National Aeronautics and
Space Administration

Small Business Innovation Research
Small Business Technology TRansfer

Strategic Alignment of Your Research Interest To the NASA Mission

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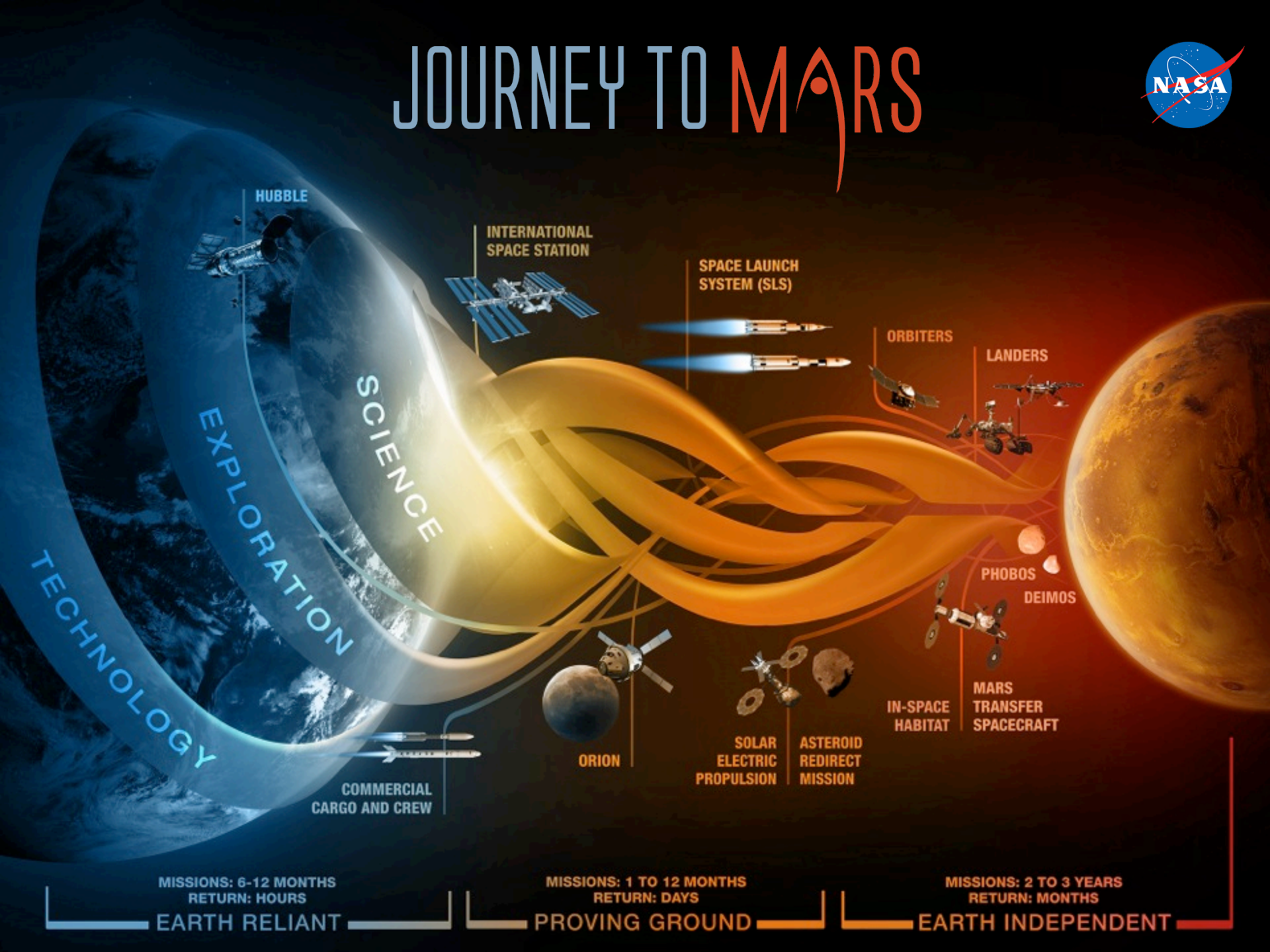
JOURNEY TO MARS



NASA Strategic Goals

- Expand the frontiers of knowledge, capability, and opportunity in space.
- Advance understanding of Earth and develop technologies to improve the quality of life on our home planet.
- Serve the American public and accomplish our Mission by effectively managing our people, technical capabilities, and infrastructure.

