

# Highly Dispersed Alloy Cathode Catalyst for Durability (Topic 3)

## UTC Fuel Cells

- Funding

<b>DOE Cost Share</b>	<b>Recipient Cost Share</b>	<b>TOTAL</b>
\$6,366,316	\$2,122,105	\$8,488,421
75%	25%	100%

- **Project Description:** The team (UTC Fuel Cells, Johnson Matthey Fuel Cells, Texas A&M University, Aerogel Composites, Inc., Brookhaven National Laboratory) will develop a ternary platinum alloy. The present fundamental catalyst alloy understanding will be augmented with experimental studies of model systems to further unravel the role of alloying elements and their mutual interactions. Molecular modeling and experimental model system results will drive the selection of optimum alloy compositions and define the fundamental properties that broadly specify effective cathode catalysts. Mesoscopic modeling will translate changes in properties with cycles and time into a predictive performance loss model. Supporting the optimized ternary alloy on an aerogel carbon support with tailored pore structure will increase alloy utilization while retaining stability, simultaneously meeting DOE's 2010 performance and durability goals.
- **Timeframe:** 4 year project, starting in FY07

### Sub-Contractors

<b>Institutions</b>
Brookhaven National Lab
Aerogel Composite, Inc.
Texas A&M University
Johnson Matthey