

Abstract Submitted
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Carbon Nanotube Templated Microfabrication of Porous Silicon-Carbon Materials JUN SONG, Brigham Young University, DAVID JENSEN, ANDREW DADSON, MICHAEL VAIL, MATTHEW LINFORD, RICHARD VAN-FLEET, ROBERT DAVIS — Carbon nanotube templated microfabrication (CNT-M) of porous materials is demonstrated. Partial chemical infiltration of three dimensional carbon nanotube structures with silicon resulted in a mechanically robust material, precisely structured from the 10 nm scale to the 100 micron scale. Nanoscale dimensions are determined by the diameter and spacing of the resulting silicon/carbon nanotubes while the microscale dimensions are controlled by lithographic patterning of the CNT growth catalyst. We demonstrate the utility of this hierarchical structuring approach by using CNT-M to fabricate thin layer chromatography (TLC) separations media with precise microscale channels for fluid flow control and nanoscale porosity for high analyte capacity.

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