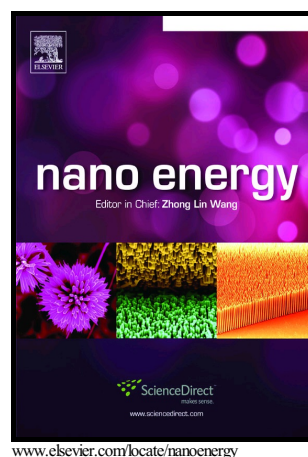


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Ultra-long Cycle Life, Low-Cost Room Temperature Sodium-Sulfur Batteries Enabled by Highly Doped (N,S) Nanoporous Carbons

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KEYWORDS. Na/S battery; Battery lifetime; Cycle life; carbonate-polysulfide reaction

ABSTRACT. Efficiency, cost, and lifetime are the primary challenges for stationary energy storage with vanadium-redox flow and sodium-sulfur batteries as promising options. In particular, room temperature sodium-sulfur battery systems offer the potential for safe, simple, low-cost and high energy density storage, but the high reactivity or solubility of sodium polysulfides in common liquid electrolytes for carbonates or glycols, respectively, leads to rapid performance loss on cycling. Herein, we demonstrate a robust route to mostly inhibit reactivity of the sulfides with carbonate electrolytes (and also inhibit the diffusion of polysulfides

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