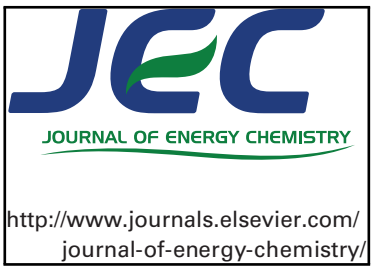

Advanced metal sulfide anode for potassium ion batteries

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Advanced metal sulfide anode for potassium ion batteries

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With potassium being both abundant and relatively low redox potential (−2.93 V *vs.* NHE), potassium ion batteries (KIBs) is attracting significant attention with a viewpoint to material suitability and commercial availability [1, 2]. Although carbon-based materials have been the dominant anodes in KIBs for their low cost and excellent safety, the limited reversible capacity and rapid capacity fading imped their wide application in KIBs, which drives to explore emerging anode materials with high reversible capacity for energy-dense KIBs [1]. Metal sulfides represent promising anode materials for lithium/sodium-ion batteries because of superior theoretical capacity and redox reversibility to their metal oxide counterparts [3, 4]. When the metal sulfides are employed in KIBs, their large volume variations and severe particle aggregation associated with the conversion reactions during cycling induce electrode pulverization and loss of interparticle contact, which consequently result in poor