

One pot synthesis of Fe doped ordered mesoporous carbon from rice hush ash and its application for methane conversion

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Fe doped ordered mesoporous carbon (Fe-OMC) materials were successfully synthesized by the carbonization of sulfuric-acid-treated silica/triblock copolymer/sucrose/FeSO₄ composites. In the current approach, triblock copolymer P123 and sucrose were employed as both structure-directing agents for self-assembly of sodium silicate solution from rice husk ash and carbon precursors, and sulfuric acid was used to cross-link P123 and sucrose in the as-synthesized composites in order to improve the carbon yield. Thus synthesized Fe-OMC was characterized by XRD, BET, SEM-EDAX, and XRF techniques. The activity of the Fe-OMC was tested for methane conversion.