NASA Mission Directorates

- **Aeronautics Research**

- NASA's Aeronautics Research Mission Directorate works to solve the challenges that still exist in our nation's air transportation system: air traffic congestion, safety and environmental impacts.

- **Human Exploration and Operations Mission Directorate**

- The Human Exploration and Operations Mission Directorate provides the Agency with leadership and management of NASA space operations related to human exploration in and beyond low-Earth orbit.

- **Science**

-NASA's Science Mission Directorate and the nation's science community use space observatories to conduct scientific studies of the Earth from space to visit and return samples from other bodies in the solar system, and to peer out into our Galaxy and beyond.

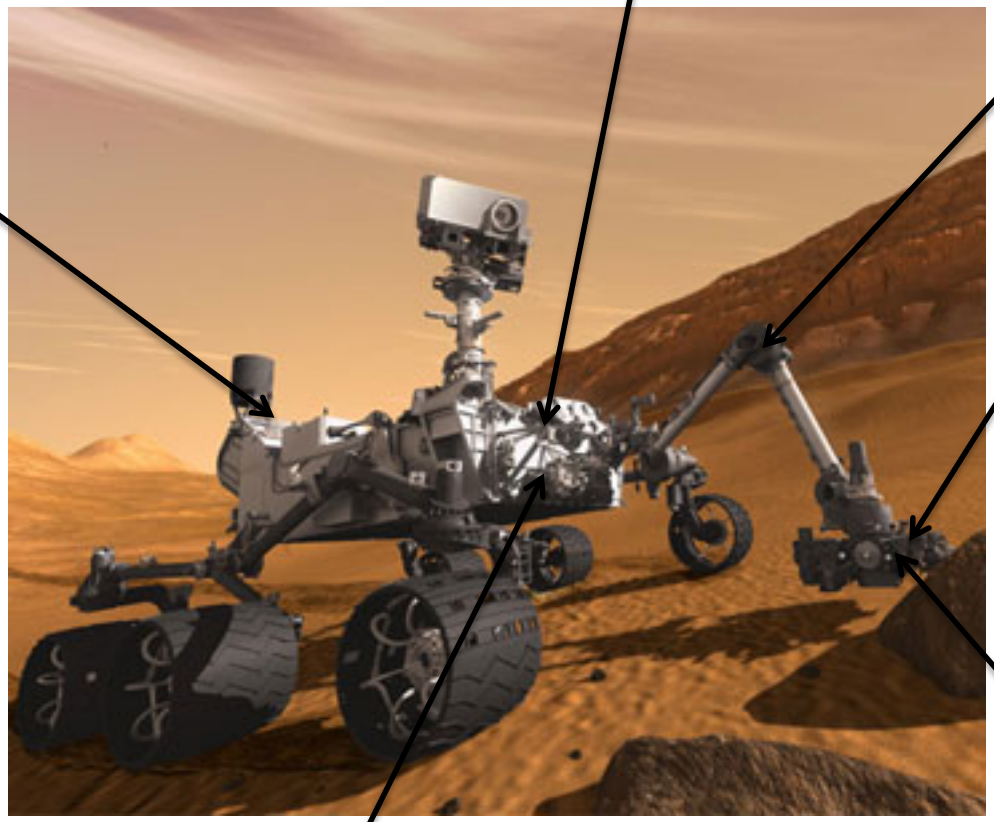
- **Space Technology**

- The Space Technology Mission Directorate is responsible for developing the crosscutting, pioneering, new technologies and capabilities needed to achieve NASA's current and future missions.

