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Zinc-ion battery large-scale energy storage

Overview

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In this paper, we contextualize the advantages and challenges of zinc-ion batteries within the technology alternatives landscape of commercially available battery chemistries and other stationary energy storage systems (e.g., pumped hydro, compressed air, and flywheels).

Today, lithium-ion batteries are the default choice to store energy in devices from laptops to electric vehicles. The cost of these kinds of batteries has plummeted over the past decade.

Herein, unlike elaborated structural design and electrolyte excogitation, we introduce an effective parts-per-million (ppm)-scale electrolyte additive, phosphonoglycolic acid (PPGA), to overcome.

However, some challenges, including limited discharging capacity, low operating voltage, low energy density, short cycle life, and complicated energy storage mechanism, need to be addressed in order to render large-scale practical applications.

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