

## PERSONAL INFORMATION

- o Family name, First name: Bonino, Francesca Carla
- o Researcher unique identifiers: ORCID 0000-0002-6822-6685, Scopus Author ID: 56962716900, ResearcherID: G-8234-2016
- o Date of birth: 22/02/1976; Married – two sons
- o Nationality: Italian

## EDUCATION

12/9/2003 PhD in Materials Science and Technology  
Faculty of Science/ Dep. of Inorganic, Physical and Material Chemistry/ University of Torino/ Italy  
12/13/2000 Master Science Degree in Chemistry cum laude  
Faculty of Science/ Dep. of Inorganic, Physical and Material Chemistry/ University of Torino/ Italy

## CURRENT POSITION

1/12/2019 Associate Professor in Physical Chemistry  
Department of Chemistry/ University of Torino/ Italy

## PREVIOUS POSITIONS

2011 – 2019 Assistant Professor  
Department of Chemistry/ University of Torino/ Italy  
2007 – 2011 Technician  
Dep. of Inorganic, Physical and Material Chemistry/ University of Torino/ Italy  
2003 – 2007 Post Doctoral Fellow  
Dep. of Inorganic, Physical and Material Chemistry/ University of Torino/ Italy

## MATERNITY LEAVE

- o 2012/09/12 – 2013/02/11 (second maternity)
- o 2008/04/04 – 2008/09/05 (first maternity)

## EXPERTISE AND KNOWLEDGE

The scientific activity of Francesca Bonino is mainly devoted to the characterization of the physical-chemical properties of high surface area materials and in particular of oxides, zeolites and Metal Organic Frameworks (MOFs), with a particular attention to their surface properties. Her studies are mainly related to spectroscopic characterization through vibrational and electronic spectroscopies both in absorbance (IR and UV-Vis-NIR, EXAFS and XANES), scattering (DRIFT e Raman) and emission (Luminescence).

Research interests of Francesca Bonino are devoted to nanostructured materials with large surface area used as heterogeneous catalysts, photo-catalysts, materials for adsorption, separation and storage. The goal of the activity is to identify and deeply characterize the active sites of the selected materials in respect of a specific application from “in situ” towards “operando” conditions.

She was deeply involved in the start-up of Raman spectroscopy laboratory, where 3 micro-Raman instruments equipped with 5 laser sources are available. In this laboratory, she optimized new experimental setups to work in controlled atmosphere (she is also co-author of a patent). The use of Raman spectroscopy broadened her interests toward topics closer to the biology area, such as bioactive materials.

## SUPERVISION OF GRADUATE STUDENTS, PHD AND POST DOCTORAL FELLOWS

- o 2 Postdoc: M. Signorile, C. Atzori

- o 3 PhD in Chemical and Materials Sciences: J. Ethiraj, M. Signorile, C. Atzori
- o 7 Master Students in Materials Science (MS), Environmental Chemistry (EC), Sport Forensic and Clinical Chemistry (SFCC)
- o 7 Bachelor Students in Materials Science and Technology

#### TEACHING ACTIVITIES

- 2012 – today Physical-Chemical Methods for Clinical and Forensic Investigations, M.Sc. Degree in Sport Forensic and Clinical Chemistry/ University of Torino
- 2013 – today Materials for Energy (with laboratory), Bachelor Degree in Materials Science/ University of Torino

#### ORGANIZATION OF SCIENTIFIC MEETINGS

- 2019-01 Member of the Local Organizing Committee for the International Winter School “Innovative Catalysis and Sustainability – scientific and socio-economic aspects”/ Bardonecchia (TO) - Italy
- 2016-02 Member of the Local Organizing Committee for the International Winter School “Molecules @ Surfaces”/ Bardonecchia (TO) - Italy
- 2016-10 Organizer of the Workshop and NIS Colloquium “Harnessing the Power of Light in Hybrid Materials”/ Torino - Italy

#### MEMBERSHIPS OF SCIENTIFIC SOCIETIES

- 2000 - today INSTM/ Associated Member  
 Italian Chemical Society (SCI)/ Associated Member  
 Interdivisional Group of Catalysis (GIC) at Italian Chemical Society/ Associated Member

#### INSTITUTIONAL RESPONSIBILITIES

- 2012 – today Member of the Council of Department of Chemistry/ University of Torino/ Italy
- 2017 – today Member of the Committee for Erasmus/ Department of Chemistry/ University of Torino/ Italy
- 2015 – today Member of the Committee for Orienting the Bachelor Degree in Materials Science and Technology/ Department of Chemistry/ University of Torino/ Italy

#### COMMISSIONS OF TRUST

- 2017–01–24 President of the PhD Defense Committee of M. Sarro – M. L. Tummino/ University of Torino

