Burning And Suppression of Solids-II (BASS-II)

**Objective:**
- BASS-2 will evaluate select materials’ flammability limits in microgravity for comparison to 1g limits for various types of materials (charring, non-charring, smoldering, and composites).
- BASS-2 will study flame ignition, stabilization, and fuel geometry effects on flame spread.
- BASS-2 will assess effectiveness of nitrogen extinguishment agent (similar to that used on ISS) in putting out flames over different materials, geometries, and flow.

**Relevance/Impact:**
- BASS results strongly suggest that materials that pass a 1g flammability test may be flammable under same conditions in 0g with spacecraft ventilation flow.
- Practical, realistic fuels in typical geometries will be examined, including difficult to extinguish wake flames which are shielded from direct extinguishment.

**Development Approach:**
- BASS-2 will utilize the on orbit hardware SPICE which was launched on STS-126 and operates in the MSG on ISS.
- Crew required to set up and operate the experiment. Video and data downlinked to the ground for evaluation.
- BASS-2 new samples, igniters, micro-drives for the camera will launch on Orbital 1 and will be operated during Increment 38-40 on board the ISS in the Microgravity Science Glovebox.

**ISS Resource Requirements**

<table>
<thead>
<tr>
<th>Accommodation (carrier)</th>
<th>Microgravity Science Glovebox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upmass (kg)</td>
<td>3.24 samples and igniters only</td>
</tr>
<tr>
<td>(w/o packing factor)</td>
<td></td>
</tr>
<tr>
<td>Volume (m³)</td>
<td>0.096</td>
</tr>
<tr>
<td>(w/o packing factor)</td>
<td></td>
</tr>
<tr>
<td>Power (kw)</td>
<td>0.05</td>
</tr>
<tr>
<td>(peak)</td>
<td></td>
</tr>
<tr>
<td>Crew Time (hrs)</td>
<td>120 hours crew time</td>
</tr>
<tr>
<td>(installation/operations)</td>
<td></td>
</tr>
<tr>
<td>Autonomous Ops (hrs)</td>
<td>N/A (all hands on crew ops)</td>
</tr>
<tr>
<td>Launch/Increment</td>
<td>Orbital 1/Inc 38</td>
</tr>
</tbody>
</table>

**Project Life Cycle Schedule**

<table>
<thead>
<tr>
<th>Milestones</th>
<th>SCR</th>
<th>RDR</th>
<th>PDR</th>
<th>CDR</th>
<th>SR/DR</th>
<th>Fit Safety</th>
<th>FHA</th>
<th>Launch</th>
<th>Ops</th>
<th>Return</th>
<th>Final Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual/ Baseline</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>8/1999</td>
<td>8/2013</td>
<td>9/2013</td>
<td>10/2013</td>
<td>1/2014</td>
<td>Inc. 38-40</td>
<td>OPS+12 m</td>
<td>Return +12m</td>
</tr>
</tbody>
</table>