

Materials advanced for better Li(Na) ion batteries

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Rechargeable lithium ion batteries, because of their high energy density, have conquered most of today's portable electronics and they stand as serious contenders for EV's and grid applications. Therefore, for this to happen, materials with higher energy densities while being sustainable, scalable, reliable and low cost must be developed. The challenges for chemists are enormous and this calls for new materials, new processes and new concepts. These different aspects will be addressed through this presentation.

Firstly, the strategy towards the design of novel high voltage polyanionic compounds will be described [1]. Turning to new concepts, we will show how discovery, of a reversible Li-driven anionic redox process among Li-rich layered oxides [3-4] represents a transformational approach for creating advanced electrode materials [5]. Lastly, concerning sustainability our new findings regarding Na-ion chemistry which enlists novel materials design (4) will be shared as well.

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