

INFORMAZIONI PERSONALI



Francesco Borgatti

📍 Consiglio Nazionale delle Ricerche – Istituto per lo Studio dei Sistemi

Nanostrutturati – Sezione di Bologna, Italia

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💬 **h-index** WOS: 26 – Google Scholar: 28 (20 Febbraio 2023)

Data di nascita 22 July 1970 | **Nazionalità** Italian

Fisico specializzato nello studio sperimentale della materia condensata e nella scienza dei materiali. Ricerche nel campo delle proprietà elettroniche e magnetiche di **materiali fortemente correlati, sistemi nanostrutturati e dispositivi** per l'elettronica e la spintronica. **Principal investigator** di numerosi esperimenti presso le *facilities* europee di luce di sincrotrone. Partecipazione a **progetti di ricerca nazionali ed europei**. Membro di *panel* di valutazione nazionali ed internazionali. **Professore a contratto** per l'Università degli Studi di Bologna.

ABILITAZIONE SCIENTIFICA
NAZIONALE

Abilitazione Scientifica Nazionale per il ruolo di **Professore II Fascia – Settore Concorsuale 02/B1 Fisica Sperimentale della Materia**. Bando D.D. 1532/2016 – Validità 2017 – 2023.

COMPETENZE

Formazione sperimentale nel settore della struttura della materia condensata. Vasta esperienza nella **ideazione, progettazione e realizzazione di progetti sperimentali presso le facilities di luce di sincrotrone** in collaborazione con gruppi italiani ed esteri. Capacità di **organizzazione e coordinamento del lavoro** in tutte le fasi dei progetti.

Tecniche sperimentali principalmente utilizzate presso le *facilities* di luce di sincrotrone:

- Spettroscopia di assorbimento risonante (*X-ray Absorption Spectroscopy, X-ray Magnetic Circular Dichroism*)
- Spettroscopia risonante di diffusione anelastica di raggi X (*Resonant Inelastic X-ray Scattering*)
- Spettroscopia di fotoemissione (*PhotoElectron Spectroscopy*)
- Diffrazione da superfici (*Grazing Incidence Surface X-ray Diffraction*)

Ampia esperienza nell'uso di **programmi per l'analisi e la modellizzazione dei dati sperimentali** (Matlab, Origin, Wavemetrics Igor).

Utilizzo di **codici numerici basati su modelli multi-configurazionali a molti elettroni per l'interpretazione delle misure di spettroscopia elettronica** su elementi appartenenti alle terre rare ed ai metalli di transizione (CTM4XAS, QUANTY).

Progettazione e gestione di apparati sperimentali in ultra alto vuoto, dedicati alla fabbricazione ed allo studio di superfici ed interfacce su scala nanometrica:

- Crescita di multistrati organici ed inorganici su scala nanometrica mediante sublimazione in ultra-alto vuoto (*Molecular Beam Epitaxy*)
- Fabbricazione di dispositivi a multistrato mediante sistemi di mascheratura in vuoto (*Shadow Masking*)

ESPERIENZA LAVORATIVA

Dal 2005 **Ricercatore**

Consiglio Nazionale delle Ricerche (CNR)
Istituto per lo Studio dei Materiali Nanostrutturati (ISMN)
Via Piero Gobetti 101, 40129 Bologna

Attività di Ricerca: Esperimenti presso *facilities* europee di luce di sincrotrone dedicati principalmente allo studio delle proprietà elettroniche e magnetiche di sistemi fortemente correlati (ossidi di metalli di transizione), interfacce organico – inorganico in sistemi nanostrutturati e processi redox in dispositivi di tipo *memristor*

2002 – 2005 **Ricercatore**

Laboratorio TASC – Istituto Nazionale per la Fisica della Materia

Ruolo: Membro dello staff della beamline BEAR al Sincrotrone Elettra (Trieste).

Attività: Supporto scientifico e tecnologico agli utenti della beamline, sviluppo di strumentazione, attività di ricerca *in-house*.

2001 – 2002 **Assegno di Ricerca**

Istituto Nazionale per la Fisica della Materia (INFM)

INFM Operative Group in Grenoble (OGG-INFM), presso l'European Synchrotron Radiation Facility (ESRF, Francia)

Tema di Ricerca: *Study of the electronic, magnetic and structural properties of solids, surfaces (in vacuum or in solution) and chemisorption phenomena by hard x-ray synchrotron radiation.*

2000 **Contratti Co.co.co**

Istituto Nazionale per la Fisica della Materia (INFM)

INFM Operative Group in Grenoble (OGG-INFM), at the European Synchrotron Radiation Facility (ESRF, France)

Ricerche nel campo delle applicazioni della Luce di Sincrotrone presso il Gruppo Operativo di Grenoble dell'INFM

FORMAZIONE
POST-DOTTORATO

2018 *Writing Scientific Articles in English and presenting Research at International Conferences.* Corso tenuto da A. Wallwork presso l'Istituto per lo Studio dei Materiali Nanostrutturati (ISMN).

2002 *Higher European Research Course for Users of Large Experimental Facilities.* Grenoble (Francia)

2000 *Joint INFM - ABDUS SALAM ICTP school: Magnetic properties of condensed matter investigated by neutron scattering and synchrotron radiation techniques.* Trieste (Italia)

1997 *IV Scuola Nazionale di Luce di Sincrotrone* organizzata dalla Società Italiana Luce di Sincrotrone (S.I.L.S.). S. Margherita di Pula (Italia)

FORMAZIONE

1996 – 1999 **Dottorato di Ricerca in Fisica XII ciclo**

Tesi: *Magnetic properties of NiMn dilute alloy and many-body effects in final-state 4p excitation of La metal investigated by Resonant soft X-ray Emission Spectroscopy*

Università degli Studi di Modena e Reggio Emilia, Modena, Italy

Relatore: Prof. C.M. Bertoni (Università di Modena e Reggio Emilia) e Prof. L. Braicovich (Politecnico di Milano)

1996 **Laurea in Fisica**

Tesi: *Electron Scattering in ordered systems: effects on the intensity of secondary and Auger electron emission*

