

Zwitterion/Polydopamine-coated polyolefin separator as high-conductive, polysulfide barrier in Li-S battery

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Recently, various studies related to adding functionalities to battery separators have been reported. In particular, high conductivity of separators is considered to be one of the crucial properties for fast charge/discharge characteristics in battery applications. Here, we attached sulfobetaine zwitterionic functional group on polydopamine-coated polyolefin separator to induce dissociation lithium-ion cation and counter anion for high ion conductivity. Furthermore, zwitterion/polydopamine composite-coated separator showed prohibition effect for “polysulfide shuttling” in a lithium-sulfur battery system.