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**Juliana M. Juárez, Marcos Gómez Costa  
& Oscar A. Anunziata**

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## Direct synthesis of ordered mesoporous carbon applied in hydrogen storage

Juliana M. Juárez<sup>1</sup> · Marcos Gómez Costa<sup>1</sup> · Oscar A. Anunziata<sup>1</sup>

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### Abstract

In this work, we present a direct, novel and low cost method for the preparation of an ordered mesoporous carbon (OMC). OMC was successfully synthesized by the carbonization of the silica/triblock copolymer/sucrose composite in the presence of sulfuric acid. The resulting material was characterized by XRD, N<sub>2</sub> sorption analysis and TEM techniques. The novel synthesis technique improved significantly the H<sub>2</sub> storage properties (3.78 wt%) compared with that of CMK-3 synthesized using the nanocasting strategy (2.2 wt%) at 77 K and 10 bar.

**Keywords** Carbon materials · Hydrogen storage · OMC · Nanomaterials