Università degli Studi di Modena e Reggio Emilia, Modena, Italy

Relatore: Prof. S. Valeri (Università di Modena e Reggio Emilia)

INSEGNAMENTO

- A.A. 2022/2023 **Professore a contratto** per il Corso di Laurea Magistrale in Fisica presso l'Università degli Studi di Bologna.
Corso: Fisica dei raggi X e luce di sincrotrone – Modulo 2: Spettroscopia di Fotoemissione
- A.A. 2021/2022 **Professore a contratto** per il Corso di Laurea Magistrale in Fisica presso l'Università degli Studi di Bologna.
Corso: Fisica dei raggi X e luce di sincrotrone – Modulo 2: Spettroscopia di Fotoemissione
- A.A. 2020/2021 **Professore a contratto** per il Corso di Laurea Magistrale in Fisica presso l'Università degli Studi di Bologna.
Corso: Fisica dei raggi X e luce di sincrotrone – Modulo 2: Spettroscopia di Fotoemissione
- A.A. 2019/2020 **Professore a contratto** per il Corso di Laurea Magistrale in Fisica presso l'Università degli Studi di Bologna.
Corso: Fisica dei raggi X e luce di sincrotrone – Modulo 2: Spettroscopia di Fotoemissione
- A.A. 2018/2019 **Professore a contratto** per il Corso di Laurea Magistrale in Fisica presso l'Università degli Studi di Bologna.
Corso: Fisica dei raggi X e luce di sincrotrone – Modulo 2: Spettroscopia di Fotoemissione
- A.A. 2017/2018 **Professore a contratto** per il Corso di Laurea Magistrale in Fisica presso l'Università degli Studi di Bologna.
Corso: Fisica dei raggi X e luce di sincrotrone – Modulo 2: Spettroscopia di Fotoemissione
- A.A. 2016/2017 **Professore a contratto** per il Corso di Laurea Magistrale in Fisica presso l'Università degli Studi di Bologna.
Corso: Fisica dei raggi X e luce di sincrotrone – Modulo 2: Spettroscopia di Fotoemissione
- A.A. 2015/2016 **Professore a contratto** per il Corso di Laurea Magistrale in Fisica presso l'Università degli Studi di Bologna.
Corso: Fisica dei raggi X e luce di sincrotrone – Modulo 2: Spettroscopia di Fotoemissione
- A.A. 2014/2015 **Lezioni** su invito del docente dedicate al tema *Spettroscopia di diffusione anelastica di raggi X nell'ambito del corso di Laurea Magistrale in Fisica Fisica dei raggi X e luce di sincrotrone* presso l'Università degli Studi di Bologna.
- A.A. 2013/2014 **Lezioni** su invito del docente dedicate al tema *Spettroscopia di diffusione anelastica di raggi X nell'ambito del corso di Laurea Magistrale in Fisica Fisica dei raggi X e luce di sincrotrone* presso l'Università degli Studi di Bologna.
- 2008 **Lezioni** sul tema *Introduzione alla spettroscopia elettronica di superfici ed interfacce* per il progetto MIUR "Dispositivi Integrati per registrare la Storia TERMica del Farmaco" (DISTEF), DM28539 (GU Serie Generale n.71 del 26/3/2009 - Suppl. Ordinario n.37) presso l'Area di Ricerca CNR di Bologna

- 2005 **Training sperimentale** di 10 ore per gli studenti del corso HERCULES (Higher European Research Course for Users of Large Experimental Systems) intitolato *Optical measurements in the soft X range including optical absorption and reflectivity*. Sede: Beamline BEAR presso Sincrotrone Elettra S.C.p.A.
- 2004 **Training sperimentale** di 10 ore per gli studenti del corso HERCULES (Higher European Research Course for Users of Large Experimental Systems) intitolato *Resonant soft x-ray reflectivity of thin films and multilayers*. Sede: Beamline BEAR presso Sincrotrone Elettra S.C.p.A.

ATTIVITÀ DI RICERCA PRESSO LARGE-SCALE FACILITIES

Principal Investigator di 24 esperimenti su 67 complessivi. Come tale, sono stato responsabile dell'ideazione e scrittura di questi progetti, della loro organizzazione, del coordinamento dei partecipanti e della conduzione degli esperimenti.

Tutti i progetti sperimentali sono stati valutati ed approvati da *panel* internazionali di esperti nel settore di riferimento. Dal 2006, la maggior parte degli esperimenti sono stati compresi nell'ambito di progetti di ricerca nazionali ed europei. Tutti gli esperimenti sono stati realizzati in collaborazione con personale di gruppi di ricerca nazionali ed internazionali.

2023. Investigation of Fe₃O₄/MgCr₂O₄/Fe₃O₄ superlattices using a combined SXPS AND HAXPES approach

Facility: DIAMOND National Synchrotron Facility (UK) – *Progetto nr.:* SI32921

Ruolo: **Principal Investigator**

2022. The origin of magnetism in a supposedly nonmagnetic osmium oxide

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* HC-4912

2021. The origin of magnetism in a supposedly nonmagnetic osmium oxide

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* HC-4277

2021. Effects of chemical doping on the magnetic ground state of the osmate double perovskite Ba₂(Na,Ca)OsO₆

Facility: PETRA III Facility – Deutsches Elektronen-Synchrotron (Germany) – *Progetto nr.:* I-20200367 EC

Ruolo: **Principal Investigator**

2019. Revealing hydrogen-related densities of states in metal hydrides via recoil effect in HAXPES

Facility: PETRA III Facility – Deutsches Elektronen-Synchrotron (Germany) – *Progetto nr.:* I-20191153

2019. Cation ordering and local distortions in double perovskite spin-orbit quantum oxides: continuation

Facility: PETRA III Facility – Deutsches Elektronen-Synchrotron (Germany) – *Progetto nr.:* I-20190869 EC

