

National Aeronautics and  
Space Administration



# National Academies workshop on The Small Business Technology Transfer Program

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[www.nasa.gov](http://www.nasa.gov)



# About the Programs



The SBIR and STTR programs were established pursuant to the Small Business Innovation Development Act of 1982, P.L. 97-219 (codified at 15 U.S.C. 638). With the SBIR/STTR Reauthorization Act, both the SBIR and STTR programs were extended through September 30, 2017. The programs seek to increase opportunities for SBCs to participate in Government R&D, to improve overall United States competitiveness, and to increase national employment.

- **Stimulate technological innovation in the private sector;**
- **Foster technology transfer through cooperative R&D between small businesses and research institutions**
- **Strengthen the role of SBCs in meeting Federal research and development needs;**
- **Increase the commercial application of these research results; and,**
- **Encourage participation of socially and economically disadvantaged persons and women-owned small businesses.**

The STTR program has a statutory requirement to stimulate a partnership of ideas and technologies between innovative small business concerns (SBCs) and Research Institutions through Federally-funded research or research and development (R/R&D). STTR also adheres to SBA directives to increase participation by Women-Owned and Small Disadvantaged Businesses.



# STTR Managed Under STMD



## Part of new focus a Space Technology At NASA

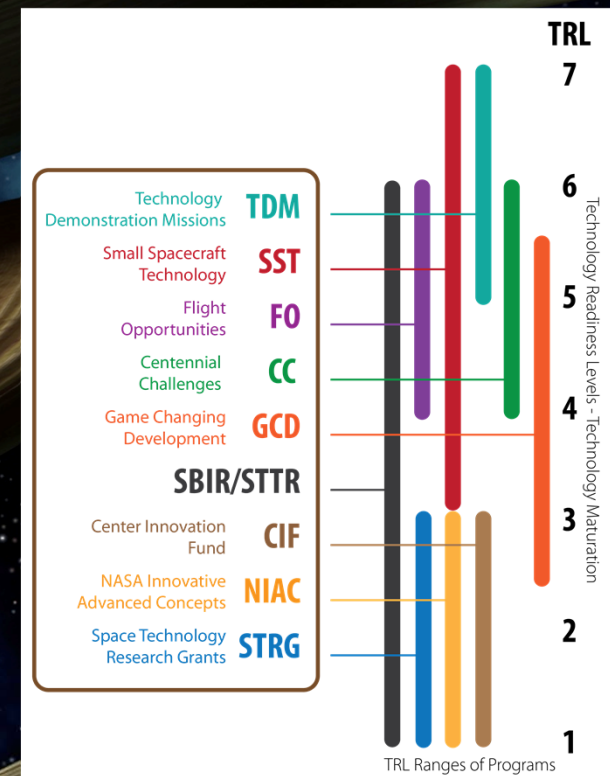
- One of 9 Programs within Space Technology Mission Directorate – tackling new technology development challenges across all “Technology Readiness Levels”

## SBIR & STTR

- Topics/Subtopics developed to support the needs of NASA’s other Mission Directorates – Science, Human Exploration & Operations, Aeronautics Research
- Topics/Subtopics developed to support mid- to long-term technology development needs identified in NASA’s “Space Technology Roadmaps” or the National Aeronautics R&D Plan

## NASA Centers Play Critical Role

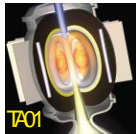
- All SBIR/STTR projects are managed at one of NASA’s 10 Centers – home to NASA’s development projects, research facilities, and Subject Matter Experts



