

**CHIARA FERRARA**

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 Date of birth: 11/02/1986, Italian

**Research experience**

My research activity is focused on two main topics:

- the synthesis and structural investigation of new materials (electrodes, electrolytes) for electrochemical devices (lithium- and post lithium-ion batteries, supercapacitors, fuel cells) through the implementation of multi-techniques approach involving X ray and neutron diffraction, solid state NMR, and microscopy techniques, preferring the in situ and in operando approaches that allow for the insight into the structure-properties correlations.
- recycling of lithium-ion batteries through the design of new agents and process that enable for the degradation of the black mass derived from spent lithium-ion batteries and the subsequent recovery of critical raw materials

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| <b>Associate Professor in Physical Chemistry</b> - Department of Materials Science, University Milano - Bicocca  | Dec 2025 -              |
| <b>Tenure track Researcher (RTDB)</b> - Department of Materials Science, University Milano - Bicocca   | Dec 2021 –<br>Nov 2024  |
| <b>Assistant Researcher (RTDA)</b> - Department of Materials Science, University Milano - Bicocca  | Oct. 2019 –<br>Nov 2021 |
| <b>Post Doc Researcher</b> - Department of Materials Science, University Milano - Bicocca project " <i>NMR study of materials for energy applications</i> " (supervisor: prof. Riccardo Ruffo). Research activities on synthesis and structural characterization of anode materials for lithium and sodium ion batteries with the use of solid-state NMR techniques and diffraction methods.                                     | Dec.2018-<br>Sep.2019   |
| <b>Post Doc Researcher</b> – Department of Chemistry, University of Pavia, project " <i>Synthesis and structural characterization of functional materials for rechargeable batteries</i> " (supervisor: prof. Piercarlo Mustarelli). Research activities focused on the synthesis and structural characterization of electrolytes materials for lithium and sodium ion batteries with the use of diffraction and NMR techniques. | Nov.2016-<br>Oct.2018   |
| <b>Post Doc Researcher</b> – Department of Chemistry, University of Pavia, project " <i>Ceramic electrolytes for proton conducting fuel cells: structure, defects, ionic transport</i> " (supervisor: prof. Cristina Tealdi). Research activities focused on the theoretical calculation and modeling of materials with high proton conductivity to be used as electrolytes in solid oxide fuel cells.                           | Nov.2014-<br>Oct.2016   |
| <b>Post Doc Researcher</b> – Department of Chemistry University of Pavia, project " <i>NMR investigation of functional materials</i> " (supervisor: prof. Piercarlo Mustarelli). Research activities focused on the NMR and MRI investigation of proton conducting membranes for polymer electrolyte membrane fuel cells.  | Nov.2013-<br>Oct.2014   |

**Education**

**PhD defense** (Dottore di Ricerca – University of Pavia / Docteur en Chimie- l' Ecole Normale Supérieure de Lyon) with honors. Thesis and discussion in English evaluated by an international committee. Feb 2014

**Co-shared PhD research project in Chemistry** (University of Pavia, Italy and Ecole Normale Supérieure de Lyon, France) "*Modern Solid-State NMR techniques applied to the investigation of functional oxides*" under the supervision of profs. Piercarlo Mustarelli (Italy) and Guido Pintacuda (France). Research activities focused on the synthesis of materials for application in fuel cells and rechargeable batteries and their study mainly with the use of diffraction and NMR techniques. Nov. 2010/  
Oct. 2013

**Master' s degree in Chemistry** (with honors) at University of Pavia with the thesis "*Perovskite-structure materials for innovative applications for energy*" completed under the supervision of prof. Piercarlo Mustarelli; Alumna of Collegio Santa Caterina da Siena. June 2010

**Bachelor' s degree in Chemistry** (with honors) at University of Pavia. Thesis in Physical Chemistry: "*Proton conducting polymeric membranes for fuel cells- The role of the fillers*" under the supervision of prof. Piercarlo Mustarelli; Alumna of Collegio Santa Caterina da Siena. July 2008

I declare that this curriculum vitae is a true and accurate statement of my current professional record.

