Capabilities & Research Focus

Department of Mechanical Engineering
2014-2015
Research Focus

- Thermal and mass transport processes on planetary surfaces
- Cross-disciplinary integration
  - Space sciences
  - Chemistry
  - Biological sciences
  - Geosciences
- Simulation of planetary surface environments

Application Areas

- Determination of sublimation, evaporation, and molecular transport processes on planets and icy satellites
- Unique and innovative approaches to research and problem solutions
- In-situ resource utilization for planetary missions
- Analysis of data from planetary observers
**Research Focus**

- Experimental simulation of low-temperature environments
- Reacting flows and systems
- Chemical analysis of gases
  - Gas chromatography
  - Infrared analysis
  - Chemiluminescence
  - Flame ionization
- Robotic sampling systems and surface instrumentation

**Application Areas**

- Development and testing of prototypical spacecraft components
- Propulsion systems, especially micropropulsion
- Gas generation for inflatable structures
- Emissions from combustion systems
- Spacecraft landers