

Piercarlo Mustarelli - Curriculum Vitae

PERSONAL INFORMATION

Family name, First name: MUSTARELLI Piercarlo
Researcher unique identifier(s) ORCID: orcid.org/0000-0001-9954-5200
Date of birth: 03 July 1959
Nationality: Italian

EDUCATION

1992 PhD in Chemistry, Department of Physical Chemistry, University of Pavia
1987 Advanced School in Physics, University of Pavia
1983 Master, Department of Physics, University of Pavia

CURRENT POSITION

2018 – Full Professor, Department of Materials Science, University of Milano Bicocca
2001 – 2018 Associate Professor, Department of Chemistry, University of Pavia

PREVIOUS POSITIONS

1998 – 2001 Assistant Professor, Department of Physical Chemistry, University of Pavia
1993 – 1998 Research Fellow, Centre for Thermodynamics/ National Research Council
1984 – 1988 Hardware Designer, Dataprocess S.p.a., Milano

FELLOWSHIPS AND AWARDS

2016 Visiting Professor, Tel Aviv University/Tel Aviv/Israel
2012 Award received from Fondazione Cariplo/Italy. Prize Frontier Research in Chemistry Title: “Electrochemical NMR microscope: the ultimate challenge”. Jury made, among the others, by the Nobel medalists Aaron Ciechanover and Gerhard Ertl, and by Philip Szuromi (Science Senior Editor).
2007 – 2008 Visiting Professor, Faculty of Physics/Technical Univ. Warsaw/Poland
2000 – 2001 Visiting Scientist, Osaka National Research Institute/Osaka/Japan
1983 – 1983 Scholarship, Centre of Casaccia, ENEA, Rome, Italy

FUNDED PROJECTS (COMPETITIVE GRANTS)

“Materiali per accumulo di energia” (Progetto Finalizzato CNR MSTAI 1997-2000) (100000 Euro, 8 people).
“Polymer electrolytes for lithium batteries” (MURST-MITI 1999-2001) bilateral cooperation with ONRI (Osaka, Japan, 4 people).
- “Relazioni tra struttura a medio raggio e dinamica ionica in vetri di ossidi inorganici studiate mediante NMR allo stato solido” (MIUR-PRIN 2004-2006) (34200 Euro, 3 researchers).
“Development of new materials and demonstration of prototypes of polymer and solid oxide fuel cells” (Cariplo Foundation, 2005-2009) (450000 Euro, 6 young researchers).
“Nuove membrane elettrolitiche nanocomposite a base di liquidi ionici”. (Project CARIPO Rif. 2006.0688/10.848, 2007-2009) (120000 Euro, 6 people).
“Thin film lithium microbatteries” (MIUR-FIRB, 2007-2010) (95000 Euro, 4 people).
“From materials science to molecular biomedicine” (Regione Lombardia, 2007-2009, Euro 1000000, 30 researchers).
“From materials science to the development of devices for diagnosis and therapy of age-induced diseases” (Regione Lombardia, 2010-2012, Euro 1000000, 22 research units).
“Novel nanomaterials based on conducting glasses for energy conversion/storage devices” (Bilateral project Italy-Poland 2007-2009, 4 people).
“Photocatalytic water splitting device for separate hydrogen and oxygen evolution” (Project CARIPO 2008-2010) (Euro 50000, 3 people).
“New electrolyte and electrode materials for thin-film lithium microbatteries” (Project Cariplo 2011-2013) (Euro 90000, 6 people).
“Electrochemical NMR Microscope: the ultimate challenge” (Cariplo Prize for Frontier Research in Chemistry 2011, 165000 Euro, 7 people).

“Rice straw valorization: recovery of inorganic and organic components” (Project Cariplo 2016-2018) (Euro 130000, 4 people).

“Exploiting interplay between bacteria and microalgae for simultaneous wastewater removal and biorefinery: a microbial fuel cell proof-of-concept” (Regione Lombardia-INSTM) (Euro 100000, 10 people).

TEACHING ACTIVITIES

2001 – 2015 Professor – Physical Chemistry, University of Pavia/ Italy
2008 – 2015 Professor – Biomaterials, University of Pavia/ Italy
2005 – 2009 Professor – Polymer Science, University of Pavia/ Italy
2000 – 2001 Professor – Solid state NMR spectroscopy, University of Modena/ Italy
1994 – 1996 Professor – Solid state NMR spectroscopy, University of Modena/ Italy

ORGANISATION OF SCIENTIFIC MEETINGS

1999: 50th ISE Meeting, Pavia, Member of the Organizing Committee.
2009: Symposium “Carbon Nanotubes in Nanomedicine”, Pavia, Member of the Organizing Committee.
2009: 2nd National Conference on Nanomedicine, Pavia, Member of the Organizing Committee.
2010: 3rd Annual World Congress of Industrial Biotechnology, Dalian, China, Member of the Scientific Advisor Board.
2010: XII International Symposium on Polymer Electrolytes, ISPE-12, Padova, Member of the Local Committee
2012: International Symposium on Boron Neutron Capture Therapy, Pavia, Member of the Organizing Committee.
2013: Giornate dell’Elettrochimica Italiana, GEI 2013, Pavia, President of the Organizing Committee.
2014: 7th German-Italian-Japanese Meeting of Electrochemists, Padova, Member of the Organizing Committee.
2014: EmHyTec 2014, Taormina, Member of the International Advisory Board.
2015: Congress on Materials Science and Polymer Engineering, Dubai, Member of the Organizing Committee.
2016: EmHyTec 2016, Tunis, Member of the International Advisory Board.
2016: 1st Italian Congress of Enerchem Group, Firenze, Member of the Scientific Committee.
2017: XXI International Conference on Solid State Ionics, Padova, Member of the Organizing Committee and Symposium organizer.
2018: 69th ISE Annual Meeting, Bologna, Symposium organizer.