2018. Spin texture and metal/insulator character of the hidden phases in Ca-based manganese thin films

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20185073

2018. Spin-ARPES investigation of the strain induced effects on the La_{0.7}Sr_{0.3}MnO₃ surface layer

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20180307

Ruolo: **Principal Investigator**

2018. Charge tuning in double perovskite spin-orbit quantum oxides by soft x-ray XAS

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20185086

2017. ARPES of SrNbO₃ epitaxial layers

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20175084

Ruolo: **Principal Investigator**

2017. Spin-ARPES investigation of the strain induced effects on the La_{0.7}Sr_{0.3}MnO₃ surface layer

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20175083

2017. Electronic and magnetic properties of LaFeCoSi magnetocaloric alloys

Facility: SOLEIL French National Synchrotron Facility (France) – *Progetto nr.:* 20170145

2016. In-operando HAXPES study of resistive switching tantalum-based heterostructures

Facility: SOLEIL French National Synchrotron Facility (France) – *Progetto nr.:* 20160918

Ruolo: **Principal Investigator**

2016. High-quality Strontium Niobate epitaxial layers for energy and electronic applications

Facility: NFFA Trieste presso Sincrotrone Elettra (Trieste)

Ruolo: **Principal Investigator**

2015. Chemical and magnetic depth profiling of spin-polarised Cobalt-C₆₀ interfaces through angle- and energy-dependent resonant soft x-ray reflectivity

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20155278

Ruolo: **Principal Investigator**

2015. Chemical insight into resistive switching behaviour of manganite heterostructures by hard x-ray photoelectron spectroscopy

Facility: DIAMOND National Synchrotron Facility (UK) – *Progetto nr.:* SI9513

Ruolo: **Principal Investigator**

2015. Metal to insulator transition as probed by HAXPES: Critical thickness of bulk-only features in transition metal oxides

Facility: DIAMOND National Synchrotron Facility (UK) – *Progetto nr.:* SI11322

2016. Study of the metallic/insulator character of Sr-doped manganites via time-resolved HAXPES

Facility: SPRING-8 Synchrotron Radiation Facility (Japan) – *Progetto nr.:* 2016A1289

2014. XAS study of resistive switching TiO₂-based thin film heterostructures

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20140014

2014. Investigations of state-of-the-art thermoelectric materials using HAXPES and HARPES

Facility: DIAMOND National Synchrotron Facility (UK) – *Progetto nr.:* SI9768

2014. HAXPES study of resistive switching TiO₂-based thin film heterostructures

Facility: DIAMOND National Synchrotron Facility (UK) – *Progetto nr.:* SI10240

2014. In-operando HAXPES study of resistive switching manganite-based thin film heterostructures

Facility: SOLEIL French National Synchrotron Facility (France) – *Progetto nr.:* 20140991

2013. HAXPES study of resistive switching manganite-based thin film heterostructures

Facility: SOLEIL French National Synchrotron Facility (France) – *Progetto nr.:* 20131148

Ruolo: **Principal Investigator**

2013. Chemical insights into resistive switching of hybrid multifunctional heterostructures by hard x-ray photoemission spectroscopy

Facility: SOLEIL French National Synchrotron Facility (France) – *Progetto nr.:* 20130329

Ruolo: **Principal Investigator**

2013. Electrical and magnetic switching in hybrid devices

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20135188

2013. HAXPES investigation of LaF₃ and LaF₃-SrF₂ epitaxial heterostructures and solid solutions on Si for nano-ionic applications

Facility: SOLEIL French National Synchrotron Facility (France) – *Progetto nr.:* 20130306

2012. Hard x-ray photoelectron spectroscopy of organic/inorganic multifunctional heterostructures

Facility: PETRA III Facility – Deutsches Elektronen-Synchrotron (Germany) – *Progetto nr.:* I-20120126

Ruolo: **Principal Investigator**

2012. Interface analysis of resistive switching manganite based thin film heterostructures

Facility: PETRA III Facility – Deutsches Elektronen-Synchrotron (Germany) – *Progetto nr.:* I-20110545

2012. Valence band investigation across the metamagnetic transition in the magnetocaloric alloy LaFeCoSi

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20125049

2012. Critical thickness of "bulk-only" features in transition metal oxides across metal-insulator transition as probed by HAXPES

Facility: SOLEIL French National Synchrotron Facility (France) – *Progetto nr.:* 20120676

2011. Investigate the resistive switching behavior of La_{0.7}Sr_{0.3}MnO/SrTiO₃ interfaces

Facility: SPRING-8 Synchrotron Radiation Facility (Japan) – *Progetto nr.:* 2011A4900

2011. Investigation of the electronic properties of magnetocaloric LaFe_{13-x}Si_x alloys upon Co substitution of Fe

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20110098

2010. Electronic structure of buried organic-ferromagnetic interfaces by hard x-ray photoelectron spectroscopy

Facility: PETRA III Facility – Deutsches Elektronen-Synchrotron (Germany) – *Progetto nr.:* I-20100223

Ruolo: **Principal Investigator**

2010. Investigating the electronic properties of manganites upon application of external electric fields

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20105116

2010. 1s XPS and 1s2p resonant photoemission of iron oxides

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* HE-3459

2010. Recoil effect in hard x-ray photoelectron spectroscopy from metal hydrides: a probe for hydrogen-related densities of states.

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* HE-3587

2009. Distribution of Co ions among octahedral and tetrahedral sites in cobalt ferrite nanoparticles studied with high resolution Co and Fe L₃ RIXS

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* HE-3249

Ruolo: **Principal Investigator**

2009. In-situ study of the La_{0.7}Sr_{0.3}MnO₃/sexithiophene organic-inorganic interface by soft x-ray Photoelectron and Absorption Spectroscopy

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20095418

Ruolo: **Principal Investigator**

2009. FM/AFM coupling in epitaxial Fe/MgO/Fe/(GaMn)As interfaces

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20095428

2009. Evolution of interface states in Fe/(GaMn)As epitaxial heterostructures

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20095369

2009. A study of band bending at SnO₂ and In₄Sn₃O₁₂ surfaces by hard X-ray photoemission

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* HE-3306

2009. Role of an undoped GaAs spacer in the long ranged magnetic coupling across the Fe/GaAs/GaMnAs interface

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* HE-3119

2008. XAS/XMCD study of cobalt ferrite nanoparticles embedded by nano-oxidation lithography

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20085378

Ruolo: **Principal Investigator**

2008. Soft x-ray Resonant Magnetic Scattering of buried organic-inorganic interfaces

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 20085383

Ruolo: **Principal Investigator**

2008. Study of room-temperature ferromagnetic coupling occurring at the Fe/(Ga,Mn)As buried interface by X-ray Resonant Magnetic Scattering

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* HE-2809

Ruolo: **Principal Investigator**

2008. Understanding the thermally induced formation of organic nanostructures from ultra-thin sexythienyl films: a real time GIXD study.

