

## **Ceramics and Sodium Ion Batteries**

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Lithium-ion batteries have been extensively used as power sources for portable electronics and electric vehicles due to the high energy density and long cycle life. The large-scale applications of lithium ion batteries in portable electronics and electric vehicles will increase the price of Li resources due to its low abundance in the Earth's crust and its non-uniform geographic distribution. The increasing price of Li resources will result in the application of lithium ion batteries in stationary energy storage uneconomical in the near future. Therefore, the development of low cost, highly-safe and cycling stable rechargeable batteries based on abundant resources is becoming important and highly desirable. Sodium ion batteries have attracted great interest in portable electronics, electric vehicles and grid energy storage because of the cheap and abundant of sodium resources and using low cost Al current collectors for both cathode and anode electrodes.

The major challenge for sodium ion batteries is to find suitable electrode materials with excellent sodium storage performance. Transition-metal layered oxides, polyanion compounds and other compounds are used as cathode materials for sodium ion batteries while carbonaceous materials and oxides are used as anode materials.

In this presentation, cathode and anode materials for sodium ion batteries are reviewed, focusing on the latest research progress. Advantages and disadvantages of the currently available electrode materials will be discussed based on our experience and the literature.

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