#### FELLOWSHIPS AND AWARDS

- 03/A2 – Models and methodologies for Chemical Sciences (CHIM/02), Second Level
- 03/B2 – Chemical Fundamentals of Technologies (CHIM/07), Second Level
- 2001 Premio Optime from Unione Industriale di Torino for the best M.Sc. degree curriculum in Chemistry, University of Torino/ Italy

#### SCIENTIFIC PRODUCTION IN BRIEF

- Reviews 3 (ISI Journals)
- Papers 86 (ISI Journals)
- H-index 42 (ISI WoS Core Collection)
- Books 10 Chapters as co-author
- Citations more than 6000 citations (ISI WoS Core Collection)

*Reviewer activity* I act as referee for the following Peer Reviewed Journals: *ACS Catalysis, Chemistry - A European Journal, Journal of Catalysis, Applied Catalysis B: Environmental, The Journal of Physical Chemistry, ChemSusChem, Physical Chemistry Chemical Physics, RSC Advances, Langmuir, Journal of Sol-Gel Science and Technology, Materials Chemistry and Physics, Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, Energy and Environmental Science, ChemElectroChem, European Journal of Inorganic Chemistry, Journal of Industrial and Engineering Chemistry, Catalysts, ChemistrySelect, Chemistry - An Asian Journal, Journal of Alloys and Compounds, Journal of Industrial and Engineering Chemistry, Chemical Engineering Journal.*

*Large Scale Facilities* I participated to more than 10 experiments approved by an international peer-review committee at several Large Scale Facilities: LURE SuperACO (Paris, F), ESRF (Grenoble, F), ELETTRA (Trieste, I).

## **PATENT**

2017 A. Damin, M. Signorile, F. Bonino, S. Bordiga, R. Disa "A method for analysis by raman spectroscopy", WO2017077513 (A1)

## **ORAL CONTRIBUTIONS TO INTERNATIONAL CONGRESSES**

2002-09 Advanced School on Nanostructured Interfaces and Interphases, Torino (Italy) - "Resonant Raman Effects in TS-1: the Structure of Ti(IV) species and the reactivity towards H<sub>2</sub>O<sub>2</sub>"

2003-09 AIZ 2003 - 6° Convegno Nazionale Scienza e Tecnologia delle Zeoliti, Vietri (Sa, Italy) - "Ti-peroxo species in the TS-1/H<sub>2</sub>O<sub>2</sub>/H<sub>2</sub>O system"

2004-03 Euresco conference Zeolite Molecular Sieves – EuroConference on Guest-Functionalized Molecular Sieve Systems, Hattingen (Germany) - "Dimethyl Carbonate activation by alkaline cations exchanged zeolites: a FTIR and Raman study"

2005-10 VIII Scuola Nazionale di Luce di Sincrotrone, Frascati (Roma, Italy) - "Characterization of Pt based Coordination Polymers"

2007-06 XX Congress GNSR 2007, Catania (Italy) - "In situ Raman study to monitor bioactive sol-gel glasses reactivity"

2007-08 EUROPACAT VIII, Turku (Finland) - "Conversion of Methanol to Hydrocarbons: spectroscopic characterization of carbonaceous species formed over H-ZSM-5"

2008-02 XXXVII Congresso Nazionale di Chimica Fisica, Camogli (Ge, Italy) - "High NO adsorption on Ni(II) ions in CPO-27 Metal Organic Framework"

2009-02 XXI Congresso GNSR Milano (Italy) - "Raman spectroscopy applied to zeolite characterization"

2010-07 7th International Mesosstructured Materials Symposium (7-IMMS), Sorrento (Na, Italy) - "Direct evidence of highly dispersed iron in Fe-zeolites: a Raman study"

2013-09 XLI Congresso Nazionale di Chimica Fisica, Alessandria (Italy) - "Insights into adsorption of NH<sub>3</sub> on HKUST-1 metal-organic framework: a multitechnique approach"

2017-07 7th FEZA Conference "The ZEOLITES: Materials with Engineered Properties", Sofia (Bulgaria) – "Spectroscopic characterization of detectivity in TS-1 catalyst"

## **CHAIRMAN IN ONE SESSION OF INTERNATIONAL CONGRESSES**

2012-07-02 15th International Congress on Catalysis (ICC 2012), Munich (Germany), Poster Symposium "Epoxidation with Ti silicates"

## **MAJOR COLLABORATIONS**

*Academy*

- Karl Petter Lillerud, Unni Olsye, Stian Svelle (Chemistry Department Oslo University, Norway)

- Pablo Beato (HTAS, Copenhagen, Denmark)
- Johan Martens (Centre for Surface Chemistry and Catalysis, KU Leuven, Leuven, Belgium) – Cooperation Framework Agreement between Dr. Bonino and prof. Martens signed in 2012
- Norbert Stock (Institut für Anorganische Chemie, Christian-Albrechts Universität zu Kiel, Germany)
- Jeffrey Long (Department of Chemistry, University of California, Berkeley, California 94720, USA)

*Industry*

- Topsøe
- Evonik