Development of Batteries Free from Resource Constraints

Development of Sodium-Ion Batteries Free from Resource Constraints

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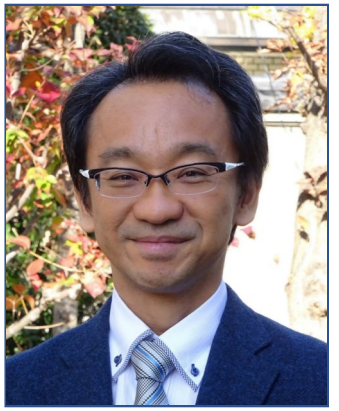

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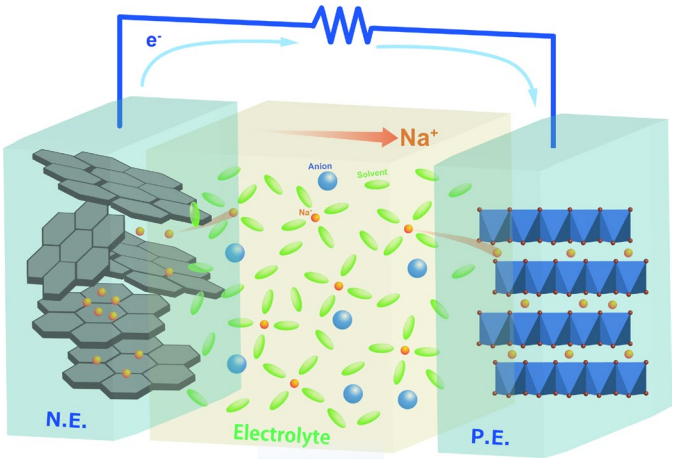
Summary :

The lithium-ion battery, first commercialized in Japan, is indispensable for the realization of GX technology due to its notably high energy density among practical rechargeable batteries. However, the price of lithium raw materials is fluctuating and expected to increase due to the uneven global distribution of lithium resources and a growing demand. Lithium-ion batteries also require scarce and/or toxic metal elements, such as cobalt, nickel, and copper. As the application range of rechargeable batteries continues to expand, the development of lithium-free, high-performance batteries that avoid geopolitical risks and resource constraints is one of the main challenges in innovative GX technology. In this project, we focus on sodium, which is in the same group as lithium on the periodic table. Building on our vast knowledge from lithium-ion batteries, we will engage in materials development, cell optimization, mechanism analysis, and computational chemistry aimed at social implementation of the “sodium-ion battery” as the next-generation rechargeable battery.

Sodium-ion Batteries



Practical Application