

Rapid and sustainable synthesis of metal sulfides using novel deep eutectic solvent for the energy storage/conversion applications

Thorat Gaurav, Harsharaj Sayaji Jadhav¹, Roy Animesh¹, 서정길^{1,†}

명지대학교; ¹Myongji University

(jgseo@mju.ac.kr[†])

Metal sulfides with unique physical and chemical properties, as well as high specific capacity/capacitance are currently studied as promising electrode materials for energy storage /conversion applications. However with the current synthesis methods, it is difficult to scale up the production beyond small volume and thus hinders their practical applications. To address this issue we proposed the simple and scalable, deep eutectic solvent (DESs) assisted synthesis route for the preparation of metal sulfides. The cobalt chloride–thiourea DES allows the one step rapid synthesis of cobalt sulfide. In present work, the DES solvent itself act as precursor and therefor offers an interesting alternative for the conventional wet chemical synthesis methods. The prepared metal sulfides electrodes displays the superior performance in energy storage/conversion application. This work was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (NRF 2017R1D1A1B03036324).