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* SC-2702

Ruolo: **Principal Investigator**

2008. Magnetic and chemical depth profile of epitaxial Fe/GaMnAs(001) thin films

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 2008170

2007. High-Energy Photoelectron Spectroscopy of buried organic/inorganic interfaces in organic spin valves

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* SI-1612

Ruolo: **Principal Investigator**

2007. X-ray electron spectroscopy of Alq3/Co interface for organic spintronic devices

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 2007496

Ruolo: **Principal Investigator**

2007. Growth dynamics of organic-organic heterostructures and structure formation at the organic-organic interface

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* SC-2340

2007. Antiparallel magnetic coupling across the Fe/GaMnAs(001) interface

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* HE-2515

2007. Study of pentacene/SAMs interfaces of organic field-effect transistors by NEXAFS and X-ray Photoelectron Spectroscopy

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 2007261

Ruolo: **Principal Investigator**

2007. Soft x-ray Resonant Magnetic Scattering by organic spin valves

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 2007271

Ruolo: **Principal Investigator**

2006. In situ monitoring of crystallization process of nano-confined organic molecules: from the precursors to the final structure.

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* HS-3160

2006. Structural and chemical order in epitaxial antiferromagnetic/ferromagnetic interface: MnPt/Fe(100)

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 2006185

2004. Toward the Synthesis of Fullerenes from C₅₇H₃₃N₃, new molecular materials

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 2004772

2002. Bonding Geometry EXAFS Study of NO Adlayers on Pt(111) Generated by Dipping in Different Precursors

Facility: Elettra Synchrotron Radiation Facility (Italy) – *Progetto nr.:* 2002298

2002. GIXD study of the formation of Fe films and nanostructures on Cu(100) and N-precovered Cu(100)

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* SI-818

2002. Structural characterization of SiC thin films growth on Si(111) and Si(100) using C₆₉ as precursor

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* SI-816

2001. Determination of the absorption geometry of K onto the Si(111)-H surface

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* SI-745

Ruolo: **Principal Investigator**

2001. A NIXSW and XAFS study of Fe nano-scale islands formed on N-precovered Cu(100) surface

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* SI-746

Ruolo: **Principal Investigator**

2001. In situ grazing incidence X-ray diffraction studies of S and S-containing molecules adlayers on Au(111) in electrolyte solutions under potential control

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* SI-749

2001. Surface X-ray diffraction Structural Characterization of CdS Electrochemical Growth on Ag(111)

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* SI-795

2001. Formation and dynamics of self-organized nanostructures

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* SI-784

2001. Structural investigation of C₆₀ ordered overlayers on Pd(110) substrate by surface x-ray diffraction

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* SI-768

2000. Absorption local geometry determination of 2-mercaptobenzoxazole on Pt(111)

Facility: European Synchrotron Radiation Facility (ESRF, France) – *Progetto nr.:* SI-560

2000. Structural study of C₆₀-Ge(001) interface

Facility: European Synchrotron Radiation Facility (ESRF, France) – Progetto nr.: SI-661

CONTRIBUTO A PROGETTI NAZIONALI ED EUROPEI

- 2012 – 2018 **Nanomax-integrable sensors for pathological biomarkers diagnosis (N -CHEM)**
 Tipo PROGETTO BANDIERA
 Coordinatore Dr. Massimiliano Cavallini (CNR – ISMN)
 Ruolo **Partecipante al progetto**
 Attività svolta Responsabile dell'attività sperimentale (preparazione proposals, gestione esperimenti e rendicontazione scientifica) svolta presso la sorgente di luce di sincrotrone ELETTRA (Trieste). Contributo all'analisi ed all'interpretazione dei risultati sperimentali, ed alla scrittura delle pubblicazioni relative ai risultati ottenuti.
- 2010 – 2014 **InterFacing OXides (IFOX)**
 Tipo PROGETTO EUROPEO DEL VII PROGRAMMA QUADRO
 Coordinatore Stichting Katholieke Universiteit (Netherlands)
 Sito web <https://cordis.europa.eu/project/id/246102>
 Ruolo **Partecipante al progetto**
 Attività svolta Progettazione e realizzazione di esperimenti per lo studio della struttura elettronica di film sottili nanostrutturati di composti ossidi e di interfacce metallo-ossido di dispositivi di tipo memoria resistiva ReRAM. Contributo all'analisi ed all'interpretazione dei risultati sperimentali, ed alla scrittura delle pubblicazioni relative ai risultati ottenuti.
- 2009 – 2011 **Organic Nanomaterials for Electronics and Photonics: design, synthesis, characterization, processing, fabrication and applications (ONE-P)**
 Tipo PROGETTO EUROPEO DEL VII PROGRAMMA QUADRO
 Coordinatore Université Libre de Bruxelles (Belgium)
 Sito web <https://cordis.europa.eu/project/id/212311>
 Ruolo **Partecipante al progetto**
 Attività svolta Progettazione e realizzazione di esperimenti per lo studio della struttura cristallina e della morfologia di film sottili organici per la fabbricazione di transistor organici ad effetto campo (OFET). Contributo all'analisi ed all'interpretazione dei risultati sperimentali, ed alla scrittura delle pubblicazioni relative ai risultati ottenuti.
- 2007 – 2012 **DYnamics of Molecules on Organic Transistors (DYMOT)**
 Tipo Progetto europeo: EUROPEAN SCIENCE FOUNDATION EURYI AWARD 2006
 Coordinatore Dr. Massimiliano Cavallini (CNR) - vincitore
 Sito web <http://archives.esf.org/coordinating-research/euryi/awards/2006/massimiliano-cavallini.html>
 Ruolo **Partecipante al progetto**
 Attività svolta Progettazione e realizzazione di esperimenti per la caratterizzazione di film sottili nanostrutturati mediante tecniche di spettroscopia di fotoelettroni a raggi X. Contributo alla scrittura delle pubblicazioni relative ai risultati ottenuti.
- 2004 – 2007 **NANoscale Integrated processing of self-organizing Multifunctional Organic materials (NAIMO)**
 Coordinatore Université Libre de Bruxelles (Belgium)
 Sito web <https://cordis.europa.eu/project/id/500355>
 Ruolo **Partecipante al progetto**

