

## Curriculum vitae Marta Boaro

### ResearcherID:

-Orcid ID: <http://orcid.org/0000-0002-6853-2965>

### Current Position

Associate Professor at University of Udine, Polytechnic Department of Engineering and Architecture, SSD: ING-IND/27- Industrial and Technological Chemistry (from 01/10/2014)

### Education and Accademic Carrier

She graduated in Chemistry at University of Padova (1993). She took the PhD degree at the University of Udine in Chemical and Innovative Materials (1996-2000). She did research abroad and in Italy with different fellowships: Academic of Science of Prague for the development of chiral catalysts (1994-1996), Lab. Solid State Electrochemistry, Department of Engineering and of Materials Science, Northwestern University, Evanston, IL, (USA) (April-July 2000), Laboratory of Fuel Cell and Heterogeneous Catalysis (Prof Gorte), Department of Chemical and Biomolecular Engineering University of Pennsylvania, Philadelphia PA, USA (2001-2003), Laboratory of Heterogeneous Catalysis, Department of Chemical Sciences and Technologies, University of Udine (2004-2006). She was enrolled at University of Udine as researcher in Industrial Chemistry from 2006 to 2014.

### Skills and Current Interests:

Energy technologies with special regard to fuel cells, electro-catalysis, electrochemistry, materials science, heterogeneous catalysis for energy and environmental applications, CO<sub>2</sub> and CH<sub>4</sub> utilization, chemical looping processes

Prof. Boaro has more than 20 years of experience in the field of rare earth and metal transition oxides and their applications in catalysis and electrochemistry for energy systems and H<sub>2</sub> production from renewable resources. She has interdisciplinary competences and interests with a solid background in the characterization of catalysts and materials

### Major Research Responsibilities:

-Head of research subunit "Catalysis for Fuel Cells and Hydrogen production" in the group of Catalysis for Energy and Environment, Polytechnic Department of Engineering and Architecture.

### Coordination/participation to research projects

2022-2024-KicstarH<sub>2</sub> Accelerating Sustainable Hydrogen Uptake Through Innovation and Education, EIT funded project (local coordinator).

2019 " MISTI Global Seed Funds" International Cooperation Project MIT-FVG": "Hydrogen-Assisted Chemical Looping Redox Cycles: Materials Development And Systems Aspects For Contaminant-Laden CO<sub>2</sub> Feedstocks"

2017-2019 PRIN Italian Ministry of Research (Progetti di Rilevante Interesse nazionale). Direct utilization of bio-fuels in solid oxide fuel cells for sustainable and decentralised production of electric power and heat. (PRIN 2017 DIRECTBIOPOWER) (local coordinator).

2018-2019- INSTM convention with ENI for the characterization of catalysts for the direct oxidation of methane to methanol (responsible of laboratory activity).

2018-2020 Responsible for the participation of University of Udine to the European Project "Teaching Fuel Cell and Hydrogen Science and Engineering Across Europe within Horizon 2020"(two year project).

2013-2016 PRIN- Italian Ministry of Research (Progetti di Rilevante Interesse Nazionale). Solid Oxide Fuel Cells operating with biofuel.(BIOSOFC) (local coordinator)

2010-2013 Interreg project Italy-Austria Mat4Cata New materials for the removal of pollutants from exhaust gas from internal combustion engines (participant)

2008-2009 Research project from Regione FVG Nanostructured catalysts for the production of hydrogen II (participant)

2008-2010 PRIN Project- Italian Ministry of Research (participant) Preparation and characterization of innovative catalytic formulations for the reduction of particulate emissions from diesel engines (participant)

2006-2007 Research project from regione FVG Catalizzatori nanostrutturati per la produzione di idrogeno I (participant) 2005-2008 FISR Project- Italian Ministry of Research "Polymer and ceramic electrolyte fuel cells: system demonstration and development of new materials" (participant)

2004-2006 PRIN Project- Italian Ministry of Research (Progetti di Rilevante Interesse nazionale) "Innovative cerium oxide-based water gas shift catalysts for hydrogen production for polymer membrane fuel cells: kinetic and reaction mechanism analysis" (participant)

### **Scientific Publications:**

Author or coauthor of more than 60 scientific publications in top international journals and more than 50 contributions to International or National Congress, she is co-authors also of four book chapters on the application of ceria oxide in heterogeneous catalysis for energy and environment application (Elsevier, Nova Publishing, Springer) and co-editor of a book entitled "Advances in Medium and High Temperature Solid Oxide Fuel Cell Technology" (CISM-Springer).

