

Antonella Iadecola

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RESEARCH ACTIVITIES

During my PhD and post-doc experiences, I have mainly investigated the interplay occurring between the local structure and the electronic properties in correlated materials, such as Fe- and chalcogenide-based superconductors. X-ray absorption spectroscopy was the technique of choice to understand the role of the local distortions and its correlation with the superconducting properties by varying temperature, chemical pressure, and hydrostatic pressure. Since I joined the RS2E in 2015, my research interest has shifted from physics to energy storage. Currently, my research activity focuses on the chemo-physical characterization of energy storage materials and devices in working conditions, following three main axes: i) the application of a wide panel of existing X-ray synchrotron-based techniques to probe the bulk mechanisms; ii) the development of new methodologies for a multi-scale and multi-modal characterization aiming the study the buried interphases; and iii) the development of specifically designed electrochemical cells enabling in situ and operando studies.

EXPERIENCE

- March 2015 at present **CNRS Research Engineer**
RS2E - Réseau sur le stockage électrochimique de l'énergie, centre de recherche sur les batteries et supercondensateurs
- 2014-2015 **Post-doctoral Researcher**
ESRF (Grenoble, France), ID24/BM23 beamlines
- 2012-2014 **Post-doctoral Researcher**
Elettra (Trieste, Italy), XAFS beamline

EDUCATION AND TRAINING

- 2011 **PhD in Material Science, supervisor Prof. Naurang L. Saini**
University of Rome "Sapienza" (Italy)
- 2008 **MSc in Physics, supervisor Prof. Naurang L. Saini**
University of Rome "Sapienza" (Italy)

PUBLICATIONS AND DISSEMINATION

- 92 peer-reviewed publications
- 18 communications in (inter)national conferences
- h-factor 25 (Web of Science)

SELECTED PUBLICATIONS

- G. Assat, **A. Iadecola**, R. Dedryvère, C. Delacourt and J.-M. Tarascon, *Chem. Mat.* **29 (22)**, 9714 (2017), "Decoupling cationic-anionic process in a model Li-rich cathode via operando X-ray absorption".
- M. Fehse, **A. Iadecola**, M. T. Sougrati, P. Conti, M. Giorgetti, L. Stievano, *Energy Storage Mat.* **18**, 328 (2019), "Applying chemometrics to study battery materials: towards the comprehensive analysis of complex operando datasets".
- K. Robert, D. Stiévenard, D. Deresmes, C. Douard, **A. Iadecola**, D. Troadec, S. Pardis, N. Nuns, M. Marinova, M. Huvé, P. Roussel, T. Brousse, C. Lethien, *Energy Environ. Sci.* **13**, 949 (2020), "Novel insights into the charge storage mechanism in pseudocapacitive vanadium nitride thick films for high-performance on-chip micro-supercapacitors".

- M. Fehse, **A. Iadecola**, A. Longo, L. Simonelli, L. Stievano, *Phys. Chem. Chem. Phys.*, **23 (33)**, 23445 (2021), "The rise of X-ray spectroscopy for unveiling the functional mechanisms in batteries".

SCIENTIFIC RESPONSABILITIES

- CNRS co-responsible of the WP5 for the BIG-MAP European project
- CNRS co-responsible of the WP3 for the TP4 OPENSTORM (PEPR Batteries)
- Participation to the collaborative project ANR CASSIOPES (2018-2022)

OTHER ACTIVITIES

- Reviewer for Nature Communications, Nature Catalysis, Scientific Reports, ACS, Chemistry of Mater, Energy Storage Materials.
- Advisory Board Junior Member of " Batteries & Supercaps "
- Consultant of CERIC-ERIC consortium
- Member of the review panel of CERIC-ERIC proposals
- Reviewer of ANR projects
- Member of the selection committee of DESTINY program