

Prof. Francesco NOBILI

Full-time Associate Professor in Chemistry
School of Science and Technology (SST), Chemistry Division
University of Camerino
ORCID 0000-0002-0564-2243

CURRICULUM VITAE

Education

PhD in *Chemical Sciences* - University of Camerino, 2002. Thesis "Preparation and electrochemical characterization of cathodes for Li-ion batteries based on Lithium, Nickel, Cobalt mixed oxides".

Laurea (MSc) in *Chemistry* – University of Camerino, 1997. Thesis "Use of heptahydrate Ce(III) Chloride for chemoselective regeneration of carbonilic compounds from dioxolanes".

Employment History

2020-current	Associate Professor, Physical Chemistry	University of Camerino
2008-2019	Assistant Professor, Analytical Chemistry	University of Camerino
2005-2008	Contract Researcher, Analytical Chemistry	University of Camerino
2002-2005	Post-Doc Grant	University of Camerino

Research activity

The research activity of Prof. Francesco Nobili concerns the synthesis and the physico-chemical and electrochemical characterization of active materials for electrochemical energy storage and conversion devices, such as Li-ion batteries (LIBs), Na-ion batteries (NIBs), polymer electrolyte membrane Fuel Cells (PEMFCs), Solid Oxide Fuel Cells (SOFCs). The activities mainly regard:

Synthesis of anode materials for LIBs and NIBs: carbonaceous materials, titanates, alloying materials, conversion materials, sustainable nanocomposite materials;

Synthesis of cathode materials: mixed oxides of Li and Ni/Co/Mn/Zr/Mn, olivines;

Development of green electrode formulations;

Development of low-Pt-content electrodes for PEM-FCs;

Physico-chemical characterization techniques: scanning electron microscopy (SEM); X-ray diffraction (XRD); thermogravimetric analysis (TGA); Raman spectroscopy;

Potential- and Current-controlled electrochemical characterization techniques;

Electrochemical impedance spectroscopy (EIS);

Characterization of electrode/electrolyte interfaces;

Development and application of ex-situ and in-operando analytical methodologies.

Diagnostic tools for monitoring SOH of LIBs, NIBs, SOFCs.

Research periods abroad:

2002 (May-July) at "Laboratoire de Chimie du Solide Minéral" of Nancy University (France) supervisor prof. D. Guerard;

2005 (July-September) at Chemistry Department of Stony Brook University in Stony Brook, NY (USA) supervisors prof. C. Gray and Prof. S. Greenbaum;

2008 (January-March) at Physics Department of Hunter College of CUNY University in New York City, NY (USA) supervisor prof. S. Greenbaum.

Institutional responsibilities

2017-current Rector's Delegate for Stage e Placement Activities at University of Camerino
2015-current Coordinator of the Research Framework "Sustainable and smart energy development" at University of Camerino

Teaching activities

2008-current Classes of Analytical Chemistry and Physical Chemistry;
2011-current Supervision of 10 Graduate Students in the PhD Course in Chemical Sciences;

Recently funded projects

2020-2022 "Protocols for characterization of Li batteries. Development of innovative materials. Reuse and recycle strategies of Li-ion batteries". Funded by MIDAC company. Principal Investigator.

2021-2022 "LEAF yielding Added value to Apennine Forestry resources". Funded by University of Camerino. Principal Investigator.

2019-2021 "Anode materials for Na/Li batteries". Funded by ENEA (National Agency for new technologies, energy and sustainable economic development) and MISE (Italian Ministry of Economic Development). Coordinator of local research unit. 2018 "Nanocomposite electrodes for Li-ion and Na-ion batteries. Preliminary investigations on structural and interfacial stability". Funded by ENEA and MISE. Coordinator of local research unit.

2017-2018 "Synthesis and characterization of nanocomposite anodes based on Si, Sn, C". Funded by ENEA and MISE. Coordinator of local research unit.

2016-2017 "Synthesis and characterization of composite anodes based on conversion materials for Li and Na". Funded by ENEA and MISE. Coordinator of local research unit.

2015-2016. "Synthesis and characterization of anodes for Li-S batteries and of the impact of electrode and electrolytes additives toward the behavior of anodes". Funded by ENEA and MISE. Coordinator of local research unit.

2015-2017 "NAMES NANocomposite Materials for Energy and environment applications. Funded by University of Camerino. Principal Investigator.

Bibliographic data

The research activity of F. Nobili is certified by 73 scientific publications on peer-reviewed international journals and 3 invited book chapters, and by the participation at several national and international conferences.

Bibliometric data: Publications = 73, h-index = 26, total citations = 2035 (as of 21/7/2021).