SBIR Technologies on Curiosity Rover

Yardney Technical Products, Pawcatuck, CT
Lithium ion batteries

Creare, Hanover NH
Space-qualified vacuum pump



Starsys Research, Boulder, CO
Gearboxes for robotic arm

Honeybee Robotics, NY, NY
Dust removal tool

inXitu, Campbell, CA
Chemistry and Mineralogy experiment (CheMin) instrument

Grammatech, Ithica NY -
Software for rover operations

Aeronautics Research Mission Directorate Programs with Strategic Thrusts

Mission Programs

Airspace Operations and Safety Program (AOSP)

- Safe, Efficient Growth in Global Operations
- Real-Time System-Wide Safety Assurance
- Assured Autonomy for Aviation Transformation

Advanced Air Vehicles Program (AAVP)

- Ultra-Efficient Commercial Vehicles
- Innovation in Commercial Supersonic Aircraft
- Transition to Low-Carbon Propulsion
- Assured Autonomy for Aviation Transformation (future)

Integrated Aviation Systems Program (IASP)

- Flight Research-Oriented Integrated, System-Level R&T supporting all six thrusts
- X-Planes/Test Environment

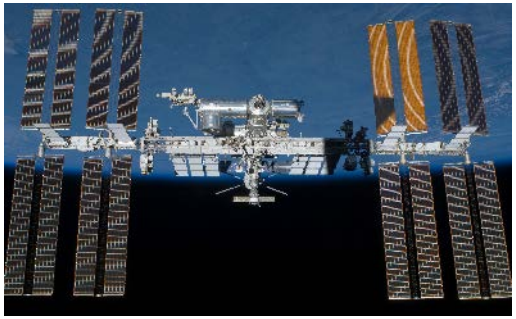
Seedling Program

Transformative Aeronautics Concepts Program (TAC)

- High-risk, leap-frog ideas supporting all six thrusts
- Critical cross-cutting tool and technology development
- Assured Autonomy for Aviation Transformation

Human Exploration and Operations Mission Directorate Opportunities

- www.nasa.gov/directorates/heo/index.html
- Programs
  - Space Launch System
  - Orion Spacecraft
  - Ground Systems Development
  - Advanced Exploration Systems
  - Space Life and Physical Sciences Research and Applications
  - Human Research Program
  - International Space Station
  - Launch Services
  - Space Communications and Navigation (SCaN)



Science Mission Directorate Opportunities

https://science.nasa.gov/researchers/sara/grant-solicitations

- Many solicitations are located at: https://nspires.nasaprs.com
  - Important group of Solicitations: Research Opportunities in Earth and Space Science (ROSES)*
  - Set up NSPIRES account in advance and become familiar with the submission process.

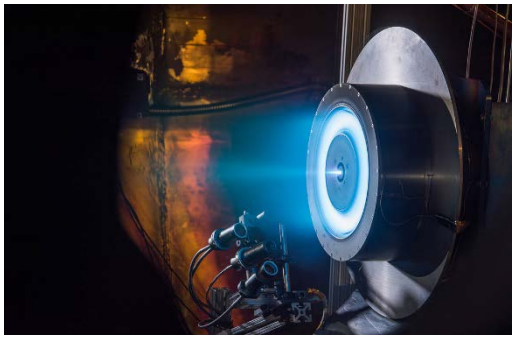
*Note: Previous solicitations are available

SMD Example Funding Opportunities

- Earth Science
  - The Instrument Incubator Program funds technology development (IIP)
- Planetary Science
  - Concepts for Ocean worlds Life Detection Technology (COLD-Tech)
- Astrophysics
  - Astrophysics Research and Analysis program (APRA)
- Heliophysics
  - Heliophysics Supporting Research (H-SR)

Space Technology Mission Directorate Opportunities

- https://www.nasa.gov/directorates/spacetech/home/index.html
- Programs
  - Centennial Challenges
  - Center Innovation Fund
  - Flight Opportunities
  - Game Changing Development (GCD)
  - NASA Innovative Advanced Concepts (NIAC)
  - Prizes and Challenges
  - Regional Economic Development
  - SBIR/STTR
  - Small Spacecraft Technology Program
  - Space Technology Research Grants
  - Technology Demonstration Program
  - Technology Transfer



