

Next-Generation Sulfur Cathode: Electrocatalyst to Accelerate Sulfur Conversion Reaction

이진우[†]

KAIST

(jwlee1@kaist.ac.kr[†])

Although lithium-sulfur (Li-S) batteries have been expected as a promising high-energy-density battery system, entangled problems in each cell component hamper their practical use. Especially in cathode, low electronic/ionic conductivity of sulfur based active material, continuous dissolution of polysulfide, and sluggish redox kinetics cause the poor cycle stability and energy density. In this seminar, next-generation sulfur cathode with the electrocatalyst accelerating the sulfur conversion reaction is introduced as a powerful platform to simultaneously improve the cycle stability, reversible capacity, and rate capability. In particular, strategies to search for new electrocatalyst, to improve the catalytic activity and stability of catalyst, and to fundamentally understand the electrocatalytic trends in sulfur cathode will be covered. We believe development of optimized catalytic materials in cathode with the deep fundamental understanding on electrocatalysis enables realization of high areal sulfur loading and low E/S ratio for high energy density of Li-S batteries.