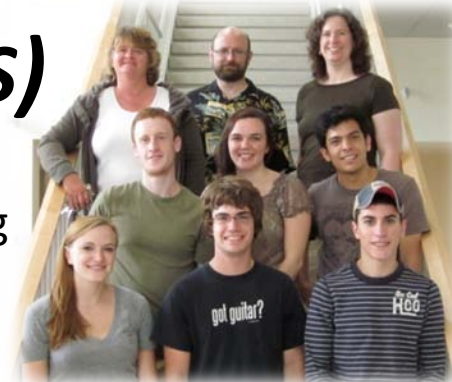


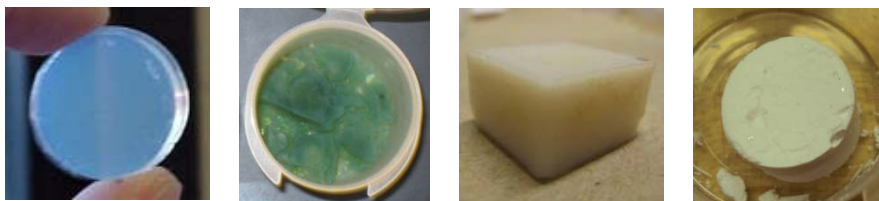
RUI: Catalytic Aerogel Materials (CAMS)

(DMR Proposal #1206631)

Ann Anderson, Mary Carroll and Brad Bruno, Mechanical Engineering & Chemistry, Union College, Schenectady NY



CAMS have the potential to transform automotive pollution mitigation methods by replacing rare precious metals in automotive exhaust after-treatment technologies.



1) Bulk Physical Properties: Studies of Sol-Gel Chemistry & Aerogel Processing: Density, S. Area, Porosimetry, XRD, SEM

2) Performance Characteristics: Catalytic Activity, Strength, Thermal Stability, Hydrophobicity, Flow-through Properties, Sensing

3) Ultimate Application: CAMs as 3-way Catalysts under Realistic Conditions: Casting on Support Structures, Strengthening, Catalytic activity in final forms

Percent decrease in HC, CO and NO at a space velocity $\sim 18 \text{ s}^{-1}$ for an un-optimized Ni-Al aerogel.

