

## TiO<sub>2</sub> Incorporated Frameworks of Ordered Mesoporous Carbon as Cathode for Lithium-Sulfur Battery

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Porous carbon material to house sulfur has gained much interest in lithium-sulfur battery to overcome the shuttle effect. However, it is not sufficient to inhibit the dissolution of polysulfide. For this reason, other candidates such as metal, metal oxides, metal sulfides are emerging.

Herein, X wt% TiO<sub>2</sub>-Ordered Mesoporous Carbon (OMC) materials were synthesized by nano-replication via mesoporous silica KIT-6 as a hard template with TiCl<sub>4</sub> and sucrose aqueous solution as TiO<sub>2</sub> and carbon precursors, respectively. The prepared materials were characterized by small angle X-ray scattering (SAXS), powder X-ray diffraction, N<sub>2</sub> adsorption-desorption, scanning electron microscopy (SEM), raman spectroscopy. These materials with sulfur loaded were applied to cathode for lithium-sulfur battery. It showed better cycling stability than pure carbon electrode because of strong chemisorption with polysulfide from TiO<sub>2</sub> which is located in the carbon frame.