



## Rechargeable Lithium-Sulfur Battery: Present and Future

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### Message from the Guest Editor

Dear Colleagues,

Lithium-sulfur (Li-S) batteries are considered one of the most promising next-generation energy storage devices because of their high theoretical energy density, and also because of the easy availability of sulfur. There has been significant progress in recent years in addressing the intrinsic issues that have prevented the widespread use of Li-S batteries, including (a) the insulating nature of sulfur which leads to poor utilization of the active material; (b) formation of high-order soluble polysulfides which leads to polysulfide shuttling and the inevitable capacity fading; and (c) growth of the parasitic Li dendrites, which raises safety concerns. Replacing the liquid electrolyte with the solid electrolyte is expected to improve the safety and cycle stability of lithium-sulfur batteries. The performance and application of solid state Li-S batteries are limited by their low capacity, poor rate performance, and unsatisfied cycle life, which need to be overcome by advances in technology. This Special Edition will present the current status of Li-S batteries...





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