# Space Technology Technical Areas

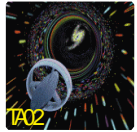


TA01



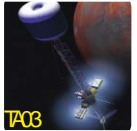
- LAUNCH PROPULSION SYSTEMS

TA02



- IN-SPACE PROPULSION TECHNOLOGIES

TA03



- SPACE POWER & ENERGY STORAGE

TA04



- ROBOTICS, TELE-ROBOTICS & AUTONOMOUS SYSTEMS

TA05



- COMMUNICATION & NAVIGATION

TA06



- HUMAN HEALTH, LIFE SUPPORT & HABITATION SYSTEMS

TA07



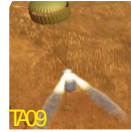
- HUMAN EXPLORATION DESTINATION SYSTEMS

TA08



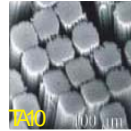
- SCIENCE INSTRUMENTS, OBSERVATORIES & SENSOR SYSTEMS

TA09



- ENTRY, DESCENT & LANDING SYSTEMS

TA10



- NANOTECHNOLOGY

TA11



- MODELING, SIMULATION, INFORMATION TECHNOLOGY & PROCESSING

TA12



- MATERIALS, STRUCTURES, MECHANICAL SYSTEMS & MANUFACTURING

TA13



- GROUND & LAUNCH SYSTEMS PROCESSING

TA14



- THERMAL MANAGEMENT SYSTEMS

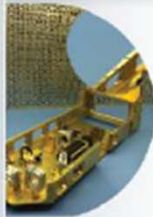


# Space Technology Future Thrust Areas



## High Power Solar Electric Propulsion

Deep space human exploration, science missions and commercial applications with investments in advanced solar arrays, high-power Hall thrusters and power processing units.



## Space Optical Comm.

Substantially increase the available bandwidth for near Earth space communications currently limited by power and frequency allocation restrictions, and increase the communications throughput for deep space mission.



## Advanced life Support & Resource Utilization

Technologies for human exploration mission including Mars atmospheric In-situ resource utilization, near closed loop air revitalization and water recovery, EVA gloves and radiation protection.



## Mars Entry Descent and Landing Systems

Permits more capable science missions, eventual human missions to Mars including, hypersonic and supersonic aerodynamic decelerators, a new generation of compliant TPS materials, retro-propulsion technologies, instrumentation and modeling capabilities.



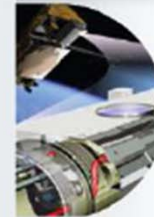
## Space Robotic Systems

Creates future humanoid robotics, autonomy and remote operations technologies to substantially augment the capability of future human space flight missions.



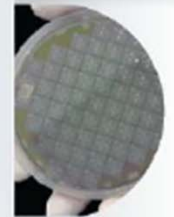
## Lightweight Space Structures

Targets substantial increases in launch mass, and allow for large decreases in needed structural mass for spacecraft and in-space structures.



## Deep Space Navigation

Allows for more capable science and human exploration missions using advanced atomic clocks, x-ray detectors and fast light optical gyroscopes.



## Space Observatory Systems

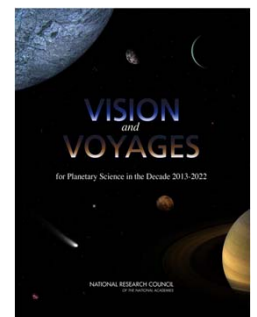
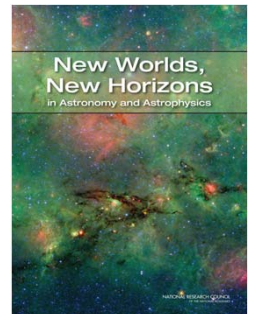
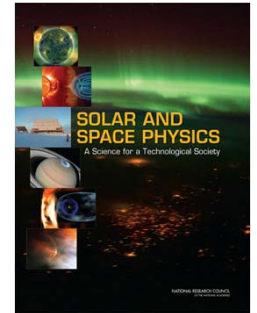
Allows for significant increases in future science capabilities including, AFTA/WFIRST coronagraph technology to characterize exoplanets by direct observation and advances in the surface materials as well as control systems for large space optics.



