



PERSONAL INFORMATION

Chiara Milanese

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Sex Female | Date of birth 06/12/1974 | Nationality Italian

POSITION

Associate Professor, Chemistry Department, University of Pavia

WORK EXPERIENCE

November 15th, 2014 – today**Associate Professor at the University of Pavia – Chemistry Department – Physical Chemistry Section**

- Scientific responsible of the Pavia Hydrogen Lab; Responsible for the courses: Physical Chemistry (Pharmaceutical Chemistry and Technology degree); Energy storage and conversion (Chemistry and Engineering degrees); Materials characterization techniques (Chemistry and Physics degrees)

Business or sector Academia – Research and teaching activities**Main research interests:**

- hydrogen storage, electrochemical energy storage; C-based materials, circular economy; green chemistry; developing of host-guest systems for energy storage and for pharmaceutical applications

December 29th, 2008 –
November 14th, 2014**Researcher at the University of Pavia – Chemistry Department – Physical Chemistry Section**<http://chimica.unipv.eu/site/home.html>

Scientific responsible of the Pavia Hydrogen Lab; Responsible for the courses: Physical Chemistry (Pharmaceutical Chemistry and Technology degree); Biological Physical chemistry (Pharmaceutical Chemistry and Technology, and Pharmacy degrees)

Business or sector: Academia – Research and teaching activities

2006-2008

Post – doc researcher on energetic topics

Center for Colloid and Surface Science (C.S.G.I.) – Pavia Unit – Chemistry Department – University of Pavia

“Synthesis and physico-chemical characterization of materials for energetics”; “Devices for the hydrogen economy”; “Nanostructured hydrides composites for solid state hydrogen storage for on-board applications: kinetic and thermodynamic aspects”

Business or sector Academia – Research activities

2002-2005

Post – doc researcher on solid state chemistry

University of Pavia – Chemistry Department – Physical Chemistry Section

“Silicon reactivity with transition metals: theoretical and modelling aspects”

Business or sector Academia – Research activities

EDUCATION AND TRAINING

1998-2001 **PhD degree in Chemical Sciences**

University of Pavia - Italy

- Solid state chemistry; intermetallic reactions; metals diffusion; solid state characterization by thermal analyses, spectroscopies, X-ray diffraction

1998-2001 **Degree at the post lauream School of Advanced Formation (SAFI)**

University of Pavia – Italy

- Advanced courses on chemistry, biology, ethics, biotechnology, jurisprudence
- Granted each year as best student and best thesis

1993-1998 **Degree in Chemistry (110/110 cum laude)**

University of Pavia – Italy

- Solid state chemistry; solid state characterization by thermal analyses, spectroscopies, X-ray diffraction

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	B1	B1	C2
Spanish	B2	B2	A2	A2	A2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
[Common European Framework of Reference for Languages](#)

Communication skills ▪ Very good communication skills, in part thanks to my natural attitudes and in part gained through my experience as children educator and as teacher

Organisational / managerial skills ▪ Very good organisational skills both for my work and for the work of my research team (currently of 10 people). Good managerial skills

Job-related skills ▪ Very good knowledge of topics linked to environment, green chemistry, circular economy, agriculture

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Independent user	Independent user	Independent user	Independent user	Independent user

Levels: Basic user - Independent user - Proficient user
[Digital competences - Self-assessment grid](#)

- Very good command of office suite (word processor, spread sheet, presentation software) and mathematical suites (SigmaPlot, Igor, Origin) acquired during the PhD period
- Very good command of software for thermal analysis, IR spectroscopy, X-ray diffraction

Other skills ▪ Cooking; grow orchids and bonsai

Driving licence B

Publications 266 papers; h-index 38 (Scopus source May 2024)

Most contributed topics: Borohydride; Hydrogen Storage; Dehydrogenation 19 papers

Projects

2008-2009: Participant to the research program FISR “Nanostore – Hydrogen production and storage in nanomaterials”.

2010: Member of PRIN project “Physico-chemical characterization and functional evaluation of light hydrides-based nanophase materials for hydrogen storage”. (PRIN 2008 call).

2012: PI of the project “The $\text{LiBH}_4 - \text{MgH}_2$ system for hydrogen storage: from basic research to applicative studies” in collaboration with the Helmholtz-Zentrum Geesthacht HZG in the frame of the Vigoni Project activated by the Italian – German Ateneo.

2012: Supervisor, for the Chemistry Department of the Pavia University, of the participation to the European COST Action MP1103 – “Nanostructured Materials for Solid State Hydrogen Storage”.

2014: Principal Investigator of the Italian Cariplo Project “Carbon based nanostructures for innovative hydrogen storage systems” in collaboration with the C nanostructures Lab – Parma University.

2017 and 2018: Supervisor, for the Pavia Unit, of the projects “Effective Hydrogen Compression for feeding PEM Fuel Cells for automotive applications (fuel cell vehicles)” and “Energy Storage in Carbon-based Nanostructures for Hybrid Transport Applications (Vehicles and unmanned aerial vehicles)” in the frame of the Early Career Researcher Funding Schemes of the Coventry University. PI Dr E. Gkanas.

