MODELLO **B** — versione del modello A

Leonardo Marchese

Curriculum vitae

PERSONAL DATA

Born in Stigliano (MT), Italy, on 1960, August 1st.
Lives in Alessandria and Grugliasco (TO), Italy

BIO AND EDUCATION

Leonardo Marchese graduated in Industrial Chemistry at the University of Torino (July 1985) with top marks (110/110 magna cum laude), and in the same University obtained the Ph Doctor (PhD) degree in Chemical Science (September 1990).

UNIVERSITY CAREER

2005-	Full Professor of Physical Chemistry, University of Piemonte Orientale
1998-2005	Associate Professor of Physical Chemistry, University of Piemonte Orientale
1994-1998	Researcher of Physical Chemistry, University of Torino
1992-1994	Assistant Researcher, University of Torino

UNIVERSITY POSITIONS

2020-	Member of the administration board of the Proplast Consortium
2015-2023	Member of the Senate, University of Piemonte Orientale
2015-2023	Director of the Department of Science and Technological Innovation, University of Piemonte Orientale
2011-2015	Vice-Director of the Department of Science and Technological Innovation, University of Piemonte Orientale
2011-2015	President of the course degree “Science of materials”, University of Piemonte Orientale
2008-2013	Director of the Master “Materials for Energy and Environment”, University of Piemonte Orientale
2008-2011	Director of the Department of Science and Advanced Technologies”, University of Piemonte Orientale
2005-2008	President of the courses degree of Chemistry and Chemical Sciences, University of Piemonte Orientale

SCIENTIFIC POSITIONS

2022-	Coordinator of the Project of the "Ministero dell'Ambiente e della Sicurezza Energetica (MASE)" titled "Eco sustainable Development of Ultra porous Polymers and Carbons for Storage and Transport of hydrogen" (ECOSTORE-H2)
2005-2020	Coordinator of the Nano-SiSTeMI Interdisciplinary Centre, Università del Piemonte Orientale
2005-2020	Member of the Technical and Scientific Board of the Proplast Consortium
2017-2020	Coordinator of the European Project (H2020) "MULTI-site organic-inorganic HYbrid CATalysts for MULTI-step chemical processes" (MULTI2HYCAT)
2013-2016	Coordinator of the European Project (7th FP) "Global solar spectrum harvesting through highly efficient photovoltaic and thermoelectric integrated cells" (GLOBASOL)
2009-2012	Coordinator of the European Project (7th FP) "Innovative Materials for Future Generation Excitonic Solar Cells" (INNOVASOL)
2005-2008	Coordinator of the European Project (6th FP) "Novel Inorganic Nanostructured Materials and Devices with Enhanced Photoemission Activity and Thermal Stability" (STABILIGHT).
2016	Guest Editor of the theme issue of "Catalysis Today" (Elsevier) devoted to the recent advances of porous materials for the heterogeneous catalysis
2013	Guest Editor of the theme issue of "Physical Chemistry Chemical Physics" (Royal Society of Chemistry) titled "Physical-chemistry at the cross-road of advanced oxide materials".
2009	Guest Editor of the theme issue of "Journal of the Material Chemistry" (Royal Society of Chemistry) titled "Layered materials: Structure and Properties"
2008	Guest Editor special issue of "Microporous and Mesoporous Materials" (Elsevier) titled "Innovative Applications of Layered Materials, from Catalysts to Nanotechnology".

MAIN FIELDS OF INTEREST

1. Physical-chemistry of solid state, surfaces and host-guest interactions
2. Nanomaterials for health, environment and energy
3. Heterogeneous catalysis
4. Porous materials for storage and separation of gases and for capture of pollutants

CURRENT ISSUES OF RESEARCH

The research activities are focused on the development of materials for various applications in catalysis, biomedicine, optoelectronics and in the removal of hydrocarbon pollutants or in the storage or separation of gases. All systems are characterized through multi-technique experimental and theoretical approaches, in many cases through the combined use of in situ spectroscopies assisted, for the interpretation of the results, by computational methodologies. Of particular value

has been the development of combined FTIR/ss-NMR techniques, also with the use of molecular probes.

1. **Development of innovative materials for the environmental and heterogeneous catalysis**

Experimental and theoretical physical-chemistry study of innovative materials for environmental catalysis and for the preparation of fine chemicals via Green Chemistry" processes. Design, preparation and characterisation of nanostructured heterogeneous catalysts for the catalytic (or photocatalytic) abatement or the decontamination of chemical and biological hazardous agents for health and environment.