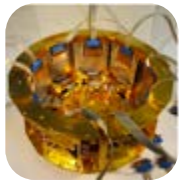
SBIR/STTR Solicitation Topics

Select the Mission Directorate

Space Technology Research Grants
Opportunities to Propose

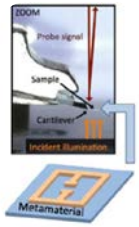
Engage Academia: *tap into **spectrum** of academic researchers, from graduate students to senior faculty members, to examine the theoretical feasibility of ideas and approaches that are critical to making science, space travel, and exploration more effective, affordable, and sustainable.*



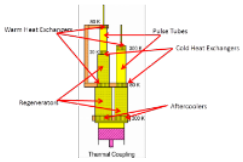

NASA Space Technology Research Fellowships

- Graduate student research in space technology; research conducted on campuses and at NASA Centers and not-for-profit R&D labs



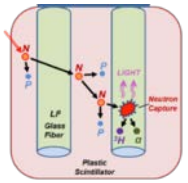
Early Career Faculty

- Focused on supporting outstanding faculty researchers early in their careers as they conduct space technology research of high priority to NASA's Mission Directorates

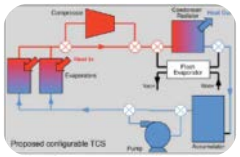


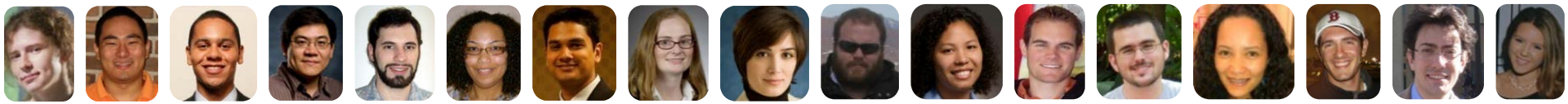
Early Stage Innovations

- University-led, possibly multiple investigator, efforts on early-stage space technology research of high priority to NASA's Mission Directorates
- Paid teaming with other universities, industry and non-profits permitted



Reinvigorate the pipeline of high-risk/high-payoff low-TRL space technologies





Space Technology Research Grant Opportunities

Eligibility Requirements for NSTRF17

1. Pursuing or seeking to pursue advanced degrees directly related to space technology.
2. Are U.S. citizens or permanent residents of the U.S.
3. Are or will be enrolled in a full-time master's or doctoral degree program at an accredited U.S. university in fall 2017.
4. Are early in their graduate careers.

NSTRF**17**: http://tinyurl.com/NSTRF2017.
NSTRF**16**: http://tinyurl.com/NSTRF2016.
NSTRF**15**: http://tinyurl.com/NSTRF2015.
NSTRF**14**: http://tinyurl.com/NSTRF14.
NSTRF**13**: http://tinyurl.com/NSTRF13.
NSTRF**12**: http://tinyurl.com/NSTRF12-OCT.
NSTRF**11**: http://tinyurl.com/NSTRF11-OCT.

