

Surfaces and Catalysts

www.chimica.unipd.it/surfacescience/

+39 049 827 5158 (GG); 5122; 5176 (AG); 5722 (GAR)



Gaetano Granozzi (gaetano.granozzi@unipd.it); Gian Andrea Rizzi (gianandrea.rizzi@unipd.it); Antonella Glisenti (antonella.glisenti.@unipd.it); Stefano Agnoli (stefano.agnoli@unipd.it); Laura Calvillo-Lamana (laura.calvillolamana@unipd.it)

The group is equipped with several experimental set-up in ultra-high-vacuum, reactors, instrumental equipments, synthesis laboratories where the following research lines are pursued:

- Structure and activity of model catalysts and (photo)electrocatalysts for advanced energy applications (fuel cells, solar fuels, electrolyzers);
- Chemically modified 2D and 3D graphene as well as other 2D nanomaterials (h-BN, metal chalcogenides) for energetics and catalysis;
- Oxide-on-oxides and metal-on-oxides catalysts and devices for sustainable development: from pollutants' abatement (TWC), to green hydrogen production (biofuels), to energy conversion and storage (Reversible and symmetric Solid Oxide Cells, SOFC/SOEC, batteries).

The group is currently involved in two European Projects in the field of fuel cells and catalysis: H2020-NMP-2014-2015, PARTIAL-PGMs and H2020-JTI-FCH-2017-1, CRESCENDO.

- *Cobalt Spinel Nanocubes on N-Doped Graphene: A Synergistic Hybrid Electrocatalyst for the Highly Selective Reduction of Carbon Dioxide to Formic Acid*, ACS Catal., **2017**, 7, 7695–7703.
- *Single- and Multi-Doping in Graphene Quantum Dots: Unraveling the Origin of Selectivity in the Oxygen Reduction Reaction*, ACS Catal., **2015**, 5, 129–144.
- *Vanadiumoxide nanostructures on another oxide: the viewpoint from model catalysts studies* Coord. Chem. Rev., **2015**, 301–302, 106–122.
- *New Strategy for the Growth of Complex Heterostructures Based on Different 2D Materials*, Chem. Mater., **2015**, 27, 4105–4113.
- *Largely Cu-doped LaCo_{1-x}Cu_xO₃ perovskites for TWC: toward new PGM-free catalysts*, Appl. Catal. B Environmental, **2016**, 180, 94.