Special Issue

Metal Catalysts for High-Performance Batteries

Message from the Guest Editor

Since 1990s, lithium-ion batteries (LIBs) have been successfully commercialized in the energy storage market. However, current LIBs with a cell-level energy density of 150–250 Wh kg−1 offer a drive range of 300 to 600 km for electric vehicles (for example, LIBs in Tesla electric vehicles have cell-level energy densities of ~250 Wh kg−1), which is insufficient for achieving a 500-mile drive distance per charge with a reasonable battery pack size to alleviate range anxiety. The capacity of traditional electrode materials has nearly reached the limit value. Therefore, new high-energy-density batteries are urgently required to satisfy the ever-increasing demand. Alternatively, metal catalysts, which can be introduced into metal–sulfur (for example, Li-S batteries) batteries to boosts their electrochemical performance, provide an avenue for exploration for the invention of new rechargeable batteries.

Guest Editor

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