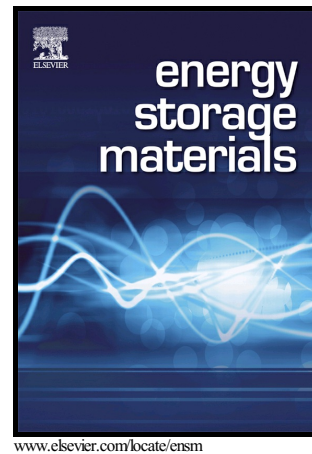


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## A Novel Aluminum Dual-ion Battery

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### Abstract

The development of new rechargeable safe battery with high energy density and low cost is one of the most desirable goals for personal electronics and grid storage. Aluminum based rechargeable ion batteries offer the possibilities for safe, high energy density and low cost. Here, we developed a novel aluminum based high-rate capability dual-ion battery with an aluminum anode and a 3D graphene cathode. The battery operated through the electrochemical deposition and dissolution of aluminum at the anode, and intercalation/de-intercalation of  $\text{ClO}_4^-$  anions in

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