

EUROPEAN
CURRICULUM VITAE
FORMAT



PERSONAL INFORMATION

Name
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Nationality

STEFANO FABRIS

VICOLO DELL'OSPITALE MILITARE 4, 34127 TRIESTE, ITALY

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Stefano.fabris@cnr.it

Italian

WORK EXPERIENCE

- 2023-present
National Research Council
- 2018-2023
National Research Council
- 2019-present
National Research Council
- 2008-2018
National Research Council
- 2014-2017
National Research Council
- 2004-2008
Istituto Nazionale di Fisica della Materia
- 2003-2004
Istituto Nazionale di Fisica della Materia
- 2000-2003
Max-Planck-Institut für Metallforschung

Director of the *Dipartimento Scienze Fisiche e Tecnologie della Materia*

Director of the *Istituto Officina dei Materiali (CNR-IOM)*, www.iom.cnr.it

Area Science Park, Strada Statale 14, km 163,5, 34149 Basovizza, Italy

Research Director (Dirigente di Ricerca) CNR-IOM

Research staff member (*Ricercatore III livello*) CNR-IOM DEMOCRITOS Theory Unit@SISSA

Scuola Internazionale Superiore di Studi Avanzati (SISSA), Via Bonomea, 265, 34136 Trieste

Person in charge of the CNR-IOM DEMOCRITOS Theory Unit@SISSA

c/o SISSA, Via Bonomea, 265, 34136 Trieste, Italy

Tenure-track researcher (*Ricercatore III livello*) DEMOCRITOS Simulation Center

c/o SISSA, Via Bonomea, 265, 34136 Trieste, Italy

Post doctoral research fellow DEMOCRITOS Simulation Center

c/o SISSA, Via Bonomea, 265, 34136 Trieste, Italy

Post doctoral research fellow

Heisenbergstraße 3, 70569 Stuttgart, Germany

EDUCATION AND TRAINING

- 1998-2000
Queen's University of Belfast
- Physics
- Ph. D.
- 1992-1997
Università degli Studi di Trieste
- Materials'Engineering
- 110 cum Laude

Ph. D. student

Regular Undergraduate Curriculum

PERSONAL SKILLS AND COMPETENCES	
MOTHER TONGUE	ITALIAN
OTHER LANGUAGES	ENGLISH PROFESSIONAL LEVEL PROFESSIONAL LEVEL PROFESSIONAL LEVEL
• Reading skills • Writing skills • Verbal skills	
SCIENTIFIC PRODUCTION	• >100 scientific papers published in international journals and refereed conference proceedings: 1 Science, 1 Nature Materials, 1 Nature Comm, 1 PNAS, 3 J Am Chem Soc, 3 Phys Rev Lett, 3 Nano Lett, 2 Angew Chem Int Ed, 1 ACS Nano, 2 J Phys Chem Lett, 16 J Phys Chem A-C, 3 J Chem Phys, 11 Phys Rev B, and others; • 36000+ citations, H-index 45 (source Google Scholar, December 2023); • 60+ invited talks at international conferences (including 2 ACS meetings, 1 MRS meeting, 1 ECOS, ..); • Director/organizer of 12 scientific conferences&workshops (including CECAM, Psi-K).
AWARDS AND DISTINCTIONS	• 2017 - <i>Abilitazione nazionale</i> as full professor in chemistry matter physics (sector 03/B1); • 2016 - Honorary Hans Fischer Fellow - Institute for Advanced Studies - Technische Universität München • 2015 - Friedrich W. Bessel research award - Alexander von Humboldt foundation; • 2015 - Chinese Academy of Science, President's International Fellowship Initiative; • 2014 - <i>Abilitazione nazionale</i> as associate professor in chemistry (sectors 03/B1 and 03/A2); • 2014 - <i>Abilitazione nazionale</i> as associate professor in theoretical condensed matter physics (sector 02/B2);
TEACHING	Keywords: Computational materials science (from electronic structure to atomistic modelling); Nanostructured materials for artificial photosynthesis, water splitting, hydrogen production/purification and fuel cells; Surface chemistry and heterogeneous catalysis; Defect chemistry of materials; Surface-supported organic and metal-organic nanostructures; Multiscale computational methods; Computational spectroscopy and microscopy.

