

3D Carbon Electrodes

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ABSTRACT

We are developing three-dimensional scaffold structures in carbon (3D carbon scaffolds) formed from different polymer precursors and in various dimensions, using UV-lithography or 3D printing followed by pyrolysis. We and others have found that depending on the original polymer precursor used, the resulting carbon scaffold has different conducting and/or catalytic properties. These 3D carbon scaffolds could among other things be suitable for biofilm formation in biofuel cells (as both anode and cathode) and as catalysts in fuel cells. The suggested projects thus proposes to develop various polymer precursor templates using 3D printing/UV lithography, their subsequent pyrolysis, and investigation of their conductive behavior in a biofuel setting.