

CURRICULUM VITAE

Rosalba Passalacqua, PhD

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INSTM (National Interuniversity Consortium of Materials Science and Technology)

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Rosalba Passalacqua, since December 28, 2018, is Senior Researcher (03/C2 – Industrial Chemistry) at the Dipartimento di Scienze chimiche, biologiche, farmaceutiche e ambientali (ChiBioFarAm) of the Università degli Studi di Messina (Italy).

In 2017, she received the qualification as associated professor in Italian Universities (03/C2 – Industrial Chemistry and 03/B2 – Chemical Fundamentals of Technologies).

From October 10, 2014 to December 27, 2018, she was Junior Researcher at the University of Messina.

She is a team member of the UniME Catalysis Group, at the Laboratory of Catalysis for Sustainable Production and Energy (CASPE) since June 2004 (<http://ww2.unime.it/catalysis/>). Her research interests concern applied heterogeneous catalysis with particular focus on environmental protection and sustainable energy and production. She has experience in the field of synthesis and characterization of catalysts useful in the area of solar driven chemistry: nano-engineered electrodes and (photo-) electrocatalytic devices.

- 20 March 2000 - Bachelor in Chemistry, University di Messina (Italy).

Post-lauream schools and courses:

- 2011-2012 - 2nd level Master's Degree in Renewable Energy and Energy Saving Technologies (T.E.R.R.E.), (04.18.2013), 1500 hours CFU 60, University of Messina (Italy).
- Sept. 2008 - XIV Scuola Nazionale in Scienza dei Materiali, Bressanone (Italy)
- 2007-2008 - 2nd level Master's Degree in Hydrogen Production Systems and fuel cell transport vehicles, (07/28/2008), 1500 hours CFU 60, University of Messina (Italy).
- 2001-2004 - PhD student, Dipartimento di Chimica Inorganica, Chimica Analitica e Chimica Fisica, Università degli studi di Messina (Italy). Supervisor: Prof. Scolastica Serroni. She gained her PhD on February 25, 2004 discussing a thesis on: “Nuovi sistemi multicromoforici: studio delle proprietà fotofisiche ed elettrochimiche” - (New multicromophoric systems: study of the photophysical and electrochemical properties).
- Sept. 2001 - “Corso Nazionale di Introduzione alla Fotochimica”, Bologna (Italy)

Research Activities:

Her current research interests cover several topics concerning the development of new catalytic materials and processes for sustainable energy production:

- Synthesis, development and characterization of nanostructured materials (TiO₂ nanotubes, Ir and Cu sub-nanometre sized metal clusters, CuO_x/TiO₂ nanocomposites, chemically functionalized CNTs, CIGS, etc.) and thin films as electrodes and components for photovoltaic applications;
- Synthesis and development of nanoscale-engineered materials based on high-efficiency photocatalytic TiO₂ for energy and sensor applications;

- Design and development of innovative reactors for the production of hydrogen by photoelectrolysis of water and / or photoreforming of waste organics;
- Solar fuels and/or chemicals synthesis by innovative CO₂ reduction processes in photoelectrocatalytic reactors (PECs);
- Synthesis and development of catalysts of industrial interest applicable in heterogeneous catalysis and photocatalysis for the abatement of pollutants and as materials for energetic applications.

She also has experience in the study of transition metal complexes and supramolecular assemblies applied like light-harvesting antennas, systems mimetic of photosynthesis and light- and/or ion-responsive sensors.

She has been a team member and has worked in several national and EU research projects: PowER platFORM, SMARTNESS, ENERGETIC, FOTOVOLTAICO, NATAMA, INCAS, ELCASS, IDECAT, CAT-MED and TMR Research Network - Nanometer Size Metal Complexes -, etc.

Her research activity is documented by more than 40 scientific publications in international refereed journals and over 70 contributes in national and international conferences (with 20 oral communications and 3 keynote/invited lectures).

Her Author Orcid-ID is 0000-0002-5796-1000.

Teaching Activities:

Her teaching activities at University of Messina concerns:

A.Y. 2018/2019 – Energy Sources and Technologies, (Bachelor) Degree in Chemistry;

A.Y. 2018/2019 – Methodologies and Educational Technologies: Organic Chemistry and Industrial Chemistry, Mod. B Ind. Chemistry, (Master) Degree in Chemistry;

A.Y. 2016/2017 – Chemistry and Technology of Catalysis, (Master) Degree in Chemistry;

A.Y. 2015/2016 – Chemical Industry: Raw Materials and Structure, (Bachelor) Degree in Industrial Chemistry;

A.Y. 2010/2011 - Inorganic Chemistry Laboratory, (Bachelor) Degree in Chemistry.

In the 2017/2018 A.Y., she has also experienced a period of teaching in the frame of the ERASMUS+ STAFF MOBILITY FOR TEACHING at Universidade NOVA de Lisboa, Faculdade de Ciências e Tecnologia (teaching programme on "Nanostructured materials and their applications in energy conversion devices").

Since May 17, 2017, she is also a member of the Teaching Committee of the PhD School in Engineering and Chemistry of Materials and Constructions. (PhD Teaching Course on Nanostructured materials and their applications in energy conversion devices, A.Y. 2017/2018 and 2018/2019). She has also supervised one master thesis and one bachelor thesis and several postgraduate and post-doc students' projects.

In the A.Y. 2014/2015, in the frame of the training project "Training of technologists expert in the design and construction of solar cells and high-efficiency energy conversion and distribution systems", she carried out the following teaching activities, at the Technological District Micro and Nano Systems:

- Synthesis methods of nanostructured materials for solar cells;
- Nanostructure characterization techniques in solar cells;
- Preparation of hybrid and transparent electrodes;
- Advanced design of nanostructured solar cells.

Messina, 16/05/2019