National Aeronautics and Space Administration

ARTEMIS

NASA Small Business Innovation Research (SBIR) & Small Business Technology Transfer (STTR) Program

Space Technology Mission Directorate (STMD)

SBIR·STTR
America's Seed Fund™
POWERED BY NASA

Agenda

- SBIR/STTR Basics
- Program Impact & Overview
- Changes Due to COVID-19
- Success Stories
- Opportunities

The SBIR and STTR Programs

Small Business Innovation Research (SBIR)

- A set-aside program for small business to engage in Federal R&D with potential for commercialization
- Currently, 3.2% of Federal agencies Extramural R&D budgets >$100M per year

Small Business Technology Transfer (STTR)

- A sister set-aside program to facilitate cooperative R&D between small business concerns and U.S. research institutions with potential for commercialization
- Currently, 0.45% of the extramural research budget for all agencies with a budget >$1B per year

SBIR + STTR Programs

Department of Defense (DoD)

Department of Health and Human Services (HHS)

Department of Energy (DoE)

National Aeronautics and Space Administration (NASA)

National Science Foundation (NSF)

SBIR Program Only

Department of Agriculture (USDA)

Department of Education (DoEd)

Department of Transportation (DoT)

Environmental Protection Agency (EPA)

Department of Homeland Security (DHS)

Department of Commerce (DoC)

Eligibility Requirements

SBIR (Small Businesses)

- For-profit business
- Less than 500 employees
- Must be located in the United States and at least 51% owned and controlled by one or more individuals who are citizens of, or permanent resident aliens in, the United States

STTR (Small Businesses & Research Institutions)

- All of the SBIR requirements listed on this slide apply to the Small Business prime; plus…
- Cooperative R&D effort with a U.S. Research Institution (RI)
- Minimum 40% by small business, 30% by RI
- Principal Investigator can be from Small Business or RI
- The RI must be an accredited college/university, a federal R&D center, or other non-profit research organization

MISSION

Create opportunities through SBIR/STTR awards to leverage small business knowledge and technology development for maximum impact and contribution

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VISION

Empower small businesses to deliver technological innovation that contributes to NASA's missions, provides societal benefit, and grows the U.S. economy

