Leiden (NL)
 (O) *C₆₀/Pt(111) ordered interfaces studied by surface X-ray diffraction experiments*
 (P) *Novel extensions of the ROD program for structure refinement of large groups of atoms adsorbed on surfaces*
- 2002 **INFM Meeting**, Genova (IT)
 (P) *Nitric-oxide adsorption and oxidation on Pt(111) in electrolyte solution under potential control*
- Surfaces and Interfaces on the Atomic- and Nano-scale: Semiconductors, Magnetic Materials and Oxides**, Grenoble (FR)
 (P) *Structural characterisation of self-assembled Fe nano-structures on Cu(100) by means of Fe K-edge XAFS*
- 2003 **12th X-ray Absorption Fine Structure International Conference (XAFS12)**, Lund (SW)
 (P) *3C-SiC ordered film obtained by codeposition*
- INFM Meeting**, Genova (IT)
 (P) *BEAR – Bending Magnet for Absorption Emission and Reflectivity*
 (P) *One year of activity at BEAR beamline*
- Dynamical Properties of Solids (DYPROSO)**, Trieste (IT)
 (P) *The BEAR apparatus at ELETTRA*
- 2004 **INFM Meeting**, Genova (IT)
 (P) *One year of activity at BEAR beamline*

- Elettra Users Meeting, Trieste (IT)**
(P) *Experimental feasibility study of X-ray Standing Waves from multilayers at the BEAR beamline*
- 12th International Symposium on Nanostructures, San Pietroburgo (RU)**
(P) *MnF₂ initial growth on CaF₂/Si(111): structure and electronic properties*
- 2005 **23rd European Conference on Surface Science (ECOSS 23), Berlino (DE)**
(P) *Cobalt on calcium fluoride: initial stages of growth and magnetic properties*
(P) *Polycyclic aromatic hydrocarbons-like molecules as starting point for triazafullerenes formation by cyclodehydrogenation*
- 2006 **13th International Conference on Solid Films and Surfaces (ICSFS-13), Bariloche (RA)**
(P) *Non-specular soft X-ray scattering of Mo/Si multilayer mirrors interfaces*
- 2010 **Spins in Organic Semiconductors (SPINOS III), Amsterdam (NL)**
(O) *Understanding the role of AlO_x tunneling barriers in organic spin valves by hard x-ray photoelectron spectroscopy*
Giornata informativa sui progetti europei, Area della ricerca CNR di Bologna, 22 Marzo 2010
- 2012 **CTM4XAS/CTM4RIXS Workshop, Utrecht (Olanda), 13-14 Febbraio 2012**
- 2013 **5th International conference on hard X-ray photoelectron spectroscopy, Uppsala (SW)**
(O) *HAXPES study of multifunctional organic-inorganic heterostructures*
- CCP9/CECAM Workshop – Electronic excitations and photoelectron spectroscopy: bridging theory and experiment, Wolfson College, Oxford (UK), July 23-24 2013**
- E-MRS 2013 - Fall Meeting, Warsaw University of Technology, Poland, September 16-20, 2013**
(O) *Organic/ferromagnetic interfaces of interest in memristors: a chemical characterization by photoemission spectroscopy*
- 2014 **Workshop Scientific Opportunities at the European X-FEL, Dipartimento di Fisica ed Astronomia, Università di Bologna, July 3-4, Bologna (IT)**
Convegno Il Magnetismo "attrae" l'impresa, organizzato dalla Società Italiana di Magnetismo, Area della Ricerca CNR di Bologna, 25 Febbraio 2014
- 2015 **Conference Magnet 2015 della Società Italiana di Magnetismo, Area della Ricerca CNR di Bologna, February 17-19, Bologna (IT)**
(P) *XAS/XMCD study of the Au/LSMO interface*
-

Peer review activity

	AMERICAN PHYSICAL SOCIETY	Physical Review Letters Physical Review B
	IOP PUBLISHING	Journal of Physics: Condensed Matter Journal of Physics D: Applied Physics
	ELSEVIER	Applied Surface Science
	ACS PUBLICATIONS	Journal of Physical Chemistry
	RSC PUBLISHING	Physical Chemistry Chemical Physics
	AMERICAN INSTITUTE OF PHYSICS	Journal of Applied Physics