Attività svolta Progettazione e realizzazione di esperimenti per lo studio della struttura elettronica di film sottili di composti ossidi. Contributo all'analisi ed all'interpretazione dei risultati sperimentali, ed alla scrittura delle pubblicazioni relative ai risultati ottenuti.

INCARICHI DI VALUTAZIONE

- Dal 2022 Membro del **comitato di valutazione *Physical Sciences*** per i progetti finanziati dalla *Fundação para a Ciência e a Tecnologia* (FCT), agenzia pubblica portoghese per la ricerca.
- 2021 Membro del **ESRF ID20 Beamline Review Panel** per la valutazione della beamline ID20 dell'European Synchrotron Radiation Facility (ESRF, France)
- 2021 Incarico di **revisore esterno per la VQR 2015-19**
- Dal 2018 **Valutatore tecnico - scientifico** di proposte progettuali nell'ambito della convenzione CNR – MISE per i bandi MISE - Fondo Crescita Sostenibile
- Dal 2017 Registrato su **REPRISE – Registro digitale di esperti scientifici indipendenti del MUR**, per la valutazione scientifica della ricerca italiana.
- 2014 – 2018 Membro del **Peer Review Committe Program 2** per la valutazione dei progetti sperimentali presentati al sincrotrone nazionale francese SOLEIL.
- 2007 – 2017 Membro di **Commissioni di valutazione per incarichi a tempo determinato presso il CNR** (Assegni di Ricerca, Contratti co.co.co., Contratti d'opera)

DIVULGAZIONE

- 2013 **Lezioni** sul tema *Il creato visto dagli scienziati* presso l'associazione di promozione sociale *Università della Terza Età* di Modena
- 2008 **Co-organizzatore** della mostra itinerante *Dieci allamennonove* presso l'Area di Ricerca CNR di Bologna, 14-28 Maggio 2008

RICONOSCIMENTI

- 2013 ACS Publications - **Certificate of Appreciation** For Your Valuable Contribution

ORGANIZZAZIONE DI EVENTI

- 2021 **SILS 2021 Workshop** presso Università degli Studi di Bologna
Ruolo: Membro del Local Organizing Committee
Contributo: Realizzazione del sito web del convegno, del booklet comprendente tutti gli abstract, e gestione della conferenza in modalità remota.

SEMINARI

- 2014 Seminario su invito: *Hard X-ray PhotoEmission Spectroscopy: applications for basic and applied science*, **Department of Physics and Materials Science of the City University of Hong Kong**

- 2008 *Structural study of pentacene growth on SAM and correlation with the charge injection*, **Naimo EU-project meeting**
- 2005 *Extreme ultraviolet Reflectivity and diffuse scattering from Mo/Si and Mo/Si/B₄C multilayers*, **Elettra Synchrotron Radiation Facility**
- 2002 *C₆₀/Pt(111) ordered interfaces studied by Surface X-ray Diffraction experiments*, **European Synchrotron Radiation Facility (ESRF), Grenoble (FR)**
- 2001 **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 *Introduction to Grazing Incidence Small-Angle X-ray Scattering (GISAXS)*, **Università degli studi di Genova - Dip. di fisica (IT)**

CONFERENZE

Legenda: (O) Presentazioni orali – (P) Poster

- 2021 **SILS2021 Meeting**, Società Italiana Luce di Sincrotrone, Virtual Meeting
- 2019 **AIMAGN Colloquium**, Bologna (ITALIA)
- Science through Scanning Probe Microscopy – Extended Version (StSPM19–EV)**, Bologna (ITALIA)
- 2018 **Materials.it 2018**, Bologna (ITALIA)
 (O) *Opposite Surface and Bulk Solvatochromic Effects in a Molecular Spin-Crossover Compound Revealed by Ambient Pressure X-ray Absorption Spectroscopy*
- 2017 **7th International Conference on Hard X-Ray Photoelectron Spectroscopy (HAXPES2017)**, Berkeley, California (USA)
 (O) *Spectroscopic proof of tunnel barrier charging as the switching mechanism in memristive devices*
 (P) *Buried Interfaces Effects in Ionic Conductive LaF₃-SrF₂ Multilayers*
- 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*
- 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 Febbbraio 2014
- 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*
- 2012 **CTM4XAS/CTM4RIXS Workshop**, Utrecht (Olanda)
- 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
- 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*
- 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*
- 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) *MnF_2 initial growth on $CaF_2/Si(111)$: structure and electronic properties*
- 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*
- 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*
- 2001 **INFN 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*
- 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*
- INFN Meeting**, Genova (IT)
(P) *Dichroism in resonant Raman scattering of soft x-rays from magnetic systems*
- Convegno della Società Italiana Luce di Sincrotrone**, Roma (IT)
(P) *Adsorption local geometry determination of 2-mercaptobenzoxazole on Pt(111) by normal incidence X-ray standing wave*
- 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*
- 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*

- 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*

 ATTIVITÀ DI REFERAGGIO


**ACS
PUBLICATIONS**

The Journal of Physical Chemistry C


**AMERICAN
INSTITUTE
OF PHYSICS**
Applied Physics Letters
Journal of Applied Physics
**AMERICAN
PHYSICAL
SOCIETY**
Physical Review Applied
Physical Review B
Physical Review Letters
Physical Review Materials**ELSEVIER**Applied Surface Science
Materials & Design
Journal of Alloys and Compounds
**IOP
PUBLISHING**
J. Phys.: Cond. Matter
J. Phys. D: Applied Physics
**RSC
PUBLISHING**

