

---

# *CURRICULUM VITAE OF ALESSIO FILIPPETTI, PhD*

---



**Name:** Alessio Filippetti

**Citizenship:** Italy;

**Birthplace and date:** Rome, 06/08/1966

**Current working address:** Dipartimento di Fisica, Università di Cagliari, and Consiglio Nazionale delle Ricerche CNR-IOM, S.P. Monserrato-Sestu Km 0,700 I-09042 Monserrato (CA), ITALY.

**Tel.:** (+39) (070) 675 4853; **Fax:** (+39) (070) 510171; **E-mail:** alessio.filippetti@dsf.unica.it

**PLACE AND DATE OF BIRTH:** Rome (CA) Italy, August 6, 1966.

**EDUCATION:** 1994 --- Physics Degree, University of Rome 'La Sapienza' (Italy)

1998--- PhD in Physics, University of Cagliari (Italy)

## **EMPLOYMENT INFORMATION**

Since 1/10/2016: Associate Professor at the Physics Department, University of Cagliari.

## **PREVIOUS APPOINTMENTS**

1998-2000: Postdoctoral Researcher, University of California at Davis, USA.

2000-2003: Postdoctoral Researcher, University of California at Santa Barbara, USA.

2003-2007: Visiting Professor at the University of Cagliari, Italy, in the framework of MIUR Program 'Rientro Cervelli'

2007-2016: Researcher of 'Consiglio Nazionale delle Ricerche, Istituto Officina dei Materiali', CNR-IOM Cagliari, Italy

## **EXPERTISE:**

A.F. is a theoretical/computational physicist studying solid state properties by ab-initio and model approaches. His scientific activity is at the forefront of computational modeling and design of materials with strong potential in future microelectronic, spintronic, and energy conversion technology; lately his main research themes include lead-halide perovskites for photovoltaic solar cells and 2D electron gas oxide heterostructures for quantum technologies; a large portion of his activity has been devoted to the development of advanced energy functional theories addressed to improve the accuracy of the ab-initio treatment for strong-correlated and localized-electron systems such as molecules and nanoparticles.

A.F. matured a solid experience in group leading and coordination of research projects at European level (EU FP7 "OxIDes" and Eu-India FP7 NMP "ATHENA" Project), national level (several PRIN projects funded by Italian Ministry of Research and one SEED project funded by Italian Institute of Technology), and regional level (several projects funded by "Bank of Sardinia Foundation" and "Regione Sardegna").

A.F. has been involved in the organization and management of a series of Project Meetings, Schools, and International Conferences. Overall, A.F. participated to more than 100 international conferences, including about 30 invitations, contributing with oral communications, lectures, and chairs. Up today, AF published about 110 articles in peer-reviewed International Journals, collecting about 6100 citations, with a corresponding h-index=39 (source: Scholar).

#### **INVITED CONTRIBUTIONS:**

- ✓ February 2001, Williamsburg, USA: Ferroelectric Materials Workshop - Invited talk.
- ✓ September 2001, Avignon: Workshop on thermodynamic and structural properties of materials - Invited talk.
- ✓ February 2002, Washington DC, USA: Workshop on the Physics of Ferroelectric - Invited talk.
- ✓ September 2004, Geremeas: Workshop on Computational Material Science - Invited talk.
- ✓ March 2005, Dublino: Physics Department, Trinity College Dublin - Invited lecture.
- ✓ June 2005, CNR Genova: COST School of the European Community on Ceramic Materials - Invited lecture.
- ✓ June 2005, Genova: MMD-INFM meeting, - Invited talk.
- ✓ February 2006, Dublin: Physics Department, Trinity College Dublin - Invited lecture
- ✓ March 2007, Grenoble: Institute Laue-Langevin (ILL) - Invited lecture.
- ✓ May 2007, Iasi, Romania: IEEE-ROMSC Conference 2007 - Invited Talk.
- ✓ May 2007, University of Iasi, Physics Department - Invited Lecture
- ✓ November 2009, Vienna: Physics Department, University of Vienna - Invited lecture.
- ✓ July 2010, Sendai, Japan: International symposium on advanced magnetic materials (ISAMMA) - Invited talk.
- ✓ September 2011, Chester UK – CECAM Workshop on Self-interaction Correction: state of the art and new directions - Invited talk.
- ✓ March 2012, Genova: COST MP0904 Training School on "Nanostructured oxides: from laboratory research to industrial applications" - Invited Lecture
- ✓ March 2012, Lecce, Italian Institute of Technology - Invited Lecture
- ✓ November 2012, Queen's University of Belfast - - Invited Lecture
- ✓ February 2014, Genova: COST MP0904 Training School on "Single-and multiphase ferroics and multiferroics (SIMUFER)" - Invited Lecture
- ✓ October 2014, Hainan, China: IUMRS-ICYRAM 2014 Conference. Invited, Keynote Lecture
- ✓ February 2015, Hamburg: Q-MAC Symposium, Invited talk.
- ✓ May 2015, Rome: GBB60 Workshop - Invited speaker, roundtable organizer.
- ✓ August 2015, CECAM-HQ-EPFL Lausanne; Workshop on "Perovskite solar cells"; Invited talk.
- ✓ May 6, 2016, Trinity College Dublin - Invited Lecture

