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Electrochemistry in Energy Conversion and Storage

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Deadline for manuscript submissions:
closed (30 May 2024)

Message from the Guest Editor

The generation, conversion, and storage of clean electrical energy will undoubtedly influence the development of a zero carbon economy. As solar energy, wind energy, and other green energy are season-sensitive, the as-produced electricity needs to be converted or stored. One main route is to produce hydrogen and other chemical fuels using excess power. Another route is to store electricity in energy-storage devices. As for the two main routes, a series of research hotspots can be covered. For example, efficient electrocatalysts for water/seawater splitting are important in reducing the cost of hydrogen energy. Hydrogen–oxygen fuel cells can re-convert hydrogen into electricity for practical application. In addition to compressed air systems for energy storage, many kinds of batteries (lithium/sodium-ion battery, lithium/sodium-sulfur battery, etc.) with considerable capacities can also be used. Various electrochemical processes and mechanisms involved in the above energy conversion and storage are waiting to be revealed. These findings will promote regulations on major energy structures and the exploration of environmentally friendly fuels.

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Message from the Editor-in-Chief

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