

**Template Synthesis of Nanostructured  
Carbon Honeycomb Anode**

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We have been investigating a general template-based method for preparing nanostructured Li-ion battery electrodes. We have shown that these nanostructured electrodes have improved rate capabilities relative to thin film-control electrodes composed of the same material. Improved rate capabilities are observed because the high-rate capacity is limited by slow solid-state Li transport in the electrode material, and the nanostructured electrodes decrease the distance that Li must diffuse in the solid state. We describe here an alternative type of nanostructured electrode material – a honeycomb carbon anode that consists of a thin carbon film containing a highly ordered array of monodisperse nanoscopic pores. These honeycomb carbon anodes show low-rate discharge capacities of 325 mA hg<sup>-1</sup>, and at high discharge rates (10 C), delivery 50-times the capacity of a thin-film control anode that did not contain the honeycomb of nanopores.