FUNDING

- Principal Investigator, scientist in charge, coordinator
- 15 M€ PNRR – *Centro Nazionale HPC, Big Data, Quantum Computing – Spoke Materials*
- 19 M€ MUR L. 205/2017 – CNR@Elettra2.0
- 15 M€ EU-H2020-INFRAIA-2020 - *Nanoscience Foundries and Fine Analysis - Europe|PILOT*
- 10 M€ EU H2020-INFRAIA-2014/2015 - *Nanoscience foundries and fine analysis for Europe*
- 3.9 M€ EU FP7-NMP-2012 - *Design of thin-film nano catalysts for on-chip fuel cell technology.*
- 100 K€ EU FP7-PEOPLE-IRG-2008 - *Water splitting Catalysts for Artificial Photosynthesis.*
- 300 K€ Convenzione quadro CNR- Sincrotrone Trieste s.r.l (ELETTRA).
- 40 K€ PRIN - *Controlling structure&function of metallorganic nanostructures on metal surfaces;*
- 78 K€ FVG regional grant: *Nanocatalysis on carbon-based materials.*
- PI and in computational grants (last 4 years only):
- >55 M hours on HPC infrastructures (PRACE - Partnership for Advanced Computing in Europe www.prace.eu and CINECA)

RESEARCH VISITS

2015-2016 TECHNISCHE UNIVERSITÄT MÜNCHEN (*FELLOWSHIP*)

2013 NATIONAL INSTITUTE FOR MATERIALS SCIENCE, TSUKUBA, JAPAN (*INVITED*);

2011 CECAM, CENTRE EUROPÉEN DE CALCUL ATOMIQUE ET MOLÉCULAIRE, LAUSANNE, CH (*INVITED*);

2010 MOLECULAR FOUNDRY, LAWRENCE BERKELEY NATIONAL LAB., BERKELEY, USA;

2005 MAX-PLANCK-INSTITUT FÜR FESTKÖRPERFORSCHUNG, STUTTGART, GERMANY (*TRAVEL FELLOWSHIP*);

OTHER PROFESSIONAL ACTIVITIES

- ITALIAN REPRESENTATIVE IN THE *EUROPEAN XFEL COUNCIL* (www.xfel.eu);
- ITALIAN REPRESENTATIVE IN THE *EUROPEAN HIGH PERFORMANCE COMPUTING JOINT UNDERTAKING EUROHPC* ([HTTP://EUROHPC-JU.EUROPA.EU](http://eurohpc-ju.europa.eu))
- ITALIAN REPRESENTATIVE IN THE *EUROPEAN SPALLATION SOURCE – INSTRUMENT CONSORTIUM EXECUTIVE BOARD*
- MEMBER OF THE ITALIAN GROUP IN *HORIZON EUROPE CLUSTER 4 “DIGITAL, INDUSTRY AND SPACE”*
- MEMBER OF THE BOARD OF DIRECTORS OF THE RFX CONSORTIUM FOR THE NATIONAL IMPLEMENTATION OF THE EUROPEAN PROGRAM ON NUCLEAR FUSION;
- MEMBER OF THE SCIENTIFIC COMMITTEE: HPC4DSR CONSORTIUM
- MEMBER OF THE ADVISORY EDITORIAL BOARD FOR *SURFACE SCIENCE – ELSEVIER ED*
- ASSOCIATE EDITOR - *JOURNAL OF MATERIALS FOR RENEWABLE AND SUSTAINABLE ENERGY - SPRINGER ED.*;
- MEMBER OF THE EDITORIAL BOARD FOR *SURFACES – MDPI ED*
- MEMBER OF PhD AND MASTER EXAMINATION COMMITTEES FOR: HUMBOLDT UNIVERSITY, UNIVERSITY OF LYON, AARHUS UNIVERSITY; KING’S COLLEGE OF LONDON; SISSA, UNIVERSITY OF LJUBLJANA; CHARLES UNIVERSITY OF PRAGUE; UNIVERSITÀ CA’ FOSCARI, UNIVERSITÀ DI TRIESTE;
- MEMBER OF THE STEERING BOARD OF THE USERS FORUM PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE (PRACE);
- EXPERT REVIEWER FOR INTERNATIONAL FUNDING AGENCIES: EUROPEAN RESEARCH COUNCIL (ERC); US AIR FORCE OFFICE OF
- SCIENTIFIC RESEARCH (AFOSR); US DEPARTMENT OF ENERGY (DOE); SWISS NATIONAL SCIENCE FOUNDATION (SNFS);
- AUSTRIAN SCIENCE FUND (ASF); RESEARCH GRANTS COUNCIL OF HONG KONG; NATIONAL SCIENCE CENTRE – POLAND;
- EXPERT REVIEWER FOR SCIENTIFIC SUPERCOMPUTING CENTERS: PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE (PRACE), CINECA ITALIAN SUPERCOMPUTING RESOURCE ALLOCATION; SWISS CENTER FOR SCIENTIFIC COMPUTING OF THE ETH ZURICH.
- REFEREE FOR INTERNATIONAL JOURNALS: NATURE CHEMISTRY, NATURE COMMUNICATIONS, PHYSICAL REVIEW LETTERS, J. AM. CHEM. SOC., PHYSICAL REVIEW B, APPLIED PHYSICS LETTERS, ADVANCED FUNCTIONAL MATERIALS, JOURNAL OF PHYSICAL CHEMISTRY, JOURNAL OF CHEMICAL PHYSICS, PHYS. CHEM. CHEM. PHYS., SURFACE SCIENCE, CATALYSIS COMM, ...

