

## **289ap Electrochemical Characterization of Pt/Ti and Pt/Au/Ti Electrodes for a Micro Fuel Cell**

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A series of metal supported nanoscale thin film platinum electrocatalysts were deposited using electron beam deposition onto silicon substrates surrounded by an LPCVD (low pressure chemical vapor deposition) oxide layer for use in proton exchange membrane (PEM) fuel cells. These electrodes were characterized electrochemically in 0.5 M H<sub>2</sub>SO<sub>4</sub> solution. To increase the surface area of the electrode, triangular vias were formed in the metal layer using standard lithography metal lift-off processing. The electrochemical active surface (EAS) was compared under different Pt loadings for H<sub>2</sub> adsorption and CO stripping. After optimization, the electrodes were fabricated into a micro fuel cell assembly. Power densities exceeding 8 W/cm<sup>3</sup> were achieved. These and other results will be presented.