



Goddard Space Flight Center 2009 Sample Student Projects

Required Academic Level

Junior/Senior Undergraduate,
Graduate/Masters,
Graduate/Doctorate, College Faculty

Category

Engineering

Subcategory

Electrical/Electronics

Project Title

Advanced Thermal Control System Development

Project Description

This effort is development of electrohydrodynamic (EHD) based multifunctional cold plates. We are investigating hardware development for infusion into future spacecraft systems. EHD based forced convection systems are low power consuming, reliable, reconfigurable, and light-weight. The general development effort consists of a number of sub-tasks: 1.) EHD pump system design and fabrication 2.) EHD pump integration into multifunctional cold plate 3.) Mechanical and Thermal Properties measurement for advanced materials 4.) Laboratory Facilities Development The Intern is free to select one of the foregoing areas upon agreement with the mentor. All work will be performed in a laboratory environment; thus, data acquisition system skills and familiarity with laboratory safety procedures are important.

Mentor's Expectation of Student

The intern is expected to work reasonably independently on an agreed upon task; he/she will proceed based upon guidance from the mentor. Intellectual curiosity and R&D initiative (based upon sound technical investigation) are encouraged. The intern is expected to work closely with an experienced laboratory technical staff. The intern is expected to perform duties in a professional manner; that is, he/she shall manage his/her own time, workload, and internship goals. The intern should produce a final technical activities report.

Discipline of Project and/or Background Needed to successfully complete the project

Engnr: Chemical, Mechanical, Nanotechnology & Thermal

Skills

Critical Writing, Research, Data Acquisition, Excel, Powerpoint, LabView