



NASA SBIR 2015 Phase I Solicitation

H14.04 Optical Components, Sensors, and Systems for ISS Utilization

Lead Center: LaRC

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The International Space Station (ISS) is an on-orbit research platform that provides a superior environment for human health and exploration, technology testing for enabling future exploration, research in basic life and physical science, and earth and space science as enunciated in the NASA Authorization ACT of 2010. This subtopic would focus on the utilization of ISS as a foremost test bed for test, operation, and validation of the functionality of advanced optical components, sensors and systems for enabling future exploration. The goal of this subtopic research is to satisfy the mission of the International Space Station (ISS) Program by advancing science and technology research and there by significantly contributing to expand human knowledge, inspire and educate the next generation, foster the commercial development of space and demonstrate capabilities to enable future exploration missions beyond low Earth orbit (LEO) as discussed in the International Space Station (ISS) Researcher's Guide is published by the NASA ISS Program Science Office. Under this subtopic, innovative research topics compatible to ISS test environment would address HEOMD core issues related to radiation protection, deep space habitat elements and analog missions.

This subtopic would take advantage of revolutionary and rapid advances that are taking place in optics, materials and processing disciplines. Development of sensors and systems using innovative sources, detectors, materials, components and configurations for accomplishing new and/or improved performance, increased reliability and ruggedness, reduction in size, weight and power consumption (SWaP), and cost would advance HEOMD missions.

Topics of interest include but not limited to optical materials, optical components such high temperature and broadband windows and elements, active and passive sensing architectures, smart sensors and sensor suites including multifunctional aspects, monolithic or hybrid high operating temperature detectors and focal plane arrays, ISS compatible miniature remote sensing systems for characterization of hard targets, terrain mapping, deep space imaging (3-D and hyper spectral) sensors and systems, and precision, navigation, and timing systems.Â Â Â