PRESS RELEASE

High-throughput screening, synthesis and characterization of active materials for flow batteries

The international research network »PREDICTOR« aims to establish rapid, high-throughput methods to identify and develop materials for electrochemical energy storage.

Energy storage is essential to the energy transition, to balance variable power generation from renewable sources. The most promising technologies involve electrochemical storage, including redox-flow batteries (RFBs). Some electrochemical systems, e.g. vanadium RFBs, have proved a successful market entry, and alternative active materials – in particular organic materials – may even reduce costs and improve performance. To best exploit their potential, conventional trial-and-error development methods must be replaced by automated processes.

In the research network »PREDICTOR« (Grant Agreement No. 101168943), 17 international doctoral candidates aim to develop fast, high-throughput methods to identify and develop materials for electrochemical energy storage using computational modeling, automated synthesis, AI-based optimization, and standardized data management. This integrated approach will be validated through the development and testing of three new redox-flow battery types. The combined work of the17 researchers will solve interdisciplinary challenges in this very promising field of energy storage, so that academic know-how can be quickly transferred into applications for industry and society.

»PREDICTOR« is led by the Fraunhofer Institute for Chemical Technology ICT and funded by the Marie Sklodowska-Curie Program of the European Union. Alongside its research objectives, the network aims to prepare its doctoral candidates for a future career in academia or industry. An interdisciplinary European consortium of industrial companies and research organizations will train each doctoral candidate in the skills needed to develop and integrate the new models, materials, and processes in electrochemical energy storage applications.

To find out more about the project, please visit www.rfb-predictor.eu or contact the project coordinators at Fraunhofer ICT, Pfinztal, Germany.

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PREDICTOR partners and doctoral candidates at the project meeting and training unit 1 at Fraunhofer ICT, Pfinztal, Germany, June 17th, 2025

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