Phys. Chem. Chem. Physics

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Advanced Functional Materials

 PUBBLICAZIONI

- [1] P. Di Pietro, C. Bigi, S. K. Chaluvadi, D. Knez, P. Rajak, R. Ciancio, J. Fujii, F. Mercuri, S. Lupi, G. Rossi, **F. Borgatti**, A. Perucchi, P. Orgiani, "Oxygen-Driven Metal-Insulator Transition in SrNbO₃ Thin Films Probed by Infrared Spectroscopy", **ADVANCED ELECTRONIC MATERIALS** **2022**, *8*, 2101338, DOI 10.1002/aelm.202101338.
- [2] M. Pedio, E. Magnano, P. Moras, **F. Borgatti**, R. Felici, B. Troian, S. Prato, C. Soncini, C. Cepek, "Tuning 3C-SiC(100)/Si(100) Heterostructure Interface Quality", **CRYSTAL GROWTH & DESIGN** **2022**, *22*, 5182, DOI 10.1021/acs.cgd.2c00162.
- [3] G. Armaroli, L. Ferlauto, F. Ledee, M. Lini, A. Ciavatti, A. Kovtun, **F. Borgatti**, G. Calabrese, S. Milita, B. Fraboni, D. Cavalcoli, "X-Ray-Induced Modification of the Photophysical Properties of MAPbBr₃ Single Crystals", **ACS APPLIED MATERIALS & INTERFACES** **2021**, *13*, 58301, DOI 10.1021/acsami.1c16072.
- [4] F. Offi, K. Yamauchi, S. Picozzi, V. Lollobrigida, A. Verna, C. Schlueter, T.-L. Lee, A. Regoutz, D. J. Payne, A. Petrov, G. Vinai, G. M. Pierantozzi, T. Pincelli, G. Panaccione, **F. Borgatti**, "Identification of hidden orbital contributions in the La_{0.65}Sr_{0.35}MnO₃ valence band", **PHYSICAL REVIEW MATERIALS** **2021**, *5*, 104403, DOI 10.1103/PhysRevMaterials.5.104403.
- [5] G. M. Pierantozzi, G. Vinai, A. Y. Petrov, A. De Vita, F. Motti, V. Polewczyk, D. Mondal, T. Pincelli, R. Cucini, C. Bigi, I. Vobornik, J. Fujii, P. Torelli, F. Offi, G. Rossi, G. Panaccione, **F. Borgatti**, "Evidence of Robust Half-Metallicity in Strained Manganite Films", **JOURNAL OF PHYSICAL CHEMISTRY C** **2021**, *125*, 14430, DOI 10.1021/acs.jpcc.1c02323.
- [6] C. Bigi, P. Orgiani, J. Slawinska, J. Fujii, J. T. Irvine, S. Picozzi, G. Panaccione, I. Vobornik, G. Rossi, D. Payne, **F. Borgatti**, "Direct insight into the band structure of SrNbO₃", **PHYSICAL REVIEW MATERIALS** **2020**, *4*, 025006, DOI 10.1103/PhysRevMaterials.4.025006.