2. **Development of porous materials for capture, separation or storage of gases or compounds of energetic or environmental relevance**

Preparation and optimization of polymeric, inorganic and hybrid organic/inorganic porous solids for environment protection, with particular reference to: i) materials for capture and storage of CO2 and CH4 and ii) adsorbents for the removal of both noxious gases from gaseous effluents and hydrocarbons or antibiotics from polluted water. Experimental and theoretical study of the host-guest interactions for the evaluation of the surface properties of adsorbent materials.

3. **Novel materials for the production of energy through processes with low environmental impact**

Preparation of materials with different structure and chemical composition that can be exploited for the optimization of devices for the production of energy with low environmental impact (photovoltaic cells, fuel cells…).

4. **Spectroscopic and diffractometric studies of cementitious materials.**

The studies concern the composition and structure, through combined spectroscopic and diffractometric techniques, of the crystalline and amorphous phases constituting the cements (or cementitious precursors) and their evolution due to hydration effects or the presence of atmospheric agents.

5. **Organic/inorganic luminescent nanomaterials for biomedical applications.**

Development of luminescent multifunctional nanomaterials for biomedical applications (photodynamic therapy and theranostic).

CURRENT FUNDED PROJECTS

PROGRAMME	**FUNDED PROJECT**
MITE 2022	Eco sustainable Development of Ultra porous Polymers and Carbons for Storage and Transport of hydrogen" (ECOSTORE-H2)

Trapezio – Fondazione CSP	ECOH2STORE: eco-friendly ultra-porous materials for hydrogen storage economy
2018 – PSR 2014 - 2020 Agricoltura e Aree Rurali	Panem Nostrum Everyday Nutrire Terdona (Pa.N.E.)

TOP FIVE PAPERS

1. L. Smith, L. Marchese, A.K. Cheetham, J.M. Thomas, P.A. Wright, J. Chen and R.E. Morris, "*On the Nature of Water Bound to a Solid Acid Catalyst*", ***Science***, 271 (1996) 799-802; 175 citations (*Scopus* 26.01.2024)
2. H.O. Pastore, S. Coluccia and L. Marchese, "*Porous aluminophosphates: From molecular sieves to designed acid catalysts*" **Annual Review of Materials Research**, 35 (2005) 351-395; 227 citations (*Scopus* 26.01.2024)
3. I. Braschi, G. Gatti, G. Paul, C.E. Gessa, M. Cossi and L. Marchese, "*Sulfonamide Antibiotics Embedded in High Silica Zeolite Y: A Combined Experimental and Theoretical Study of Host-Guest and Guest-Guest Interactions.*", ***Langmuir***, 26 (2010) 9524-9532; 58 citations (*Scopus* 26.01.2024)
4. M. Errahali, G. Gatti, L. Tei, G. Paul, G. A. Rolla, L. Canti, A. Fraccarollo, M. Cossi, A. Comotti, P. Sozzani and L. Marchese, "*Microporous hyper-crosslinked aromatic polymers designed for methane and carbon dioxide adsorption*", ***J. Phys. Chem. C***, 118 (2014) 28699–28710; 101 citations (*Scopus 24.07.2027*)
5. G. Paul, C. Bisio, I. Braschi, M. Cossi, G. Gatti, E. Gianotti, L. Marchese, "*Combined solid-state NMR, FT-IR and computational studies on layered and porous materials*", **Chemical Society Reviews**, 100 (2018) 5684-5739; 112 citations (*Scopus* 26.01.2024).

FURTHER INFORMATION

- L. Marchese co-authored **290 publications** on high impact international journals or books of wide international diffusion and **6 patents** receiving **10650 citations**, **h-index 57** (*source Scopus 26.01.2024*)
- As PI (*Principal Investigator*) he has coordinated **4 European projects** (1 H2020, 2 FP7 e 1 FP6) and **6 national projects** (PRIN, MIUR, Piemonte Region and Banking Foudations).
- He has been Responsible of Research Units in **1 European projects** and 11 **national projects** (PRIN, MIUR, Ministero Ambiente, Piemonte Region, POR-FESR, FESR-FSE, ecc.), and of several contracts of industrial research.
- For base and industrial research, he managed over **21 million €**, among which 8,5 million € for activities of his research group.