#### **FUNDED PROJECTS**

- ✓ 5/2003-5/2007: Project MIUR ("Ministero Università e Ricerca") in the framework of the Program "Rientro Cervelli" carried out at the Physics Department, University of Cagliari, Italy. Funded with a total budget of 164,000 Euros (included salary).
- ✓ 12/2005-11/2007: Project PRIN ("Progetto di Interesse Nazionale") funded by 70,000 for 2 years, entitled "Coexistence of magnetism and metallicity in high-Tc superconductors" carried out at the University of Cagliari, Italy.

- ✓ 12/2006-11/2008: Project entitled "Multiferroics from First-Principles" funded with 50,000 Euros by the Bank of Sardinia Foundation.
- ✓ 12/2007-11/2009: Project entitled: "Superconducting cuprates from First-Principles", funded with 20,000 Euros by the Bank of Sardinia Foundation.
- ✓ 6/2009-5/2012: FP7-NMP Project of European Community, a collaboration of CNR-IOM, Trinity College Dublin, University of Vienna, and three Indian institutes, entitled "Advanced theories for functional oxides: new routes towards the devices of the future" (acr. ATHENA); funded with 850,000 Euros (242,000 for CNR-IOM SLACS). A.F. was unit coordinator of CNR-IOM and workpackage leader of the project.
- ✓ 9/2009-8/2012: FP7-NMP Project of European Community, a collaboration of 6 european institutes (Università di Liège Università di Cantabria, Institut de Ciència de Materials de Barcelona, CNR-IOM, Istituto Université de Genève, Universität Augsburg, PHASIS, Ginevra) entitled "Engineering Exotic Phenomena at Oxide Interfaces", (acr. OxIDes), funded with 2,150,000 Euros (175,000 Euros to the CNR-IOM). A.F. was unit coordinator of CNR-IOM and workpackage leader.
- ✓ 5/2010: Project PRIN ("Progetto di Interesse Nazionale") funded by MIUR with 135,000 Euros (11,200 Euro to CNR-IOM) entitled "Two dimensional electron gases at functional oxide interfaces" (acronim "2-DEG FOXI"). The project was a collaboration of: Università di Napoli "Federico II", Università di Genova, CNR Napoli, CNR Genova, and CNR-IOM Cagliari.
- ✓ 5/2010-5/2013: Project Seed of Istituto Italiano di tecnologia (IIT), funded with 440,000 Euros (200,000 Euros for CNR-IOM Cagliari). A.F. was unit coordinator of CNR-IOM Cagliari.
- ✓ 9/2011: Productivity Prize from Sardinian Regional Government ("Regione Sardegna"), 14,000 Euros assigned to AF for his scientific activity.
- ✓ 6/2012-5/2014: Project entitled "Study of oxide heterostructures with exceptional transport and thermoelectric capabilities" funded with 20,000 Euros in 2 years by the Banco di Sardegna Foundation. AF was the scientific coordinator of the project.
- ✓ 10/2012-9/2015: Project PRIN funded by MIUR with 85,000 Euros in 3 years for CNR-IOM SLACS Units, entitled: "OXide Interfaces: emerging new properties, multifunctionality, and DEvices for electronics and energy (OXIDE)". The project was a collaboration among the following institutes: University of Naples "Federico II", University of Genoa, CNR-SPIN Naples, CNR-SPIN Genoa, and CNR-IOM SLACS.
- ✓ 1/2015: Productivity Prize from Sardinian Regional Government ("Regione Sardegna"), 10,000 Euros assigned to AF for his scientific activity.
- ✓ Since 19/08/2019: Project PRIN 2017 "TOPSPIN" (*Two-dimensional oxides Platform for SPIN-orbitronics nanotechnology*) funded by MIUR with 750,000 euros. In collaboration with CNR-SPIN, Università di Napoli "Federico II", Università di Cosenza, CNR-SPIN Napoli, CNR-SPIN Genova, and CNR-IOM.
- ✓ 01/06/2012 to 01/06/2014: BdS Project entitled "Study of oxide heterostructures with exceptional transport and thermoelectric capabilities", funded by Bank of Sardinia Foundation with 14,850 Euro.
- ✓ 01/06/2013 to 01/06/2014: BdS 2013 project entitled "Ab-initio study of the fundamental properties of layered oxides: coexistence of 2DEG and ferroelectric polarization" funded by Fondazione Banco di Sardegna with 10,000 Euro.
- ✓ 2015: grant of 10,000 Euro from Regione Sardegna as productivity prize for the di Coordination of EU project "SuperFET" submitted to the call FET-Open di Horizon2020, not funded with evaluation 4.6/5

