

Title (en)

POROUS SILICON AND SOL-GEL DERIVED ELECTRODE STRUCTURES AND ASSEMBLIES ADAPTED FOR USE WITH FUEL CELL SYSTEMS

Title (de)

PORÖSE, AUS SILIZIUM UND SOL-GEL ABGELEITETE ELEKTRODENSTRUKTUREN UND FÜR DIE VERWENDUNG MIT BRENNSTOFFZELLENSYSTEMEN AUSGELEGTE BAUGRUPPEN

Title (fr)

STRUCTURES D'ELECTRODES DERIVEES D'UN SILICIUM POREUX ET DE SOL-GEL, ET ENSEMBLES UTILISES AVEC DES SYSTEMES DE PILES A COMBUSTIBLE

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Application

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Abstract (en)

[origin: WO02086994A1] Fuel cell systems, electrode assemblies and electrode structure are disclosed herein. In one embodiment, the present invention is directed to an electrode assembly adapted for use with a fuel cell system, comprising: an anode derived from a first silicon substrate (with an optional sol-gel region); an electrolyte; and a cathode derived from a second silicon substrate (with an optional sol-gel region); wherein the anode and the cathode are spaced apart and substantially parallel to each other so as to define a spaced apart region, and wherein the electrolyte is interposed between the anode and the cathode, and wherein at least (i) the anode comprises one or more discrete anodic porous regions disposed across a top surface of the anode, wherein each of the one or more discrete anodic porous regions is defined by a plurality of anodic acicular pores that extend through the anode, and wherein the plurality of anodic acicular pores define inner anodic pore surfaces, or (ii) the cathode comprises one or more discrete cathodic porous regions disposed across a top surface of the cathode, wherein each of the one or more discrete porous cathodic porous regions is defined by a plurality of cathodic acicular pores that extend through the cathode, and wherein the plurality of cathodic acicular pores define inner cathodic pore surfaces.

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