- [7] S. Chiodini, A. Straub, S. Donati, C. Albonetti, **F. Borgatti**, P. Stoliar, M. Murgia, F. Biscarini, “*Morphological Transitions in Organic Ultrathin Film Growth Imaged by In-Situ Step-by-Step Atomic Force Microscopy*”, **JOURNAL OF PHYSICAL CHEMISTRY C** **2020**, *124*, 14030, DOI 10.1021/acs.jpcc.0c03279.
- [8] J. K. Kesavan, D. F. Mosca, S. Sanna, **F. Borgatti**, G. Schuck, P. M. Tran, P. M. Woodward, V. F. Mitrovic, C. Franchini, F. Boscherini, “*Doping Evolution of the Local Electronic and Structural Properties of the Double Perovskite $Ba_2Na_{1-x}Ca_xOsO_6$* ”, **JOURNAL OF PHYSICAL CHEMISTRY C** **2020**, *124*, 16577, DOI 10.1021/acs.jpcc.0c04807.
- [9] A. Verna, I. Bergenti, L. Pasquali, A. Giglia, C. Albonetti, V. Dediu, **F. Borgatti**, “*Magnetic Depth Profiling of the Co/C_{60} Interface Through Soft X-Ray Resonant Magnetic Reflectivity*”, **IEEE TRANSACTIONS ON MAGNETICS** **2020**, *56*, 1700106, DOI 10.1109/TMAG.2020.2981927.
- [10] C. Baeumer, T. Heisig, B. Arndt, K. Skaja, **F. Borgatti**, F. Offi, F. Motti, G. Panaccione, R. Waser, S. Menzel, R. Dittmann, “*Spectroscopic elucidation of ionic motion processes in tunnel oxide-based memristive devices*”, **FARADAY DISCUSSIONS** **2019**, *213*, 215, DOI 10.1039/c8fd00108a.
- [11] **F. Borgatti**, F. Pineider, M. M. Sala, M. Minola, E. Fantechi, G. Ghiringhelli, N. B. Brookes, L. Braicovich, C. Sangregorio, “*Resonant Inelastic Soft X-ray Scattering Study of Co-Doped Maghemite Nanoparticles*”, **JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY** **2019**, *19*, 4980, DOI 10.1166/jnn.2019.16795.
- [12] T. Pincelli, R. Cucini, A. Verna, **F. Borgatti**, M. Oura, K. Tamasaku, H. Osawa, T.-L. Lee, C. Schlueter, S. Guenther, C. H. Back, M. Dell’Angela, R. Ciprian, P. Orgiani, A. Petrov, F. Sirotti, V. A. Dediu, I. Bergenti, R. Graziosi, F. M. Granozio, Y. Tanaka, M. Taguchi, H. Daimon, J. Fujii, G. Rossi, G. Panaccione, “*Transient quantum isolation and critical behavior in the magnetization dynamics of half-metallic manganites*”, **PHYSICAL REVIEW B** **2019**, *100*, 045118, DOI 10.1103/PhysRevB.100.045118.
- [13] I. Bergenti, **F. Borgatti**, M. Calbucci, A. Riminucci, R. Cecchini, P. Graziosi, D. A. MacLaren, A. Giglia, J. P. Rueff, D. Ceolin, L. Pasquali, V. Dediu, “*Oxygen Impurities Link Bistability and Magnetoresistance in Organic Spin Valves*”, **ACS APPLIED MATERIALS & INTERFACES** **2018**, *10*, 8132, DOI 10.1021/acsami.7b16068.
- [14] **F. Borgatti**, J. A. Berger, D. Ceolin, J. S. Zhou, J. J. Kas, M. Guzzo, C. F. McConville, F. Offi, G. Panaccione, A. Regoutz, D. J. Payne, J.-P. Rueff, O. Bierwagen, M. E. White, J. S. Speck, M. Gatti, R. G. Egdell, “*Revisiting the origin of satellites in core-level photoemission of transparent conducting oxides: The case of n -doped SnO_2* ”, **PHYSICAL REVIEW B** **2018**, *97*, 155102, DOI 10.1103/PhysRevB.97.155102.
- [15] **F. Borgatti**, P. Torelli, M. Brucale, D. Gentili, G. Panaccione, C. C. Guerrero, B. Schaefer, M. Ruben, M. Cavallini, “*Opposite Surface and Bulk Solvatochromic Effects in a Molecular Spin-Crossover Compound Revealed by Ambient Pressure X-ray Absorption Spectroscopy*”, **LANGMUIR** **2018**, *34*, 3604, DOI 10.1021/acs.langmuir.8b00028.
- [16] F. Gunkel, C. Lenser, C. Baeumer, **F. Borgatti**, F. Offi, G. Panaccione, R. Dittmann, “*Charge-transfer in B-site-depleted $NdGaO_3/SrTiO_3$ heterostructures*”, **APL MATERIALS** **2018**, *6*, 076104, DOI 10.1063/1.5038773.
- [17] A. Riminucci, P. Graziosi, M. Calbucci, R. Cecchini, M. Prezioso, **F. Borgatti**, I. Bergenti, V. A. Dediu, “*Low intrinsic carrier density LSMO/ Alq_3 / AlO_x /Co organic spintronic devices*”, **APPLIED PHYSICS LETTERS** **2018**, *112*, 142401, DOI 10.1063/1.5006387.
- [18] B. Arndt, **F. Borgatti**, F. Offi, M. Phillips, P. Parreira, T. Meiners, S. Menzel, K. Skaja, G. Panaccione, D. A. MacLaren, R. Waser, R. Dittmann, “*Spectroscopic Indications of Tunnel Barrier Charging as the Switching Mechanism in Memristive Devices*”, **ADVANCED FUNCTIONAL MATERIALS** **2017**, *27*, 1702282, DOI 10.1002/adfm.201702282.

- [19] A. Brillante, T. Salzillo, R. G. Della Valle, E. Venuti, **F. Borgatti**, E. Lunedei, F. Liscio, S. Milita, C. Albonetti, “*Photoluminescence as a probe of molecular organization in PDI8-CN2 ultra-thin films*”, **JOURNAL OF LUMINESCENCE** **2017**, *187*, 403, DOI 10.1016/j.jlumin.2017.03.058.
- [20] B. Gobaut, P. Orgiani, A. Sambri, E. di Gennaro, C. Aruta, **F. Borgatti**, V. Lollobrigida, D. Ceolin, J.-P. Rueff, R. Ciancio, C. Bigi, P. K. Das, J. Fujii, D. Krizmancic, P. Torelli, I. Vobornik, G. Rossi, F. M. Granozio, U. S. di Uccio, G. Panaccione, “*Role of Oxygen Deposition Pressure in the Formation of Ti Defect States in TiO₂(001) Anatase Thin Films*”, **ACS APPLIED MATERIALS & INTERFACES** **2017**, *9*, 23099, DOI 10.1021/acsami.7b03181.
- [21] K. Koshmak, A. Bانشchikov, R. Ciancio, P. Orgiani, **F. Borgatti**, G. Panaccione, A. Giglia, D. Ceolin, J.-P. Rueff, N. S. Sokolov, L. Pasquali, “*Buried Interfaces Effects in Ionic Conductive LaF₃-SrF₂ Multilayers*”, **ADVANCED MATERIALS INTERFACES** **2017**, *4*, 1600875, DOI 10.1002/admi.201600875.
- [22] T. Pincelli, V. Lollobrigida, **F. Borgatti**, A. Regoutz, B. Gobaut, C. Schlueter, T. -. Lee, D. J. Payne, M. Oura, K. Tamasaku, A. Y. Petrov, P. Graziosi, F. M. Granozio, M. Cavallini, G. Vinai, R. Ciprian, C. H. Back, G. Rossi, M. Taguchi, H. Daimon, G. van der Laan, G. Panaccione, “*Quantifying the critical thickness of electron hybridization in spintronics materials*”, **NATURE COMMUNICATIONS** **2017**, *8*, 16051, DOI 10.1038/ncomms16051.
- [23] **F. Borgatti**, P. Torelli, G. Panaccione, “*Hard X-ray PhotoElectron Spectroscopy of transition metal oxides: Bulk compounds and device-ready metal-oxide interfaces*”, **JOURNAL OF ELECTRON SPECTROSCOPY AND RELATED PHENOMENA** **2016**, *208*, 95, DOI 10.1016/j.eispec.2015.07.005.
- [24] D. Gentili, F. Liscio, N. Demitri, B. Schaefer, **F. Borgatti**, P. Torelli, B. Gobaut, G. Panaccione, G. Rossi, A. Degli Esposti, M. Gazzano, S. Milita, I. Bergenti, G. Ruani, I. Salitros, M. Ruben, M. Cavallini, “*Surface induces different crystal structures in a room temperature switchable spin crossover compound*”, **DALTON TRANSACTIONS** **2016**, *45*, 134, DOI 10.1039/c5dt03712c.
- [25] A. Regoutz, F. E. Oropeza, C. G. Poll, D. J. Payne, R. G. Palgrave, G. Panaccione, **F. Borgatti**, S. Agrestini, Y. Utsumi, K. D. Tsuei, Y. F. Liao, G. W. Watson, R. G. Egdell, “*Identification of metal s states in Sn-doped anatase by polarisation dependent hard X-ray photoelectron spectroscopy*”, **CHEMICAL PHYSICS LETTERS** **2016**, *647*, 59, DOI 10.1016/j.cpllett.2016.01.013.
- [26] A. Regoutz, I. Gupta, A. Serb, A. Khiat, **F. Borgatti**, T.-L. Lee, C. Schlueter, P. Torelli, B. Gobaut, M. Light, D. Carta, S. Pearce, G. Panaccione, T. Prodromakis, “*Role and Optimization of the Active Oxide Layer in TiO₂-Based RRAM*”, **ADVANCED FUNCTIONAL MATERIALS** **2016**, *26*, 507, DOI 10.1002/adfm.201503522.
- [27] P. S. Miedema, **F. Borgatti**, F. Offi, G. Panaccione, F. M. F. de Groot, “*Iron 1s X-ray photoemission of Fe₂O₃*”, **JOURNAL OF ELECTRON SPECTROSCOPY AND RELATED PHENOMENA** **2015**, *203*, 8, DOI 10.1016/j.eispec.2015.05.003.
- [28] A. Herpers, C. Lenser, C. Park, F. Offi, **F. Borgatti**, G. Panaccione, S. Menzel, R. Waser, R. Dittmann, “*Spectroscopic Proof of the Correlation between Redox-State and Charge-Carrier Transport at the Interface of Resistively Switching Ti/PCMO Devices*”, **ADVANCED MATERIALS** **2014**, *26*, 2730, DOI 10.1002/adma.201304054.
- [29] J. M. Kahk, C. G. Poll, F. E. Oropeza, J. M. Ablett, D. Geolin, J.-P. Rueff, S. Agrestini, Y. Utsumi, K. D. Tsuei, Y. F. Liao, **F. Borgatti**, G. Panaccione, A. Regoutz, R. G. Egdell, B. J. Morgan, D. O. Scanlon, D. J. Payne, “*Understanding the Electronic Structure of IrO₂ Using Hard-X-ray Photoelectron Spectroscopy and Density-Functional Theory*”, **PHYSICAL REVIEW LETTERS** **2014**, *112*, 117601, DOI 10.1103/PhysRevLett.112.117601.

