Special Issue

Materials and Devices for Electrochemical Energy Storage and Conversion

Message from the Guest Editor

EU energy policies indicate the achievement of neutrality in greenhouse gas emissions by 2050 as a long-term strategy. The production of electricity from renewable energy sources is, therefore, a key factor when it comes to heating, transport, and industry; therefore, one has to imagine either the direct use of electricity or the indirect use through the production of e-fuels by electrolysis (e.g., e-hydrogen, methane) Power-to-X technologies make it possible to transform electricity into synthetic gases (hydrogen, methane, or other gases) and liquids. Hydrogen produced with carbon-free electricity, combined with carbon dioxide (CO2) from sustainable biomass or direct air capture, can be a zero-carbon alternative to natural gas or oil. This Special Issue deals with the development of materials and devices for electrochemical energy storage and conversion (electrolysis cells, co-electrolysis cells, photoelectrolysis cells, fuel cells, batteries, etc.).

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