2020: Principal Investigator of the Italian Cariplo Project “Gaining health and energy from Lombard agrifood waste (GHELF)” in collaboration with the C nanostructures Lab – Parma University.

Participant in the Chemistry Department unit of the Pavia University to the project “Circular Economy for Water and Energy (CE4WE)” (POR-FESR 2012-2020).

2021: Member of the senior staff of the ERC starting grant “HYbrid NANOstructured multi-functional interfaces for stable, efficient and eco-friendly photovoltaic devices” (HYNANO).

2022: Participant in the Chemistry Department unit of the Pavia University to the SPOKE N2 - GREEN TECHNOLOGIES AND SUSTAINABLE INDUSTRIES of the PNNR project NODES.

2023: PI of the PRIN project “Chemical and electrochemical energy storage materials from organic wastes: the treasure hidden in C based materials”. (PRIN 2022 call).

Conferences

12 invited talks, of which two of them at two of the most prestigious conferences on hydrogen storage topics, i.e. the last two International symposia on metal-hydrogen systems, and the Gordon Research Conference Hydrogen-Metal Systems - Hydrogen-Metals Interactions in 2017. Selected as discussion leader for the next Gordon Research Conference Hydrogen-Metal Systems - Dynamics of Hydrogen in Materials and Molecules (June 2023).

Scientific committee member

- 5th Central and Eastern European Conference on Thermal Analysis and Calorimetry (CEEC-TAC5) and 14th Mediterranean Conference on Calorimetry and Thermal Analysis (Medicta2019).
- EMRS Fall meeting 2017 - symposium C "Multifunctionality of metal hydrides for energy storage – developments and perspectives"
- EMRS Fall meeting 2019 - symposium L "Beyond hydrogen storage – Metal hydrides as multifunctional materials for energy storage and conversion"
- EMRS Fall meeting 2022 - Sustainable materials for chemical and electrochemical energy storage

Memberships

Italian Expert in the Task 40 “Energy storage and Conversion by Hydrogen” for the Hydrogen Implementing Agreement (HIA) active in the International Energy Agency (IEA)
Italian Expert of the International Hydrogen Carriers Alliance (IHCA).
Head of the Pavia Unit of the Interuniversity Center for Colloid and Surface Science.

Referee

2023: Referee of 10 proposals for the call HORIZON-CL5-2023-D5-01-08 Accelerating climate-neutral hydrogen-powered/electrified aviation
2022: Referee of 6 projects for the call HORIZON-MSCA-2022-PF-01
2021: Referee of 7 projects for the call HORIZON-MSCA-2021-PF-01
2020: Referee of 5 projects for the call H2020-MSCA-IF-2020. Referee for projects on energetic topics for Austrian Science Fund (FWF) and for Paris Region Fellowship Programme (ParisRegionFP).

2017. Referee of projects on energetics topics on behalf of the Polish National Centre for Research and Development. Referee of projects for the PAT Centers of Excellence of the Israel Science Foundation.

Referee of a European Project (ATLAS) on materials for solid state hydrogen storage (FP7 Project) on the behalf of the "FUEL CELLS AND HYDROGEN JOINT UNDERTAKING" of the European Commission.

2016. Referee of ITN projects on energetic topics on the behalf of the European Commission.

2015: External expert for the mid-term referee of a European Project (ECOSTORE) on materials for solid state hydrogen storage (ITN Marie Curie Projects) invited by the Project Consortium with the agreement of the European Commission.

2014: Mid-term Referee of a European Project (BOR4STORE) on materials for solid state hydrogen storage (FP7 Project) on the behalf of the "FUEL CELLS AND HYDROGEN JOINT UNDERTAKING" of the European Commission.

Referee of several PhD theses in Italy (Florence and Parma University) and outside (IFE in Oslo, University of Valladolid, University of South Wales in Sidney, Helmut Schmidt Universität in Hamburg, Nottingham University) on energetic topics and on materials for solid state hydrogen storage

Courses

"Physical chemistry" (9 CFU) for the students of the degree course in Pharmaceutic chemistry and Technology CTF (since 2014), "Energy storage and conversion" for the students of the degree courses in Chemistry and Engineering (3 CFU, since 2020) and "Materials characterization techniques" for the students of the degree courses in Chemistry (3 CFU, since 2020).

Supervisor of 8 master theses every year in CTF, 3 master theses in Chemistry, 3 master theses in Environmental Engineering: supervisor of 2 PhD theses in Chemistry and Pharmacy Technologies.

2015. Lecturer for the advanced course "Solid state hydrogen storage: an overview" organized by the PhD program in Engineering thermodynamic of fluids in the frame of the PhD School at the University of Valladolid, Spain (10 hours; 1 – 7 September 2015).

Main research interests

- ideation, preparation and characterization of innovative nanocomposites for solid state hydrogen storage (Mg based materials, complex hydrides and reactive hydride composites, C based materials);
- physico-chemical characterization of materials suitable both as electrodes and electrolytes for fuels cells and solid-state ions batteries and for the realization of solar cells;
- physico-chemical characterization of nanomaterials and nanoparticles with antibacterial and anti-biofilm activity and of systems with potential pharmaceutical applications;
- preparation of innovative systems for drug delivery

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV

Pavia, May 22th, 2024

Chiara Milanese