- ✓ 2017: member of project “Fondazione di Sardegna” 2017 entitled “Precious metal-free complexes for catalytic CO<sub>2</sub> reduction”, coordinated by Luca Pilia, funded with 77,800 Euro
- ✓ 2019: member of project “Fondazione di Sardegna” 2019 entitled “Lead-free Perovskite Materials for Photovoltaics”, coordinated by Michele Saba
- ✓ 2019/2022 - Coordinator of unit UNICA (Università di Cagliari) in the framework of project PRIN 2017 “TOPSPIN” (Two-dimensional oxides Platform for SPIN-orbitronics nanotechnology) funded by MIUR con 750,000 euro, whose 158,000 to UNICA. In collaboration with: CNR-SPIN, Università di Napoli “Federico II”, Università di Cosenza, CNR-SPIN Napoli, CNR-SPIN Genova, and CNR-IOM. Starting from 19/08/2019, the project will last 3 years

### **CONFERENCE ORGANIZATION:**

- ✓ June 2010, Marina di Capitana (Cagliari): Annual Meeting of the ATHENA Project – Organization, management, and scientific coordination.
- ✓ 12-15 September 2010, Porto Conte (Alghero): SATT15, Workshop on superconducting materials - Organizing committee.
- ✓ 18/09-23/10 2010, L’AQUILA: International school on multiferroic materials (AQUIFER)- Tutoring and organizing committee.
- ✓ May 2011, Olbia: Conference Meeting of the FP7 EU OxiDes Project – Local organization, management, and scientific coordination.
- ✓ April 2012, Kolkata – School on advanced modeling methodologies organized in the framework of the ATHENA projects. - Management and scientific coordination.
- ✓ 17-19 May 2012, Cagliari: Annual Meeting of the ATHENA Project – Organization, management, and scientific coordination.
- ✓ JEMS 2012 (Joint European Magnetic Symposia), 9-14 Sept 2012, PARMA: Organization and chair of Symposium on "Electronic structure and correlation effects in magnetic systems".
- ✓ CIMTEC 2014 (13th International Ceramic Conference), Montecatini Terme, Italy. International Advisory board of Symposium "Functional Magnetic Oxides".

### **PROJECT MEETINGS:**

- ✓ January 2010, Allahabad, India: Annual Meeting of the “ATHENA” project – Project presentation and coordination.
- ✓ February 2010, Geneva: Periodic meeting of the “OxIDes” Project meeting – Presentation and coordination of activities.
- ✓ May 2010, Geneva: Periodic meeting of the "OxIDes" Project – Presentation and coordination.
- ✓ June 2010, Cagliari: Periodic Meeting of the "ATHENA" Project – Organization and coordination of activities.
- ✓ September 2010, Trieste: General Meeting of the CNR-IOM Institute – Presentation of group activity
- ✓ November 2010, Bruxelles – Annual Review Meeting of the "OxIDes" Project – Presentation to the EU officer of workpackage activities.

