FUNBOE (Follow-Up Nucleate Boiling On-flight Experiment)

Getaway Special Team 2010

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(Follow-Up Nucleate Boiling On-flight Experiment)

A Get Away Special (GAS) Team
Microgravity Research Project
## Undergraduate Participants

**Flight Crew**

<table>
<thead>
<tr>
<th>Name</th>
<th>Major</th>
<th>Year</th>
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</thead>
<tbody>
<tr>
<td>Troy Munro</td>
<td>Mech. Engineering</td>
<td>Junior</td>
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<tr>
<td>Justin Koeln</td>
<td>Mech. Engineering</td>
<td>Junior</td>
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<tr>
<td>Andrew Fassmann</td>
<td>Mech. Engineering</td>
<td>Junior</td>
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<tr>
<td>Stephanie Peterson</td>
<td>Science Ed.</td>
<td>Junior</td>
</tr>
<tr>
<td>Frank McCown</td>
<td>Computer Science</td>
<td>Sophomore</td>
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<tr>
<td>Rob Barnett</td>
<td>Elec. Engineering</td>
<td>Senior</td>
</tr>
<tr>
<td>Sara Scott</td>
<td>Physics</td>
<td>Sophomore</td>
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</tbody>
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The Get Away Special (GAS) Team

- Began in 1976
- Has coordinated with university and K-12 students to send 13 experiments on the Space Shuttle
- After 34 years, we are still doing microgravity experiments
- We’ve been involved in experiments on the Space Shuttle, International Space Station, and NASA’s Vomit Comet
What is FUNBOE?

• An interdisciplinary project to study the effects of microgravity on nucleate boiling.
• Future International Space Station project
• A coordinated K-12 outreach effort.
• An opportunity for students to experience the design process and build a working experiment.
What is the program

• The NASA Reduced Gravity Student Flight Opportunities Program.

• “The overall experience includes scientific research, hands-on experimental design, test operations and educational/public outreach activities.” – NASA website

• 14 teams selected nationally to present project to NASA and test project in the “vomit comet.”

• Two flights during the ten days at NASA (June 17-26).

• Normally costs $17,500 for each flyer. For us, it’s free. We just have to get there.
What is USU’s benefit

- Represented at K-12 outreach activities
- Publicity in media (a USU journalist flies too)
- Scientific papers for competitions and journals
- Undergraduate research
- Stepping stone on path to continuing USU’s reputation as a university that flies experiments in space
- Once-in-a-lifetime experience for the students going.
Andrew Fassmann

- Experiencing all aspects of the design process (development, design, testing, and production)
- Applying class work to a real project
- Broadening skills in other engineering disciplines
- Designing structural, thermo-electrical, and measurement subsystems
- Interacting closely with engineering professors
- Experiencing the aerospace industry to determine career path
Stephanie Peterson

- Currently, we have reached over 1000 students in the project’s outreach program
- Experiencing microgravity first-hand will be allow me to better explain the impact of gravity to my students
- Teaching students how to perform proper research from my own hands-on experience
- Learning how to involve students in scientific demonstrations
- Experience teaching student groups ranging from over 100 to small classes of 20
- Developing and using lesson plans
- Learning best teaching methods
- Encourage college education (including USU)
Frank McCown

- Experiencing what goes into a research project
- Experiencing original research
- Performing data analysis
- Learning how to write proposal and technical documents
- Interact with team members of varying disciplines and backgrounds
Money Matters

- We are decreasing costs by staying at an extend stay hotel, renting cars from the Rent-a-Wreck company, and flying down to ensure a safe trip (estimated cost $6000)
- We are asking for $2000
- If we don’t have enough to cover all the travel costs, we’ll try to receive donations from the GAS fund in the Physics department, but most of that is already allocated to building materials and an annual summer fellowship program