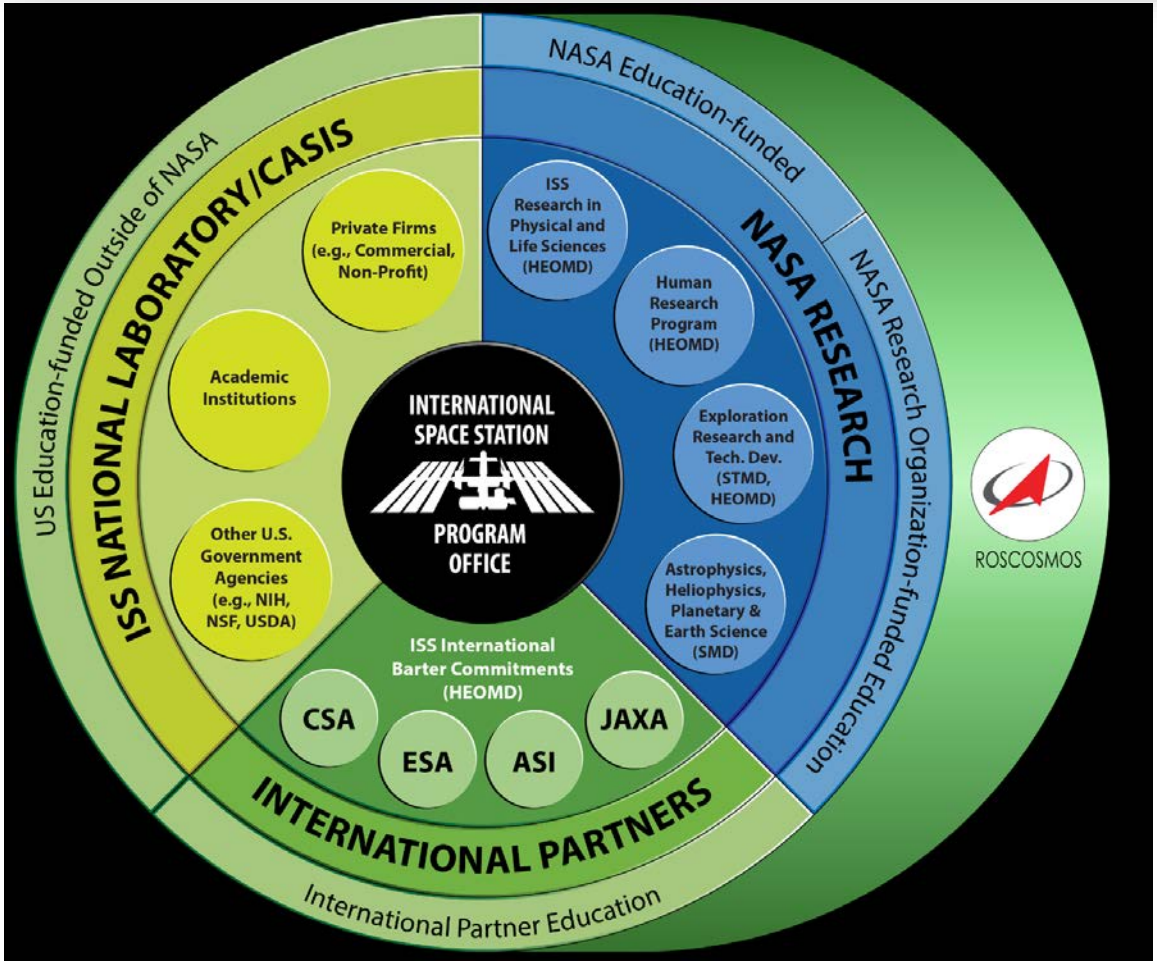
Application Components

1. **Proposal Cover Page** (Program Specific Data Questions)
2. **Personal Statement**
3. **Project Narrative**
4. **Degree Program Schedule**
5. **Curriculum Vitae**
6. **Transcripts**
7. **GRE General Test Scores**
8. **Three Letters of Recommendation**

Award Value

Fellowship Budget Category	Max value
Student Stipend	$36,000
Faculty Advisor Allowance	$10,000
Visiting Technologist Experience Allowance	$10,000
Health Insurance Allowance	$1,000
Tuition and Fees Allowance	$17,000
TOTAL	**$74,000**

Education Funding Sources



For more information on research sponsorship and funding, see:
http://www.nasa.gov/mission_pages/station/research/ops/funding/

(a) NASA Research
Grant opportunities and information in NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES) at *http://nspires.nasaprs.com/external/*

(b) National Laboratory Research / The Center for the Advancement of Space in Science (CASIS)
The 2005 NASA Authorization Act designated the U.S segment of the space station as a national laboratory, enabling access by other Federal agencies, non-profits, and the private sector. Opportunities and information in CASIS' website at *www.iss-casis.org/* and *www.spacestationresearch.com/research-on-station/opportunities/*

(c) Educational Activities
Both NASA Education and CASIS offer education opportunities and information at NASA: *www.nasa.gov/audience/foreducators/stem_on_station/index.html*.and at CASIS: *http://www.iss-casis.org/research.php, http://iss-casis.org/Education.aspx, http://casisacademy.org/*

(d) International Partner Research
International investigators should seek sponsorship through their appropriate space agency.

Backup Slides