

## Direct Polymer Templating Synthesis of Mesoporous Carbon

### Disclosure Number

201303225

### Technology Summary

Standard templating uses methods that can be both costly and hazardous on the industrial scale. For instance, hard-templating of mesoporous carbon involves using a sacrificial silica template in combination with a carbon precursor, in which the template is etched after carbonization with harsh acids or bases (i.e. HF, NaOH) and a carbon inverse replica is revealed. Soft-templating synthesis tends to be less severe and is based on a self-assembly approach using block copolymer templating agents, which are removed via carbonization. The block copolymer agents can be synthetically intensive to produce, making them very costly. While both of these methods produce well-defined mesopore size distributions and morphologies, they lack a facile route for mesopore development and a cost effective porogen that is relinquished by the process for industrial scale viability. This invention provides a method for creating inherent mesoporosity in carbon.

### Inventor

DAI, SHENG  
Chemical Sciences Division

### Licensing Contact

CALDWELL, JENNIFER T  
UT-Battelle, LLC  
Oak Ridge National Laboratory  
Rm 137, Bldg 4500N6196  
1 Bethel Valley Road  
Oak Ridge, TN 37831

Office Phone: (865) 574-4180

E-Mail: [CALDWELLJT@ORNL.GOV](mailto:CALDWELLJT@ORNL.GOV)