

# Visualization of Fuel Cell Water Transport and Performance Characterization under Freezing Conditions (Topic 2)

## Rochester Institute of Technology

- Funding

<b>DOE Cost Share</b>	<b>Recipient Cost Share</b>	<b>TOTAL</b>
\$2,683,752	\$803,640	\$3,487,392
77%	23%	100%

- Project Description: This collaborative effort will focus on exploratory studies that address water transport, accumulation and mitigation processes in the gas diffusion layer (GDL) and flow field channels of the bipolar plate (BPP). The overall objective is to deliver an optimized combination of GDL material, BPP design and surface treatment, and anode/cathode flow conditions that minimize fuel cell water accumulation and the attendant freeze damage while suppressing regions of dehumidification that also degrade performance and material durability. The project objectives will be accomplished by a systematic experimental and modeling program that begins at the component level, synthesizes this fundamental learning into combinatorial ex-situ experiments, and then progresses to increasingly more complex in-situ fuel cells experiments with full visual access.
- Timeframe: 3 years, starting in FY07

### Sub-Contractors

<b>Institutions</b>
General Motors
Michigan Technological University