

<b>Fiscal Year:</b>	FY 2014	<b>Task Last Updated:</b> FY 08/14/2015	
<b>PI Name:</b>	Olson, Sandra Ph.D.		
<b>Project Title:</b>	Fundamental Research on International Standard of Fire Safety in Space - Subteam 1: Study of Flammability of Fabric Materials		
<b>Division Name:</b>	Physical Sciences		
<b>Program/Discipline:</b>			
<b>Program/Discipline--Element/Subdiscipline:</b>	COMBUSTION SCIENCE--Combustion science		
<b>Joint Agency Name:</b>		<b>TechPort:</b>	No
<b>Human Research Program Elements:</b>	None		
<b>Human Research Program Risks:</b>	None		
<b>Space Biology Element:</b>	None		
<b>Space Biology Cross-Element Discipline:</b>	None		
<b>Space Biology Special Category:</b>	None		
<b>PI Email:</b>	<a href="mailto:Sandra.Olson@nasa.gov">Sandra.Olson@nasa.gov</a>	<b>Fax:</b>	FY 216 977-7065
<b>PI Organization Type:</b>	NASA CENTER	<b>Phone:</b>	216-433-2859
<b>Organization Name:</b>	NASA Glenn Research Center		
<b>PI Address 1:</b>	LTX, Combustion Physics and Reacting Systems Branch		
<b>PI Address 2:</b>	MS 77-5, 21000 Brookpark Rd.		
<b>PI Web Page:</b>			
<b>City:</b>	Cleveland	<b>State:</b>	OH
<b>Zip Code:</b>	44135	<b>Congressional District:</b>	9
<b>Comments:</b>			
<b>Project Type:</b>	FLIGHT,GROUND	<b>Solicitation / Funding Source:</b>	2012 Japanese Space Agency (JAXA) AO for Fundamental Research on an International Standard of Fire Safety in Space
<b>Start Date:</b>	07/01/2014	<b>End Date:</b>	06/30/2019
<b>No. of Post Docs:</b>		<b>No. of PhD Degrees:</b>	
<b>No. of PhD Candidates:</b>		<b>No. of Master' Degrees:</b>	
<b>No. of Master's Candidates:</b>		<b>No. of Bachelor's Degrees:</b>	
<b>No. of Bachelor's Candidates:</b>		<b>Monitoring Center:</b>	NASA GRC
<b>Contact Monitor:</b>	Urban, David	<b>Contact Phone:</b>	216-433-2835
<b>Contact Email:</b>	<a href="mailto:david.l.urban@nasa.gov">david.l.urban@nasa.gov</a>		
<b>Flight Program:</b>	ISS		
<b>Flight Assignment:</b>			
<b>Key Personnel Changes/Previous PI:</b>	Dr. Sandra Olson is U.S. Co-Investigator on Japan Aerospace Exploration Agency (JAXA)-sponsored project, "Flammability Limits At Reduced-g Experiment (FLARE)." JAXA PI is Prof. Osamu Fujita, Hokkaido University.		
<b>COI Name (Institution):</b>			
<b>Grant/Contract No.:</b>	Internal Project		
<b>Performance Goal No.:</b>			
<b>Performance Goal Text:</b>			

<b>Task Description:</b>	<p>Funding is for Dr. Olson's role as U.S. Co-Investigator for the Japan Aerospace Exploration Agency (JAXA)-sponsored project, "Flammability Limits At Reduced-g Experiment (FLARE)." JAXA International Announcement of Opportunity (AO) to fund experiments to be conducted aboard the Japanese Experiment Module, Kibo, 2012.</p> <p>Objective: To develop a methodology to correlate material flammability limits in normal gravity and microgravity, which allows quantitative estimation of material flammability limit in microgravity based on the flammability data obtained on the ground. The project involves an international team including JAXA, NASA, ESA and universities in Japan, USA, and France.</p> <p>To establish global standards for fire safety in space, we seek to develop a fundamental understanding of how NASA's material flammability test, NASA-STD-6001.A Test 1, relates to the actual flammability of materials in micro and partial gravity.</p> <p>Investigation Strategy: Perform extensive research via ground-based experiments, including 1g and parabolic flight tests, and via theoretical formulations. Flight experiments on orbit in ISS/KIBO will be performed to verify the correlation. The flight experiments on orbit are expected in 2017 or later.</p> <p>By the end of the project, a new fire safety standard test method for screening spacecraft materials will be proposed that addresses the shortcomings of existing standard test method such as NASA STD 6001B.</p> <p>Relevance/Impact:</p> <p>Fundamental Science – studying materials flammability in space allows us to accurately control the flow field and thus elucidate the importance of a critical Damkohler number (flow time /reaction time) on flame extinction.</p> <p>Efficiency - The anticipated improved methodology should reduce time and cost for the spacecraft material screening.</p> <p>Safety - Terrestrial fire safety; spacecraft fire safety</p>
<b>Rationale for HRP Directed Research:</b>	
<b>Research Impact/Earth Benefits:</b>	<p>Studying materials flammability in space allows us to accurately control the flow field and thus elucidate the importance of a critical Damkohler number (flow time /reaction time) on flame extinction. The anticipated improved methodology should reduce time and cost for the spacecraft material screening. Investigation and results have Earth benefits for terrestrial fire safety.</p>
<b>Task Progress:</b>	<p>New project for FY2014. (Editor's Note: added to Task Book in April 2015 when information received.)</p>
<b>Bibliography Type:</b>	<p>Description: (Last Updated: 04/17/2024)</p>