



## 16 Early Stage Researcher positions in the MSCA ITN POLYSTORAGE

The European Training Network **POLYSTORAGE** “**Innovative Polymers for Next-Generation Electrochemical Energy Storage**” announces **16 positions for Early-Stage Researchers** (ESRs) with the option of being awarded a doctoral degree. The H2020-funded project started in November 2019 and is part of the Marie Skłodowska-Curie International Training Network (ITN) of the European Commission (<https://ec.europa.eu/programmes/horizon2020/en/h2020-section/marie-skłodowska-curie-actions>). All positions are limited to a duration of 36 months and will start during 2020. Within the program, the young researchers are part of a comprehensive network of European as well as Australian universities and companies right from the beginning. They are offered the possibility to work on real-life technical issues, to act across multiple European countries and organisations, and to present their results at workshops in front of industrial users and stakeholders.

The development of advanced storage technologies to enable the integration of sustainable energy sources in the electric grid represents a major challenge for our society. In the last years, lithium-ion batteries attracted great attention and became the most known and widespread battery systems in our society. However, since they contain toxic and/or scarce metals, e.g., cobalt and nickel, as well as flammable solvents, the development of more environmentally friendly and safer battery technologies represents a priority. Additionally, this technology is limited when flexibility, low cost, or even higher energy density are important. POLYSTORAGE will tackle these limitations by developing *highly innovative polymer electrolytes and polymer active materials for advanced post-lithium batteries*.

### The main scientific and technical objectives are:

- Synthesis of innovative polymer architectures with multiple functionalities (ionic/electronic transport, ionic/mechanical properties, and redox performance/high solubility).
- Investigation of the supramolecular organisation using cutting-edge techniques (high-res 3D imaging, cryo-TEM, cryo-STEM) to enable *in-situ* characterisation of the materials.
- Development and integration of *significantly improved polymer electrolytes and polymer active materials for advanced battery technologies*.
- Realisation of a semi-industrial redox flow battery system optimized for the new polymer-based chemistry.
- *Upscaling* of selected polymer electrolyte systems, which will be integrated in lab-scale prototype cells, and basic proof-of-concept engineering of a pilot plant.

The multidisciplinary aspect of POLYSTORAGE is reflected in the high number of research areas within the proposed program including polymer chemistry, ionic liquids, supramolecular self-assembly, polymer physics, advanced characterisation, electrochemistry, energy storage technologies (e.g., Na, K, Mg, Ca, hybrid organic, pRFBs, Na-air), and engineering. The ESRs will benefit from a comprehensive training program featuring inter-sectorial and multidisciplinary technical courses, rich transferable skills training and international secondments with a strong focus on industrial experience. The POLYSTORAGE researchers will be capable of leading interdisciplinary research activities with a unique expertise.

In this context, the POLYSTORAGE training network will serve as a European platform for outstanding doctoral training in the field of innovative polymers for next-generation electrochemical energy storage.

**The positions will be hosted at the following institutions:**

- Prof. Dr. Ulrich S. Schubert, Friedrich Schiller University Jena (Germany)
- Prof. Dr. David Mecerreyes, University of the Basque Country (Spain)
- Prof. Dr. Stefano Passerini, Karlsruhe Institute of Technology (Germany)
- Prof. Dr. Kristina Edström, Uppsala University (Sweden)
- Prof. Dr. Jean-François Gohy, Université catholique de Louvain (Belgium)
- Prof. Dr. Claudio Gerbaldi, Politecnico di Torino (Italy)
- Dr. Rebeca Marcilla, IMDEA Energy (Spain)
- Dr. Matteo Destro, LITHOPS S.R.L. (Italy)
- Prof. Dr. Laurent Rubatat, University of Pau (France)
- Prof. Dr. Janne Ruokolainen, Aalto University (Finland)
- Prof. Dr. Robert Dominko, National Institute of Chemistry (Slovenia)
- José A. Horcajada Sanchez de Pablo, E22 Energy Storage Solutions (Spain)
- Prof. Dr. Maria Forsyth, Deakin University (Australia)

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**Detailed information to all ESR projects** within the network and information regarding the application can be found on our website [www.polystorage-etn.eu](http://www.polystorage-etn.eu).



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