

Colloquium

Design of Novel Electrolytes for Energy Storage Devices

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Abstract

The electrolyte is a key component of any electrochemical energy storage devices, and it is strongly influencing the performance as well as the safety of these systems [1]. In this lecture the identification and the chemical physical characterization of novel electrolytes suitable for capacitive and faradaic materials will be discussed in detail. The impact of these electrolytes on the electrochemical behaviour of these materials, as well as on the performance of electrical double layer capacitors (EDLCs), metal-ion batteries and polymeric batteries will be considered and critically analysed. Furthermore, the influence on these electrolytic solutions on the dynamics of detrimental processes occurring on the considered systems will be addressed [2].

Literature

[1] Z. Lin, E Goikolea, A. Balducci, K. Naoi, P.L. Taberna, M. Salanne, G. Yushin, P. Simon, *Materials Today*, 21 (4), 419-436 (2018) - [link](#)

[2] J. Krummacher, A. Balducci, *Chemistry of Materials*, 30, 4857-4863 (2018) - [link](#)

Brief Bio

Andrea Balducci took his PhD in Materials Science in 2006 at the Paul Sabatier University of Toulouse, France. From 2009 till 2014, he was the scientific leader of the supercapacitors group at MEET Battery Research Center of the University of Münster. From January 2015 till May 2016 he worked as a senior scientist at the Helmholtz Institute Ulm (HIU). Since June 2016 is Professor for "Applied Electrochemistry" at the Institute for Technical Chemistry and Environmental Chemistry and at the Center for Energy and Environmental Chemistry Jena (CEEC Jena) of the Friedrich-Schiller University Jena. Prof. Balducci is working on the development of innovative electrolytes and materials for energy storage devices.

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