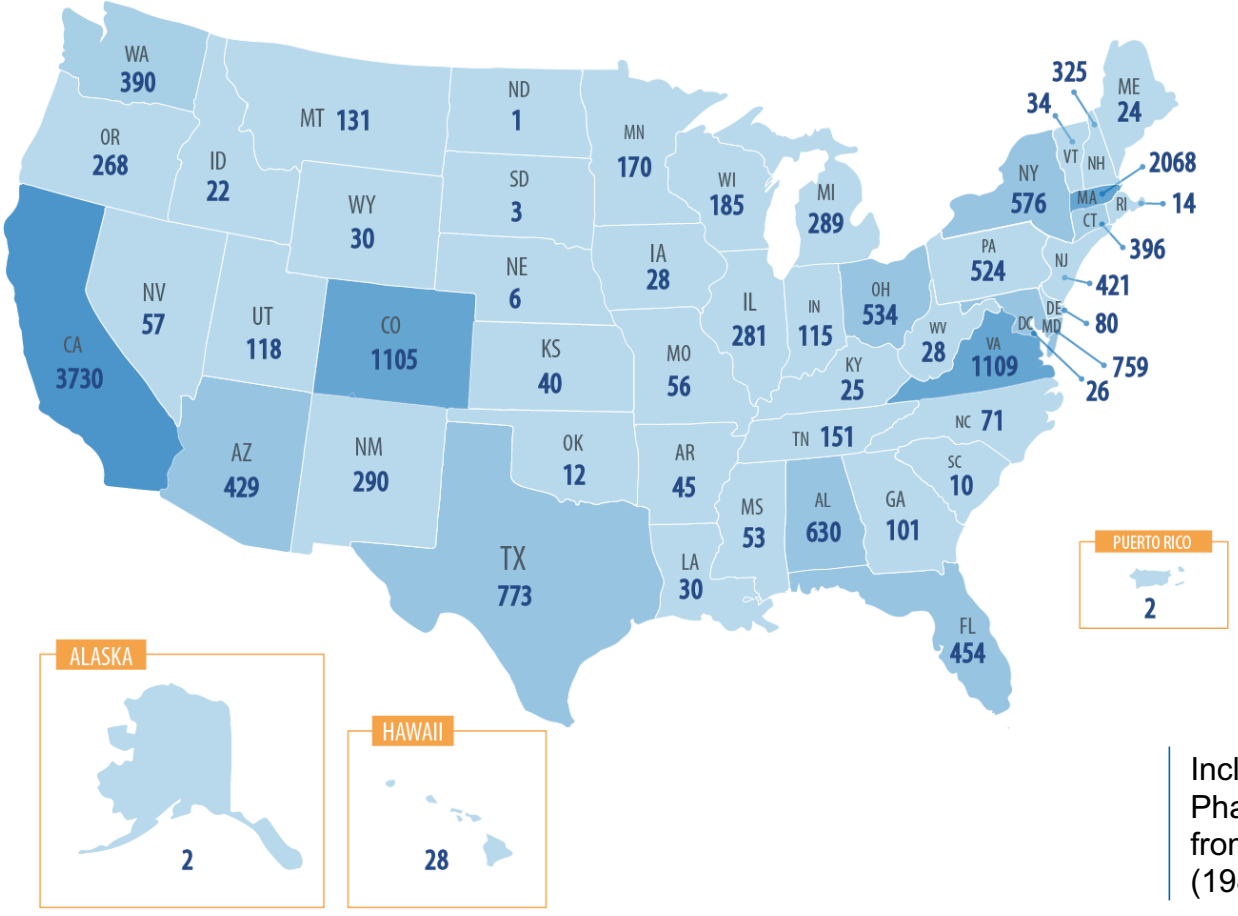
NASA SBIR/STTR Program

As a program under STMD, the NASA SBIR/STTR program funds the research, development, and demonstration of innovative technologies that fulfill NASA needs, including those needed for the **Artemis** mission.

NASA's SBIR/STTR program has **awarded more than $3.3 billion** to research-intensive American small businesses

Engineers and scientists from **more than 12,000** small businesses in all 50 States, DC and Puerto Rico have participated

Total Awards by State



Includes SBIR and STTR Phase I and Phase II awards from first Program award (1983) through July 2020.

