Special Issue

Solid State Batteries

Message from the Guest Editor

Lithium-ion batteries (LIBs) based on organic electrolytes were commercialised in the early 1990s by Sony Corporation. Since then, these energy storage devices have been used in many applications, from portable devices to electric vehicles and grid-level energy storage. However, LIBs are approaching their limits in terms of energy and power densities, and present safety issues due to the use of flammable organic liquid electrolytes. Next-generation batteries are expected to address the previous challenges. Solid-state batteries (SSBs) have emerged as one of the preferred technologies to lead the next generation of charge storage devices. These batteries offer the advantage of safety when compared to conventional batteries, due to the replacement of the flammable organic electrolyte by a stable solid electrolyte. High densities can also be achieved in these batteries by using metallic anodes, which are impractical for batteries with organic liquids due to dendritic growth.

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