# Further Understanding NASA Needs



- In Science – “Decadal Surveys” and NASA-developed implementation documents
  - Planetary Science
    - [http://solarsystem.nasa.gov/multimedia/download-detail.cfm?DL\\_ID=742](http://solarsystem.nasa.gov/multimedia/download-detail.cfm?DL_ID=742)
  - Astronomy and Astrophysics
    - <http://science.nasa.gov/astrophysics/special-events/astro2010-astronomy-and-astrophysics-decadal-survey/>
    - [http://science.nasa.gov/media/medialibrary/2013/04/15/secure-ImpPlan\\_R2\\_15Apr2013.pdf](http://science.nasa.gov/media/medialibrary/2013/04/15/secure-ImpPlan_R2_15Apr2013.pdf)
  - Heliophysics (Solar and Space Physics)
    - [http://www.nap.edu/catalog.php?record\\_id=13060](http://www.nap.edu/catalog.php?record_id=13060)
    - [http://www.nasa.gov/mission\\_pages/sunearth/news/decadal-2012.html](http://www.nasa.gov/mission_pages/sunearth/news/decadal-2012.html)
    - [http://science.nasa.gov/media/medialibrary/2010/03/31/Heliophysics\\_Roadmap\\_2009\\_tagged-quads.pdf](http://science.nasa.gov/media/medialibrary/2010/03/31/Heliophysics_Roadmap_2009_tagged-quads.pdf)
  - Earth Science
    - <http://science.nasa.gov/earth-science/decadal-surveys/>
    - <http://esto.nasa.gov/>
- In Aeronautics Research
  - National Aeronautics R&D Plan
    - <http://www.whitehouse.gov/sites/default/files/microsites/ostp/aero-rdplan-2010.pdf>
  - Various Detailed NASA Aeronautics Research documents
    - <http://www.aeronautics.nasa.gov/programs.htm>

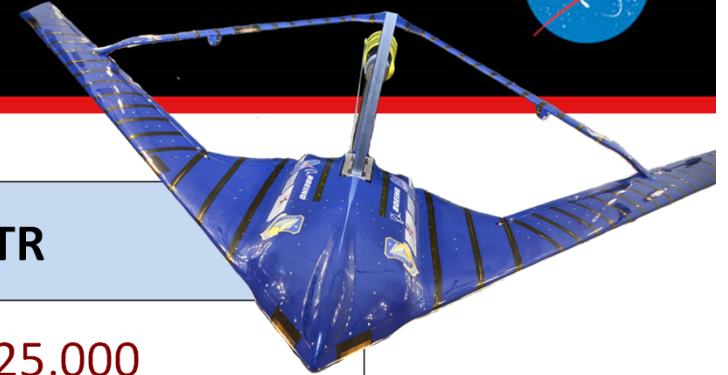




- The Technical Infusion Managers (TIMs) working with Center Chief Technologists (CCTs) at each Center are responsible for coordinating the review and ranking process
- Focused on development, demonstration, and delivery of proposed innovation
- Each of the STTR topics and subtopics are mapped to the Space Technology Road Map's (STRs) Technology Areas (TAs)
- Contracts awarded via competitive selection:
  - Scientific and technical merit
  - Expected value to NASA
  - Commercial potential
- Contract period is typically 24 months with max value of \$750,000
- Conduit to post-Phase II opportunities: Phase II-E, II-X, CRP, Phase III
  - For more information on post-Phase II opportunities visit:  
<http://sbir.gsfc.nasa.gov/content/post-phase-ii-initiatives>



# SBIR/STTR General Solicitation



Phase I Contracts	SBIR	STTR
Maximum Contract Value	\$125,000	\$125,000
Period of Performance	6 months	12 months
Phase II Contracts	SBIR	STTR
Maximum Contract Value	\$750,000	\$750,000
Period of Performance	24 months	24 months







# STTR Award Assistance



## **Discretionary technical assistance to STTR awardees.**

- Agencies must use this money to attempt to increase participation by SDBs and WOSBs in the STTR Program, and small businesses in states with a historically low level of SBIR awards.

## ***Pilot to Allow for Funding of Administrative, Oversight, and Contract Processing Costs***

- STTR or SBIR Program-related outreach and related technical assistance initiatives not in effect prior to commencement of this pilot, except significant expansion or improvement of these initiatives, including:
  - (I) Technical assistance site visits;
  - (II) Personnel interviews; and
  - (III) National conferences



# STTR Outreach



- Targeted outreach to underrepresented minority groups such as Historically Black Colleges and Universities (HBCUs), Minority Serving Institutions (MSIs), and Minority Trade Organizations - HBCUs and MSIs play a large role in preparing minority professionals who enter into high-tech careers and who in turn may start-up high tech companies. The NASA SBIR/STTR Program has identified the following organizations to reach out to and share information on the STTR program as well as receive information on opportunities for outreach.
- Targeted outreach to women-owned small businesses - The NASA SBIR/STTR Program Office will continue to focus outreach toward women scientists, engineers, and women-owned research and development firms.
- Outreach to Underrepresented Areas - The NASA SBIR/STTR Program Office will also reach out to various State organizations to determine the appropriate course to increase awareness to those small business concerns residing in underrepresented areas. This activity may be worthy of coordination with SBA and/or several of the SBIR agencies so that constituents in these areas can obtain a broad perspective of the activities associated with several and/or many of Federal SBIR Programs.