NASA SBIR/STTR Opportunities

NASA SBIR/STTR PHASES

PHASE I
Idea Generation

$125,000
SBIR 6 months
STTR 13 months

I-CORPS

PHASE II
Prototype Development

$750,000
24 months

PHASE III
Infusion/ Commercialization

Non-SBIR Funding

POST PHASE II OPPORTUNITIES

PHASE II – E
Reqs matching funding
up to $375,000
6 to 12 months

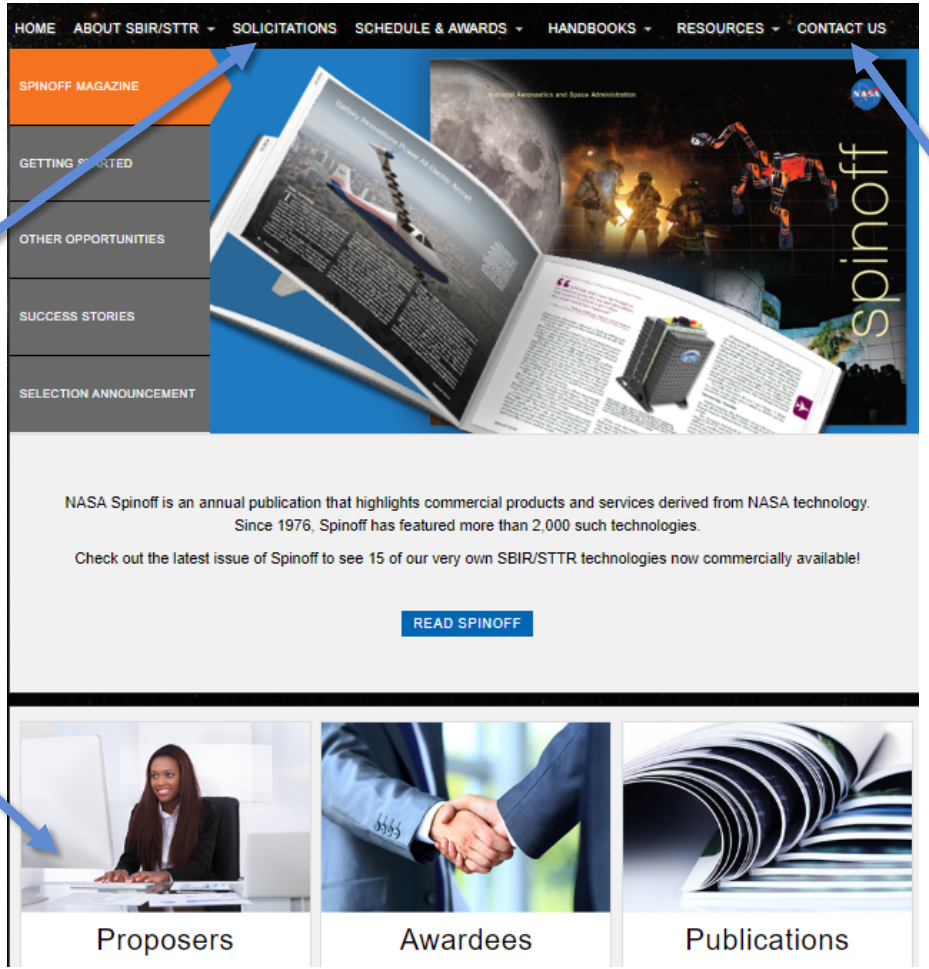
CCRPP
Reqs matching funding
$500,000 to $3,000,000
24 months

Program Website | sbir.nasa.gov

Research NASA's Needs
Annual Solicitations including past years

Contact the Program
SBIR/STTR Helpdesk and Program Points of Contact

Looking to Join the Program?
- Program Basics
- Forms Library
- Model Contract
- In-depth Training Resources and FAQs



Learning About NASA's Needs

Focus Areas

NASA's research subtopics are organized by "Focus Areas" that group interests and related technologies.

- **Identify** the Area(s) closest to your innovation/idea
- **Go** to our website to research
- **Prepare to write** a proposal tailored to NASA's needs

https://sbir.nasa.gov/solicitations

2020 Focus Areas (FA)	
FA 1: In-Space Propulsion Technologies	**FA 13:** Information Technologies for Science Data
FA 2: Power Energy and Storage	**FA 14:** On-orbit Servicing, Assembly, and Manufacturing (OSAM)
FA 3: Autonomous Systems for Space Exploration	**FA 15:** Materials, Materials Research, Structures, and Assembly
FA 4: Robotic Systems for Space Exploration	**FA 16:** Ground and Launch Processing
FA 5: Communications and Navigation	**FA 17:** Thermal Management Systems
FA 6: Life Support and Habitation Systems	**FA 18:** Air Vehicle Technology
FA 7: Human Research and Health Maintenance	**FA 19:** Integrated Flight Systems
FA 8: In-Situ Resource Utilization	**FA 20:** Airspace Operations and Safety
FA 9: Sensors, Detectors and Instruments	**FA 21:** Small Spacecraft Technologies
FA 10: Advanced Telescope Technologies	**FA 22:** Low Earth Orbit Platform Utilization and Microgravity Research
FA 11: Spacecraft and Platform Subsystems	**FA 23:** Digital Transformation for Aerospace
FA 12: Entry, Descent and Landing Systems	**FA 24:** Dust Mitigation

Program Changes Due to COVID-19

Current Contracts

- Provisional acceptance of deliverables to pay for work performed on existing contracts

Phase II

- Reduced time between selection and first payment from five months to two months

Solicitations

- Extended 2020 Solicitation deadline by four weeks
- Accelerated 2021 solicitation release date to November 9, 2020 (instead of January 2021)