INSTITUTIONAL RESPONSIBILITIES

2001 – 2011 Faculty of Natural Science member, University of Pavia
2001 – 2015 Member of many different commissions and Rector’s delegate for quality, University of Pavia
2011 – 2015 Director of Centre for Advanced Materials, University of Pavia
2012 – 2016 President of CESCRI Consortium Pavia
2005 – 2008 Vice-director of the School of Doctorate in Chemistry, University of Pavia
2006 – 2008 Vice-director of the School for high-school teachers’ formation, University of Pavia
2002 – 2004 Director of a Master in Materials Science and Technology, University of Pavia
2010 – 2017 President of the Library of Science, University of Pavia
2013 – 2016 Board of Directors, Enerchem Group/ Italian Society of Chemistry
2017 – 2018 Director of the PhD program in Chemistry, Pharmaceutical Sciences and Industrial Innovation, University of Pavia

COMMISSIONS OF TRUST

1995 – 2017 Evaluator, Ministry of University and Research / Italy
2005 – 2017 Evaluator, Ministry of Economy / Italy
2005 – 2017 Scientific evaluation, Universities of Modena and Padova / Italy
2016 – 2016 Scientific evaluation, Department of Energy / U.S.
2016 – 2017 Scientific evaluation, Israel Science Foundation / Israel
2017 – 2017 Scientific evaluation, Fundacao para a Ciencia e a Tecnologia / Portugal

MEMBERSHIPS

- 2012 – 2017 International Society of Electrochemistry, Member.
2014 – 2016 Electrochemical Society, Member.
2000 – 2017 Italian Chemical Society, Member.
2015 – 2016 Materials Research Society, Member

PATENTS

- 2016, Sol-gel process for the production of silica aerogels, Patent Cooperation Treaty Application, number WO2016193877
1990, Broadband and high-resolution electronic circuit for the phase and amplitude modulation or frequency conversion of radio-frequency signals, IT1244163 (B)
1987, Mass transducer with electromagnetic compensation, United States Patent and Trademark Office Granted Patent, number US4699228
1986, Mass transducer with electromagnetic compensation. European Patent Application, number EP206333

INVITED TALKS

“New PBI-based membranes for PEMFCs”, International Conference on Polymer Batteries-Fuel cells, PBFC-2007 Rome, June 11-14, 2007.

1. “New membranes based on polybenzimidazole for polymer fuel cells”, 3rd Int. Symp. On Novel Materials and Synthesis and 17th Int. Symp. on Fine Chemistry and Functional Polymers, Shanghai, October 17-10-2007
2. “New materials and perspectives for energy conversion and storage” Universidade Federal de Minas Gerais (UFMG), Departamento de Quimica, Lezioni di Dottorato di Ricerca, Belo Horizonte, Brazil, 4 Aprile 2008.
3. “New electrolytes for lithium batteries and fuel cells”. Warsaw University of Technology, Faculty of Physics, Bilateral project Italy-Poland, 16 Maggio 2008.
4. “Tonic liquids for rechargeable lithium batteries: state of the art and perspectives” **Plenary lecturer**, XI Symposium on Fast Ion Conductors, 14-17 September 2008, Grybów, Poland.
5. “New development strategies for PBI membranes for HT-PEMFCs” 18th International Conference on Solid State Ionics, Warsaw (Poland) 3-8 July 2011.
6. “Materials and Devices for Energy Conversion and Storage” 2nd Indo-Italian Workshop on Electrochemistry for Future Energy Solutions, Delhi (India), 30 November-1 December 2011.
7. “Materials and Devices for Energy Conversion and Storage” International Conference on Innovations in Chemistry for Sustainable Development (ICDS-2011), Chandigarh (India) 1-3 December 2011.
8. “Review of modern solid-state NMR applications to solid electrolytes” International Symposium on Advanced Materials Having Multi-Degrees-of-Freedom (ISAMMDoF), Kumamoto (Japan) 1-2 November 2012.
9. “Solid State NMR spectroscopy: from *ex situ*, to *in situ* and *in operando* applications to lithium batteries” 64th Annual Meeting of the International Society of Electrochemistry, Santiago de Queretaro, Mexico, 8-13 September 2013.
10. “PBI-based membranes for high temperature PEMFCs: proton transport and functional properties” 225th Meeting of Electrochemical Society, Orlando, U.S.A., 11-16 May 2014.
11. “In operando solid-state NMR as a powerful tool for lithium batteries characterization” MARS-EV, Rome, 3 April 2017.
12. “Polymers in Proton Exchange Membrane Fuel Cell: applications and challenges” EFP 8th International Summer School, Gargnano, 14-19 May 2017
13. “Electric cars: batteries or fuel cells?” Automotive 2017, Torino, 15-16 June 2017.

MAIN BIBLIOGRAPHIC DATA

- > 240 publications on international journals (Scopus)
> 6000 citations (Scopus)
H-index: 40 (Scopus)
Self-citations: <10% (Scopus)

EDITORIAL ACTIVITIES

- 2010 Fuel Cells, Wiley, Guest Editor

2013 ChemElectroChem, Wiley, Guest Editor
2014 Editorial Board member, Batteries, MDPI, Switzerland
2018 Associate Editor, Frontiers in Chemistry and Frontiers in Materials, Switzerland