# SBIR/STTR – Beyond Phase II



## Phase II-Enhancement (II-E)

Phase II-E	Minimum non-SBIR/STTR Funding Required for Eligibility for Matching in Phase II-E	Corresponding SBIR/STTR Program Contribution	Anticipated Period of Additional Performance
	\$25,000	\$25,000	6-12 Months
	Maximum non-SBIR/STTR Funding to be Matched by SBIR/STTR Program in Phase II-E	Corresponding SBIR/STTR Program Contribution	Anticipated Period of Additional Performance
	\$125,000	\$125,000	6-12 Months

## Phase II-eXpanded (II-X)

Phase II-X	Minimum Funding Required from non-SBIR/STTR NASA Source for Eligibility for Matching in Phase II-X	Corresponding SBIR/STTR Program Contribution	Anticipated Period of Additional Performance
	\$75,000	\$150,000	12-24 Months
	Maximum Funding Amount from non-SBIR/STTR NASA Source to be Matched in Phase II-X	Corresponding SBIR/STTR Program Contribution	Anticipated Period of Additional Performance
	\$250,000	\$500,000	12-24 Months

# NASA SBIR/STTR Website



**NASA SBIR/STTR**  
Small Business Innovation Research / Small Business Technology Transfer

HOME ABOUT SBIR/STTR SOLICITATIONS SCHEDULE & AWARDS **HANDBOOKS** MULTIMEDIA CONTACT US

Technologies  
Success Stories  
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**What changes or enhancements to the program have you made recently or plan to make in the future?**  
Interview with NASA SBIR/STTR Program Executive Dr. Richard Leshner [Watch](#)

**Proposers**  
SBIR/STTR Basics  
SBIR/STTR Schedule  
Participation Guide  
SBIR/STTR Firms Library  
Model Contract  
Training Resources  
FAQs  
Awardees  
Demographics Data

**News and Upcoming Events**  
News  
→ The next SBIR/STTR Solicitation is currently planned for release in November 2013  
→ SBIR/SBIR Select 2012 Phase II Proposal Submission EHB Proposals due no later than 5:00 pm ET on the last day of the Phase I contract  
→ NASA STTR Partnering Project on SBIR Gateway  
New FREE tool to help Small Businesses and Research Institutions connect and partner on a NASA STTR topic  
More News ...  
[Subscribe to SBIR Newsletter](#)

**2012 SBIR/STTR Solicitation**  
Office of the Chief Technologist  
SBIR/STTR General Solicitation  
Nov. 17 Nov. 29, 2012

**2012 SBIR Select Solicitation**  
Office of the Chief Technologist  
SBIR Select Program Solicitation  
Sept. 17 Sept. 29, 2012

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**Curator: Samidha Manu**  
NASA Official: Richard B. Leshner  
Last Updated: 25-Oct-2013

- > NASA Information on the American Recovery and Reinvestment Act of 2009
- > Budgets, Strategic Plans and Accountability Reports
- > Equal Employment Opportunity Data Posted Pursuant to the No Fear Act
- > Information-Dissemination Policies and Inventories
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- Electronic Handbook (EHB)

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SBIR/STTR Proposal Submission EHB

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What's New

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This Electronic Handbook (EHB) is designed to help you prepare and submit proposals using a paperless process. Please visit the NASA SBIR/STTR Firms Library to view templates and samples of all potential deliverables, including those required for proposal submissions. Then return to this EHB to submit your proposals. Refer to Background to learn more about the NASA SBIR/STTR Programs. If you have not done so yet, please read "What's New" which lists the significant differences from last year.  
We strongly encourage you to start using the Handbook early in the process of submitting your SBIR and/or STTR proposals.

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**ATTENTION**  
Phase II proposals are due by 5:00 p.m. ET on the last day of your Phase I contract period. Submissions after the deadline will be considered LATE and handled accordingly.

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