

Special Issue

Challenges of Batteries in the Post Li-Ion Era

Message from the Guest Editor

Lithium-ion batteries (LIBs) are the most efficient systems for energy conversion and storage available on the market today. At present, they are the solution of choice in portable electronics and automotive applications. Unfortunately, LIBs suffer from several drawbacks such as intrinsic limitations in energy density; high costs of raw materials (Li and Co) due to their low abundance in the Earth's crust; and low safety due to the reactivity and volatility of battery components. In this scenario, an urgent need exists for (i) novel systems employing innovative chemistries; and (ii) advanced lithium batteries. The former includes (i) cheap, abundant, and, preferentially, multivalent metals; and (ii) anionic transport media based on F⁻ and Cl⁻. The latter comprises novel concepts, materials, and designs for lithium chemistry, e.g., lithium-air; lithium-sulfur; silicon or lithium metal anode; high-voltage cathodes; and all solid-state batteries. This Special Issue of *Batteries* will cover all the above topics, and also fundamental and applied aspects of polymeric and ceramic materials that can be used for the ionic transport of the mentioned ions.

Guest Editor

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