SELECTED PUBLICATIONS

1. *QUANTUM ESPRESSO: A MODULAR AND OPEN-SOURCE SOFTWARE PROJECT FOR QUANTUM SIMULATIONS OF MATERIALS*
J. PHYS. COND. MATT. 21, 395502 (2009).
2. F. ESCH, S. FABRIS, L. ZHOU, T. MONTINI, C. AFRICH, P. FORNASIERO, G. COMELLI, AND R. ROSEI
ELECTRON LOCALIZATION DETERMINES DEFECT FORMATION ON CERIA SUBSTRATES
SCIENCE 309, 752 (2005)
3. M. FARNESI CAMELLONE, A. TOVT, N. TRAN, F. R. NEGREIROS, I. MATOLÍNOVÁ, J. MYSLIVEČEK, V. MATOLÍN, S. FABRIS
CREATING SINGLE-ATOM PT-CERIA CATALYSTS BY SURFACE STEP DECORATION
NATURE COMM. 7, ARTICLE NUMBER: 10801 (2016)
4. Y. LYKHACH, S. M. KOZLOV, T. SKALA, A. TOVT, V. STETSOVYCH, N. TSUD, F. DVORAK, V. JOHANEK, A. NEITZEL, J. MYSLIVECEK, S. FABRIS, V. MATOLIN, K. M. NEYMAN, J. LIBUDA
COUNTING ELECTRONS ON CATALYST NANOPARTICLES
NATURE MATERIALS 15, 284–288 (2016)
5. A CHEN, X YU, Y ZHOU, S MIAO, Y LI, S KULD, J SEHESTED, J LIU, T AOKI, S. FABRIS ET AL.
STRUCTURE OF THE CATALYTICALLY ACTIVE COPPER–CERIA INTERFACIAL PERIMETER
NATURE CATALYSIS 2, 334 (2019)
6. T. SUN AND S. FABRIS
MECHANISMS FOR OXIDATIVE UNZIPPING AND CUTTING OF GRAPHENE
NANO LETTERS 12, 17 (2012)

7. S. FABRIS, S. DE GIRONCOLI, S. BARONI,
G. VICARIO, AND G. BALDUCCI
TAMING MULTIPLE VALENCY WITH DENSITY FUNCTIONALS: A CASE STUDY OF DEFECTIVE CERIA
PHYS. REV. B **71**, 041102 (2005)
 8. M. FARNESI CAMELLONE AND S. FABRIS
REACTION MECHANISMS FOR THE CO OXIDATION ON Au/CeO₂ CATALYSTS
J. AM. CHEM. SOC. **131**, 10473 (2009)
 9. S. COLUSSI, A. GAYEN, M. FARNESI
CAMELLONE, M. BOARO, J. LLORCA, S. FABRIS, AND A. TROVARELLI
NANOFACETED Pd-O SITES IN Pd-Ce SURFACE SUPERSTRUCTURES BOOST ACTIVITY IN CATALYTIC COMBUSTION OF METHANE
ANGEW. CHEM. INT. ED. **48**, 8481 (2009)
 10. R. LARCIPRETE, S. FABRIS, T. SUN, P.
LACOVIG, A. BARALDI, AND S. LIZZIT
DUAL PATH MECHANISM FOR THE THERMAL REDUCTION OF GRAPHENE OXIDE
J. AM. CHEM. SOC. **133**, 17315 (2011)
- M. FARNESI CAMELLONE AND S. FABRIS
REACTION MECHANISMS FOR THE CO OXIDATION ON Au/CeO₂ CATALYSTS
J. AM. CHEM. SOC. **131**, 10473 (2009)
- S. COLUSSI, A. GAYEN, M. FARNESI CAMELLONE, M. BOARO, J. LLORCA, S. FABRIS, AND A. TROVARELLI
NANOFACETED Pd-O SITES IN Pd-Ce SURFACE SUPERSTRUCTURES BOOST ACTIVITY IN CATALYTIC COMBUSTION OF METHANE
ANGEW. CHEM. INT. ED. **48**, 8481 (2009)
- R. LARCIPRETE, S. FABRIS, T. SUN, P. LACOVIG, A. BARALDI, AND S. LIZZIT
DUAL PATH MECHANISM FOR THE THERMAL REDUCTION OF GRAPHENE OXIDE
J. AM. CHEM. SOC. **133**, 17315 (2011)
- M. HUANG AND S. FABRIS
CO ADSORPTION AND OXIDATION ON CERIA SURFACES FROM DFT+U CALCULATIONS
J. PHYS. CHEM. C **112**, 8643 (2008).
- QUANTUM ESPRESSO: A MODULAR AND OPEN-SOURCE SOFTWARE PROJECT FOR QUANTUM SIMULATIONS OF MATERIALS*
J. PHYS. COND. MATT. **21**, 395502 (2009).

