

## Curriculum Vitae Prof. Dr. Stefano Passerini



**Name:** Stefano Passerini  
**Born:** 26 December 1959

### **Major scientific interests: Electrochemistry, Materials Chemistry, Electrochemical Energy Storage, Photovoltaics**

Stefano Passerini is working on the development of materials and systems for electrochemical energy storage. His research focuses on the basic understanding and development of materials for high-energy batteries and supercapacitors. The goal is to create sustainable energy storage systems from environmentally friendly and available materials and processes. He is an internationally recognized pioneer in the field of ionic liquids.

### **Academic and Professional Career**

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| since 2023  | Professor, Dipartimento di Chimica, Sapienza Università di Roma, Italy  |
| 2014 - 2019 | Professor of Physical Chemistry and Director (since 2015), Helmholtz-Institute Ulm (HIU), Karlsruhe Institute for Technology (KIT), Germany   |
| 2010 - 2013 | Professor of Physical, Institute of Physical Chemistry, University of Münster, Germany  |
| 2009 - 2013 | Co-Director and Co-Founder, Münster Electrochemical Energy Technology (MEET), Institute of Physical Chemistry, University of Münster, Germany |
| 2008 - 2010 | Group Leader, Project Manager, Institute of Physical Chemistry, University of Münster, Germany  |
| 1995 - 2007 | Electrochemical Specialist Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Rome, Italy      |
| 1993 - 1999 | Senior Research Associate, Chemical Engineering and Materials Science Department (CEMS), University of Minnesota, Minneapolis, USA            |
| 1993        | PhD in Chemistry, University of Rome "La Sapienza", Italy   |

1989 - 1990	Researcher, ENIRICERCHE, Monterotondo, Rome, Italy
1983	Degree in Chemistry, University of Rome "La Sapienza", Italy
1978	High School Degree in Chemistry, Rome, Italy

### **Functions in Scientific Societies and Committees**

since 2018	Coordinator, Joint Programme "Energy Storage", European Energy Research Alliance (EERA)
since 2018	Lecturer, "Electrochemistry", Institute of Physical Chemistry, Karlsruhe Institute of Technology (KIT)
since 2017	Lecturer, Master Module "Introductory Chemistry", University of Ulm, Germany
2017 - 2018	Past-Chair of the Electrochemical conversion & Storage Division of the International Society of Electrochemistry
2015 - 2016	Chair of the Electrochemical conversion & Storage Division, International Society of Electrochemistry
since 2015	Editor in chief, "Journal of Power Sources"
2015 - 2017	Lecturer, Master Module "Electrochemical Energy Storage", Institute of Physical Chemistry, Karlsruhe Institute of Technology (KIT)
2013 - 2015	European editor, "Journal of Power Sources"
2011 - 2013	Lecturer, Master Module "Research Strategies in Chemistry", University of Münster, Germany
2010 - 2013	Coordinator and Lecturer of the Master Module "Electrochemical Energy Storage and Conversion", Institute of Physical Chemistry, University of Münster, Germany
2009 - 2010	Lecturer of the course "Battery Technology", Institute of Physical Chemistry, University of Münster, Germany

Supervision of more than 60 bachelor, master and postgraduate students: University of Minnesota; Italian Agency for New Technologies, Energy and Sustainable Development (ENEA); University of Ulm; University of Münster (WWU); Karlsruhe Institute of Technology (KIT)

### **Project coordination, Membership in collaborative research projects**

2019 - 2023	Member of the EU-project "Silicon Alloying Anodes for High Energy Density Batteries comprising Lithium Rich Cathodes and Safe Ionic Liquid based Electrolytes for Enhanced High Voltage Performance (Si-Drive)"
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2019 - 2022	Coordinator of the BMBF-project TRANSITION, Karlsruhe Institute for Technology (KIT)
since 2018	Member of the DFG-Excellence project "EXC 2154: POLiS - Post Lithium Storage Cluster of Excellence"
since 2018	Member of the BMBF-project "FestBatt"

### **Honours and Awarded Memberships**

Since 2023	Senior Fellow, Karlsruher Institute of Technology (KIT)
since 2019	Member of the National Academy of Sciences Leopoldina
since 2016	Fellow, International Society of Electrochemistry (ISE)
2015 - 2016	Highly Cited Scientist 2015 - Thomson Reuters
2012	Battery Division Research Award, The Electrochemical Society
2012	Ort des Fortschritts 2012 - Ministry of Innovation, and Research North Rhein-Westfalia
2003	Scholarship: NATO Senior Fellowship

### **Major Scientific Interests**

Stefano Passerini is working on the development of materials and systems for electrochemical energy storage. His research focuses on the basic understanding and development of materials for high-energy batteries and supercapacitors. The goal is to create sustainable energy storage systems from environmentally friendly and available materials and processes. He is an internationally recognized pioneer in the field of ionic liquids.

Energy-efficient powerful batteries and storage systems are the prerequisites for the widespread use of renewable energies such as wind energy and photovoltaics as well as energy-efficient hybrid and electric vehicles. Stefano Passerini is working on the development of sodium-ion batteries for energy storage and electric mobility.

At present, lithium-ion batteries are mainly used as energy storage devices. However, the demand for lithium is increasing and the raw materials used, such as cobalt, are only available in limited quantities and difficult to extract from the ground. As a result, the prices of raw materials are rising. Sodium-ion batteries could be a cost-effective, ecologically friendly alternative.

In extensive research projects, Stefano Passerini and his team are developing active materials and electrolytes and produce prototypes of these new batteries. He designs current collectors that use metal conversion-alloying oxides on the cathode side and an innovative hard carbon

from biomass on the anode side. Against this background, he is researching the basics of ion mobility. The findings will also be used to implement safer and more environmentally friendly lithium-ion batteries and supercapacitors.