

Project Bi- Weekly Progress

Date: 3-25-14

Project Title: Solar Powered Arc Jet Thruster

**Students Names: Chris Brolin, Cory Gainus, Gerard Melanson, Tara Newton
Griffin Valentich, Shane Warner**

**Mentors/ Coordinator/ Sponsor: Dr. Guo, Dr. Kwan, Dr. Andrei, Kurt
Polzin, NASA**

1. Project Title: Solar Powered Arc Jet Thruster

2. Project Objectives/tasks Breakdown:

Design, build, and test a direct drive arc jet thruster for purposes of providing propulsion under vacuum.

Design and execute a test plan to systematically quantify the range of operating conditions over which gas ionization can be achieved.

Perform tests to see if a continuous discharge at these power/current levels can be sustained, and quantify if possible

3. What was accomplished the last two weeks on individual tasks- representative supporting data/ documents

Test Stand and cap were fabricated and test fit

Fittings and tubing were received from sponsor

Baseplate drawing finalized – submitted to machine shop

Final PO made

Electromagnet design finalized

Midterm II presentation given

4. Summary of problems encountered and actions taken (and by whom)

Cap did not fit on pipe, re submitted to machine shop for adjustment

Issue of how to properly feed lines through baseplate – solution Swagelok fittings and welded pipes to baseplate, as well as stycast epoxy for wires

5. Attached Gantt chart modifications and analysis if project is behind schedule and summarize actions planned to overcome the problems)

Project is on schedule, remainder of time will be spent testing and gathering data

6. Work planned for the next period and the person(s) responsible:

Test vacuum level in bell jar

Troubleshoot sealing issues

Attach all fittings to baseplate (wires, gauges, pipes)

Clean baseplate

Coordinate lab space with Ar supply (Dr. Zheng)

Video Demonstration

Set up Lab view program to acquire data

7. Open comments/suggestions (Please feel free to include your private comments):

Coordinator/ Instructor assessment report and corrective action