Coordination with OGAs

- Sharing other current funding and loan opportunities

Success Story – Astrobotic

Lunar Technologies with Roots in SBIR/STTR Will Reach the Moon

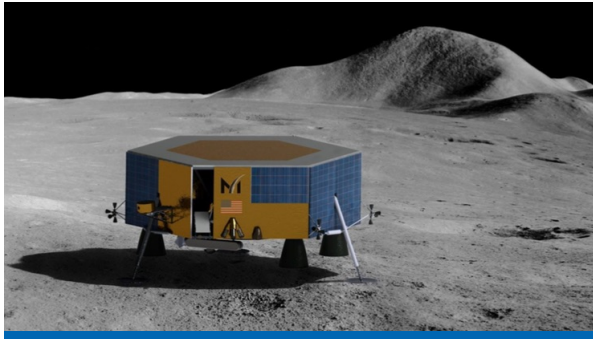
FOLLOW-ON SUCCESS:

More than **$270 million** from NASA for Moon to Mars initiatives

SNAPSHOT:

Astrobotic, a small business based in Pittsburgh, PA, received more than $270 million in contracts from NASA to support various aspects of the agency's return to the Moon. The company's compact lunar rover and precision lunar lander technology, which will deliver payloads to the lunar surface, were developed with funds from the NASA SBIR/STTR Program.

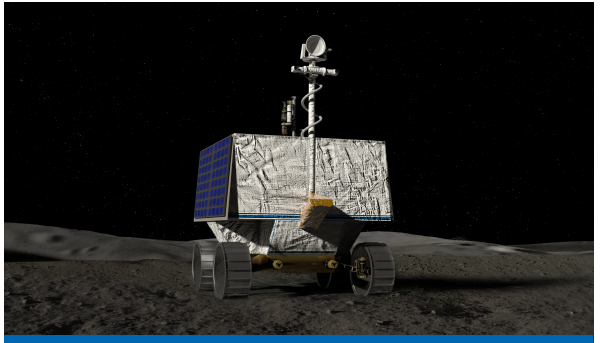
Success Stories



Masten Space Systems – Mojave, CA

Lunar Contributions Across NASA

- Company first received NASA SBIR award in 2010
- Flying SBIR technologies on their platforms under the joint NASA SBIR/STTR and Flight Opportunities program
- Recently selected for a **$75.9 million award under the NASA Commercial Lunar Payload Services (otherwise known as CLPS)** to deliver nine scientific payloads to the Moon as part of the **Artemis** program

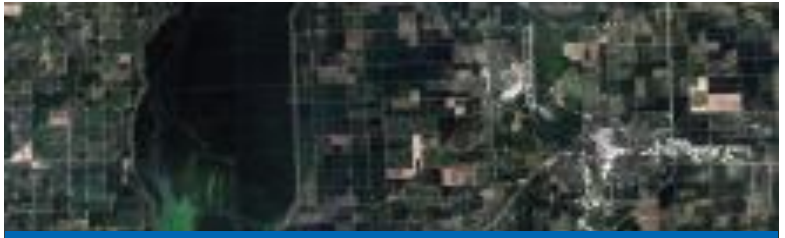


Honeybee Robotics – Altadena, CA

VIPER Lunar Rover to Map Water Ice on the Moon

- Company first received NASA SBIR award in 2007
- Mobile robot called the Volatiles Investigating Polar Exploration Rover (VIPER) being sent to the Moon's south pole to sample water ice in the region where the 1st woman & next man will land in 2024 under the **Artemis** program
- **Instruments on VIPER are being created by Honeybee Robotics,** NASA Ames, and NASA Kennedy
- **"The important role that the NASA SBIR program played in the growth of the company will never be forgotten."**
  – Honeybee Chairman Stephen Gorevan

Success Stories



Applied GeoSolutions – Durham, NH

Leveraging Satellites to Monitor Global Rice Growth

PHASE III SUCCESS: Approx. $2.5 million in post Phase II funding from NASA, international aid agencies, and the private sector

SNAPSHOT:

- Created a real-time rice mapping and production forecasting tool that is being piloted in the U.S. through NASA SBIR is being further developed to reduce greenhouse gas emissions in Vietnam.
- Company's president said: **"SBIR provided us with a unique opportunity to help promote economic stability while addressing key humanitarian issues associated with the global food supply system."**
- Utilizes data from a number of satellites already in orbit

