

### Holographically-defined electrodes with 3D continuous pores

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This talk covers the fabrication of 3D porous materials defined by holographic lithography and their application as a electrode. Holographic lithography was applied to the fabrication of 3D porous templates with various symmetries. First, titania precursor was applied to grow a shell on the surface of the template. The 3D continuous porous structure was obtained after removal of the template by calcination. We evaluated the performance of the holographically-designed electrodes as possible candidates for use in dye solar cells. Moreover, we present a facile route for the fabrication of carbon porous structured by direct carbonization. The composition of pyrolyzed photoresists was characterized by Raman spectroscopy. Current-sensing AFM was used to measure the local electrical conductivity. The fabrication of lithographically defined carbon structures will open new opportunities for carbon MEMS and various energy-related microdevices.