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- [31] L. Poggini, S. Ninova, P. Graziosi, M. Mannini, V. Lanzilotto, B. Cortigiani, L. Malavolti, **F. Borgatti**, U. Bardi, F. Totti, I. Bergenti, V. A. Dediu, R. Sessoli, “*A Combined Ion Scattering, Photoemission, and DFT Investigation on the Termination Layer of a La_{0.7}Sr_{0.3}MnO₃ Spin Injecting Electrode*”, **JOURNAL OF PHYSICAL CHEMISTRY C** **2014**, *118*, 13631, DOI 10.1021/jp5026619.
- [32] Q. Shao, P. S. Ku, X. L. Wang, J. A. Zapien, C. W. Leung, **F. Borgatti**, A. Gambardella, V. Dediu, R. Ciprian, A. Ruotolo, “*Chemical states and ferromagnetism in heavily Mn-substituted zinc oxide thin films*”, **JOURNAL OF APPLIED PHYSICS** **2014**, *115*, 153902, DOI 10.1063/1.4871759.
- [33] I. Vobornik, G. Panaccione, J. Fujii, Z.-H. Zhu, F. Offi, B. R. Salles, **F. Borgatti**, P. Torelli, J. P. Rueff, D. Ceolin, A. Artioli, M. Unnikrishnan, G. Levy, M. Marangolo, M. Eddrief, D. Krizmancic, H. Ji, A. Damascelli, G. van der Laan, R. G. Egdell, R. J. Cava, “*Observation of Distinct Bulk and Surface Chemical Environments in a Topological Insulator under Magnetic Doping*”, **JOURNAL OF PHYSICAL CHEMISTRY C** **2014**, *118*, 12333, DOI 10.1021/jp502729u.
- [34] **F. Borgatti**, F. Offi, P. Torelli, G. Monaco, G. Panaccione, “*Interfacial and bulk electronic properties of complex oxides and buried interfaces probed by HAXPES*”, **JOURNAL OF ELECTRON SPECTROSCOPY AND RELATED PHENOMENA** **2013**, *190*, 228, DOI 10.1016/j.eispec.2013.01.002.
- [35] **F. Borgatti**, C. Park, A. Herpers, F. Offi, R. Egoavil, Y. Yamashita, A. Yang, M. Kobata, K. Kobayashi, J. Verbeeck, G. Panaccione, R. Dittmann, “*Chemical insight into electroforming of resistive switching manganite heterostructures*”, **NANOSCALE** **2013**, *5*, 3954, DOI 10.1039/c3nr00106g.
- [36] S. Casalini, A. Shehu, F. Leonardi, C. Albonetti, **F. Borgatti**, F. Biscarini, “*Hydrophilic self-assembly monolayers for pentacene-based thin-film transistors*”, **ORGANIC ELECTRONICS** **2013**, *14*, 1891, DOI 10.1016/j.orgel.2013.03.034.
- [37] P. Graziosi, M. Prezioso, A. Gambardella, C. Kitts, R. K. Rakshit, A. Riminucci, I. Bergenti, **F. Borgatti**, C. Pernechele, M. Solzi, D. Pullini, D. Busquets-Mataix, V. A. Dediu, “*Conditions for the growth of smooth La_{0.7}Sr_{0.3}MnO₃ thin films by pulsed electron ablation*”, **THIN SOLID FILMS** **2013**, *534*, 83, DOI 10.1016/j.tsf.2013.02.008.
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