Nanocomp Technologies – Merrimack, NH

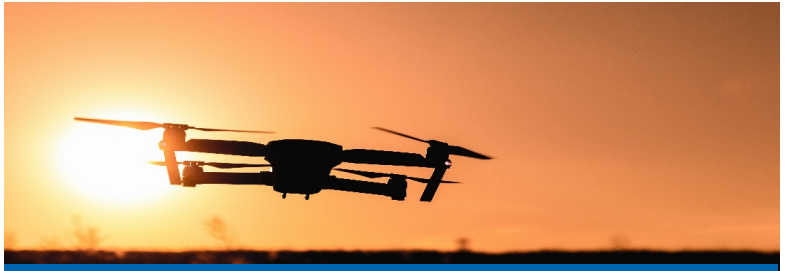
Creating Lightweight Carbon Nanotubes

PHASE III SUCCESS: $385K in follow-on Phase III contracts with NASA; additional revenue from commercial customers including Boeing and Lockheed Martin

SNAPSHOT:

- Developed a line of carbon nanotube materials in macro formats that can be used to replace heavier materials for spacecraft, defense platforms, and a host of other commercial applications.
- Enables NASA to construct payloads that weigh less and perform better

Success Stories



Higher Ground, LLC – Palo Alto, CA

Enhancements to Unmanned Aerial Vehicles (UAVs)

PHASE III SUCCESS: Up to $6.9M from NASA & DHS

SNAPSHOT:

- Expanding the reach of UAVs to fly beyond visual line of sight
- Major developments include UAV tracking, even in network-deficient areas, and enabling UAVs to detect and avoid oncoming traffic
- Work with the NASA SBIR Program resulted in additional work with DHS to enhance emergency response functions of UAVs

Made In Space – Jacksonville, FL

3D Printing in Micro Gravity at the ISS

TOTAL NASA FUNDING: $75.2M from NASA

SNAPSHOT:

- First partnered with NASA to bring 3-D printing and plastics reuse and recycling to the ISS
- Recently contracted to additively manufacture ten-meter beams onboard Archinaut One, launching in 2022; partners include Northrop Grumman, NASA Ames, and the NASA Jet Propulsion Laboratory
- COVID-19: Has been collaborating with Mayo Clinic to develop a technology allowing multiple patients to use a single ventilator

SAVE THE DATE. OCTOBER 20-22, 2020
Hosted by the NASA SBIR/STTR Program

Innovation & Opportunity

VIRTUAL CONFERENCE

Propelling your business. Transitioning your technology.

The Innovation & opportunity conference provides you with resources, engagement opportunities, and actionable next steps towards transitioning your technology — whether you are just starting your SBIR/STTR journey or ready for a Phase III.

NASA SBIR/STTR PROGRAM

2021 PHASE I SOLICITATION

OPENING SOON

November 9, 2020 – January 8, 2021

National Science Foundation (NSF) Space Topic

The NSF is including a **space topic** in its SBIR/STTR Program:

- Given different program goals and criteria, it's likely that one agency would be a much better fit for any specific project.
- Learn more about the differences between the NSF SBIR/STTR and NASA SBIR/STTR Programs at:

https://sbir.gsfc.nasa.gov/content/nsf-sbirsttr-space-topic-what-you-need-know

Mentor-Protégé Program

The **NASA Mentor-Protégé Program** encourages NASA prime contractors to assist eligible protégés to:

- Enhance their capabilities to perform on NASA contracts and subcontracts,
- Foster the establishment of long-term business relationships between these entities and NASA prime contractors, and
- Increase the overall number of these entities that receive NASA contract and subcontract awards.

For more information on the Mentor-Protégé Program visit:
http://www.osbp.nasa.gov/mpp/index.html

Office of Small Business Programs (OSBP)
where small business makes a **big** difference

Questions?

Visit our Website
www.SBIR.NASA.gov

Sign up for our Newsletter
https://sbir.nasa.gov/info

Contact the Helpdesk
301.937.0888