OIM2 SYMPOSIUM
Talk Abstract Submission

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Talk Title *

Bridging materials innovation and device scale-up: EDLC and HBSC technology development

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ABSTRACT

Maximum 300 words, you can add figures to your abstract.

Advanced energy storage materials often demonstrate promising performance under laboratory conditions, yet their translation into commercial devices depends on factors extending beyond their intrinsic electrochemical properties. Electrode formulation and processing influence the material properties such as surface area, pore structure, conductivity and surface chemistry, while material compatibility, cell architecture and manufacturing constraints determine the final device performance. Electric Double-Layer Capacitors (EDLCs) and Hybrid Battery-Supercapacitor (HBSC) technologies can be used as example for examining the transition from material innovation to scalable devices. Their development requires the coordinated optimization of active materials, electrode composition, processing parameters and cell design, with manufacturing considerations introduced from the earliest stages. EDLC technologies are particularly relevant to the European industrial ecosystem. Indeed, their material composition and manufacturing processes offer a pathway for a sustainable European value chain, possibly built on local expertise in materials processing, electrochemistry, device engineering and manufacturing.

Novac's development activities show an approach combining electrochemical characterization, electrode and cell engineering, prototyping, process scale-up and electronics controls development. Integrating these capabilities early reduced the distance between laboratory results and demonstrators for commercial purposes, providing both researchers and industrial partners with a partner for advancing innovative energy storage applications.

Keywords *

3–5 keywords, separated by commas

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