### *Scientometric indexes (2001-2020)*

Prof. Boaro's publications have received more than 4000 citations according to Scopus and she has an h-index of 27 in Scopus

### **Awards:**

2012 by Chemical Italian Society, Poster Award GIG2012, for the quality of research in catalysis for the environment and the energy.

2006 Top cited authors: Journal of Alloys and Compounds 408, 1096-1102 (2006) [216 cit.]

2003 Top cited article award: Catalysis Today 77, 407-417 (2003) [147 cit.]

**Membership and Institutional Responsibility:**

Past charges at the Department of Chemistry, Physics and Environment (DCFA).

-Representative of Researchers in Junta of the Department

Current and past charges at the Polytechnic Department of Engineering and Architecture (DPIA)

(2021-current)- Delegated Erasmus for Industrial Engineering for the Sustainability and Environment program (University of Udine)

(2016-2019)-Delegated Erasmus for Engineering for Energy and Environment program (University of Udine)

-Member of the Committee of the PhD school of Engineering for Energy and Environment (University of Udine)

-Referent for the European platform ETIP European biofuels technology platform

-2020-current: Representative of Associate Professors in Junta of DPIA

-2020 Cooperation with APRE for project plans of Horizon Europe - cluster climate-energy-environment.

**Teaching activities up to 2019-2023:**

Courses in the Master program in Engineering for Environment and Energy (University of Udine):

-Special Chemical Technologies (Fuel Cell and Hydrogen Technologies) (up to 2019)

-Instrumentation for Industrial Processes Control.

Courses in in the Bachelor program in Industrial Engineering for the Sustainability and Environment (University of Udine):

-Instrumental Analysis of Process

Courses in in the Master program in Management Engineering (University of Udine):

-Technologies for the reduction of greenhouse gases and energy storage

-Lectures in the PhD program for Engineering for Energy and Environment (University of Udine):  
Fundamentals on Heterogeneous Catalysis.

**Supervision of graduate students and Postdoctoral fellows:**

During her academic career Dr.Boaro directly supervised several Master's students, PhD students and Post Doctoral researchers in industrial chemistry and catalysis.

**Others scientific activities.****Reviewer activities:**

Expert reviewer for top Engineering and interdisciplinary journals (J Power Source, J Electroc. Soc, Science ), leading catalysis journal (e.g. ACS Catalysis, Applied Catalysis B, Journal of Catalysis, ....) material Science ( Solid state Ionics, J Am. Ceram. Soc) ~ and catalysis and fuel cell conferences (e.g. Europacat, NAM-NACS, ICC, European Fuel Cell).

**Major Scientific Collaborations:**

Prof. Jordi Llorca – Institut de Tècniques Energètiques and Centre for Research in

Nanoengineering, Universitat Politècnica de Catalunya (started in 1995) – 14 joint paper

published;Dr. Alessandro Donazzi and Prof Gianpiero Groppi – Politecnico di Milano, Italy (started

in 2013)- 2 joint papers published; Prof. Arup Gayen Department of Chemistry, Jadavpur University, Kolkata– 700032, – 2 joint papers published; Prof Raymond Gorte, Univ Penn, Dept. Chem. Eng., Philadelphia (USA) 4 joint paper; Dr. Zdanek Vit ASCR, Inst Chem Proc Fundamentals, Czech Republic, 3 joint paper; Prof. Elisa Garcia-Lopez, University of Palermo (started 2015), 1 joint paper; Prof. Ahmed Ghoniem, Department of Mechanical Engineering, Massachusetts Institute Technology (MIT); Dr. Armelao Lidia, 3 joint paper, and Prof. Antonella Glisenti, University of Padova, Prof. Santarelli Massimo Politecnico di Torino. State Key Laboratory of Particle Detection and Electronics; prof. Bangjiao Ye, University of Science and Technology of China, Hefei (People's) Republic of China), 1 joint paper; Prof. Rodolfo Taccani (University of Trieste), 1 joint paper.

**Organisation and Boards of scientific meetings:**

2020: Co-ordinator of the CISM-UniUD Course on Renewable Energies, Energy Storage and Hydrogen Economy

2014-2019: Member of Organization/Scientific Board of National School Introduction to Energy from Renewable Sources Udine (I-V editions)

2014: Coordinator of the CISM Course Advanced Professional Training School on Advances in Medium and High Solid Oxide Fuel Cell.

2012: Member of Organization Board 8<sup>th</sup> International Conference on f-Elements, Udine, Italy (350 participants).