

## **Aerogel Based Catalysts for Hydrodesulfurization of Diesel for PEM Fuel Cells**

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The primary objective of the proposal is to evaluate the performance of aerogel supported precious metal catalysts for reforming of diesel for production of hydrogen for fuel cells. Aerogels are nanoporous materials with high surface areas and are produced by sol-gel methods. Their properties such as pore size, pore volume and pore size distribution can be tailored at the nanoscale by changing processing conditions. These properties make them ideal as catalyst supports. In this study, we will focus on carbon aerogel support ruthenium catalysts for hydrodesulfurization of diesel. Specifically, we will evaluate the effects of metal content, crystallite size, average pore size and pore volume on the kinetics of hydrodesulfurization of dibenzothiophene. A detailed characterization of the catalysts will be performed using BET, hydrogen chemisorption, LRS, SEM, TEM and XRD. The characterization data will be correlated with the reactivity data.