- ✓ January 2010, Bruxelles - Annual Review Meeting of the "ATHENA" Project –Presentation of the Workpackage activities to the EU officer.
- ✓ February 2011, Bangalore, India - Review Meeting of the ATHENA Project – Presentation of the workpackage activity to the DST of India officer.
- ✓ May 2011, Olbia – Annual Meeting of the “OxIDes” project – Conference management and organization.
- ✓ June 2011, Dublin - Annual Meeting of the FP7 EU “ATHENA” project – Management and scientific presentation.
- ✓ December 2011, Bruxelles - Review Meeting of the "OxIDes" Project – Workpackage presentation to the EU officer.
- ✓ April 2012, Kolkata, India - ATHENA SCHOOL & Project Review Meeting of the "ATHENA" PROJECT – School Lecture.
- ✓ May 2012, Santander - Project Meeting of the "OxIDes" PROJECT – Workpackage presentation.
- ✓ August 2012, Bruxelles – Final Review Meeting of the "OxIDes" Project – Presentation to the EU officer of workpackage activities.
- ✓ October 2013, Pune, India - India-Eu Review Meeting on Computational Materials Science. Lecture and Roundtable with EU and Department of Science and Technology of India representatives.

#### **CHAIR:**

- ✓ September 2006, Palau: Workshop on Material Modeling at nanoscale 2006 - Session Chair
- ✓ May 2007, Iasi, Romania: IEEE-ROMSC 2007 Conference - Session Chair
- ✓ March 2008, Shanghai, Cina: IEEE-ICM Conference 2008 – Session Chair.
- ✓ July 2010, Sendai, Japan: International symposium on advanced magnetic materials (ISAMMA) - Session Chair
- ✓ September 2012, Parma: JEMS 2012 (Joint European Magnetic Symposia) - Session Chair.

#### **Referee activity:**

A.F. accomplishes a regular referee activity for the Journals Physical Review B and Letters (APS), Energy and Environmental Science and Physical Chemistry Chemical Physics (RSC); Journal of Physical Chemistry C and Letters (ACS), Nature Communications (NPG), and several others.

In 2015 A. F. was nominated among the 'Outstanding Referees' of the American Physical Society

#### **Teaching activity**

- ✓ Docente del Corso di **Nanoelectronics** per la Laurea Magistrale In Ingegneria Elettrica ed Elettronica nell' A.A. 2020/2021
- ✓ Docente del corso di **Fisica Generale II** per il corso di Laurea in Ingegneria Biomedica negli A.A. 2016/2017, 2017/2018, 2018/2019, 2019/2020
- ✓ Docente del Corso di **Fondamenti di Fisica** per il corso di Laurea in Scienza della Formazione Primaria negli A.A. 2016/2017, 2017/2018, 2018/2019, 2019/2020
- ✓ Docente del corso di **Fisica dei semiconduttori** per gli studenti della Laurea in Fisica (vecchio ordinamento) dell'Università di Cagliari nell'A.A. 2003-2004 (Compito assegnato in qualità di Professore a Contratto nell'ambito del progetto MIUR “Rientro Cervelli”)

- ✓ Docente del corso di **Teoria quantistica dei solidi** (6 crediti, 48 ore) per gli studenti del 1° anno della laurea Magistrale in Fisica dell'Università di Cagliari, negli A.A. 2004/2005, 2006/2006, 2006/2007 (Compito assegnato in qualità di Professore a Contratto nell'ambito del progetto MIUR "Rientro Cervelli")
- ✓ Docente del corso di **Proprietà magnetiche della materia** (6 crediti, 48 ore) per gli studenti del 1° anno della laurea Magistrale in Fisica dell'Università di Cagliari, negli A.A. 2004/2005, 2006/2006, 2006/2007 (Compito assegnato in qualità di Professore a Contratto nell'ambito del progetto MIUR "Rientro Cervelli")