

# Valentina Pifferi - CURRICULUM VITAE

## RESEARCH ACTIVITY

- **2008: Bachelor Degree in Chemistry** at Università degli Studi di Milano (110/110 cum laude): “Gold and silver nanoparticles stabilized by Aloin A and Aloesin” (Tutor: Prof. Francesca Porta)
- **2010: Master Degree in Chemical Sciences** at Università degli Studi di Milano (110/110 cum laude): “Modulation of Nanocrystalline TiO<sub>2</sub> mesoporosity by template synthesis for second generation photocatalysts” (Tutor: Prof. Silvia Ardizzone)
- **2014: PhD in Chemical Sciences** at Università degli Studi di Milano (XXVI ciclo): “Advanced materials for electrode modification in trace electroanalysis” (Tutor: Prof. Luigi Falciola)
- **2012: LLP Erasmus Placement (6 months)** at Universidade de Coimbra (Portugal) Prof. C.M.A. Brett
- **2014: INSTM - Regione Lombardia Fellowship** for the project “NANOSENS - Nanomaterials for environmental electrochemical sensors” (Tutor: Prof. Luigi Falciola)
- **2015: Post-Doc Fellowship (type B)** for the CARIPLO project “Nanostructured-initiators for matrix-free, surface-based mass spectrometry imaging of antitumor drugs in tissues” (Tutor: Prof. Luigi Falciola)
- **2016: Post-Doc Fellowship (type B)** for the PRIN project “Diagnostic nanostructured devices for monitoring of biomarkers in cancer” (Tutor: Prof. Luigi Falciola)
- **2016-2018: Post-Doc Fellowship (type A)** “New frontiers in chemistry” (Tutor: Prof. Luigi Falciola)
- **2018-oggi: Resercher (Type “b”)** at Università degli Studi di Milano (national scientific qualification for CHIM/01)

Her research is focused on the production and study of new electroanalytical methods based on nanomaterials modified electrodes for trace determination of pollutants and relevant compounds, both organic and inorganic (benzidines, dangerous metals, furan, halothane, dichloromethane, hydrogen peroxide, glucose, ethanol, neurotransmitters). She is working on the different aspects of a sensor development, from the synthesis and characterization of nanomaterials to spectro- and/or electrochemistry (cyclic voltammetry and electrochemical impedance spectroscopy), searching for the best electrode system in terms of material, analyte and technique. With this purpose, she studies how to tune the structure, composition and diffusion properties (linear, convergent and thin layer diffusion) of the electrode surface, the electrochemical properties of the electrode and the electrochemical behaviour of the analyte. Various materials are considered, inorganic and/or organic: carbon nanotubes, graphene, graphite, metal nanoparticles (gold, silver, platinum and palladium), oxides (titania, silica, bismuth oxide, zinc oxide), conducting polymers (electron and ionic, brushes). Moreover, she is facing the problem of fouling and passivation of the electrode surface especially for biological matrices, trying to find new strategies to solve such a big analytical issue. Finally, she is applying the electrochemical methods to deeply understand the nanocomposite behaviour at the nanointerfaces.

She has authored over 36 publications, 1 book chapter, 4 proceedings and more than 80 Communications at International and National Congresses (1 Keynote Lecture). She has improved her scientific knowledge taking part to some specialistic school on electrospinning, organic electronics and electrochemical impedance spectroscopy and spending three short periods at European Synchrotron Radiation Facility (ESRF) in Grenoble and at Elettra Synchrotron in Trieste. She has been awarded for the “Best Italian PhD Thesis in Electrochemistry” by the Italian Chemical Society and Metrohm Italiana in 2014. She works regularly as reviewer for some international journals.

## TEACHING ACTIVITY

She collaborated with the organization and gave regular assistance to educational laboratories carried out at the Department of Chemistry:

- Laboratory of Analytical Chemistry I for the Bachelor Degree in Chemistry
- Laboratory of Analytical Chemistry for the Bachelor Degree in Industrial Chemistry

- Laboratory of Analytical Techniques for the Bachelor Degree in Industrial and Environmental Biotechnologies
- Laboratory of Physical Chemistry I for the Bachelor Degree in Chemistry

She holds the seminar “Advanced Electroanalysis: from macro...to nano” for the Advanced Electroanalysis Course of the Master Degree in Chemical Sciences.

She was one of the mentor for the preparation of the Italian national team for the 45° and 46° International Chemistry Olympiad. She takes part to initiatives for the Primary and Secondary Schools and for scientific divulgation.

She is co-tutor of Bachelor and Master Thesis in Chemistry discussed at Università degli Studi di Milano.