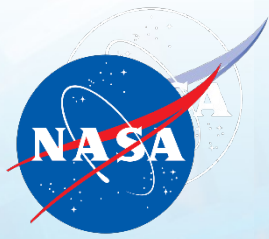


National Aeronautics and  
Space Administration



# Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Program and Smallsat Technology Partnerships (STP) Overview

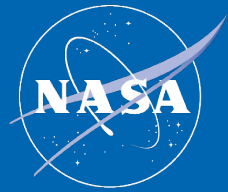
SmallSat Conference | 2023

Rodolphe De Rosee

Small Spacecraft Technology (SST) program

Program Systems Engineer

# SBIR / STTR Program Vision and Mission



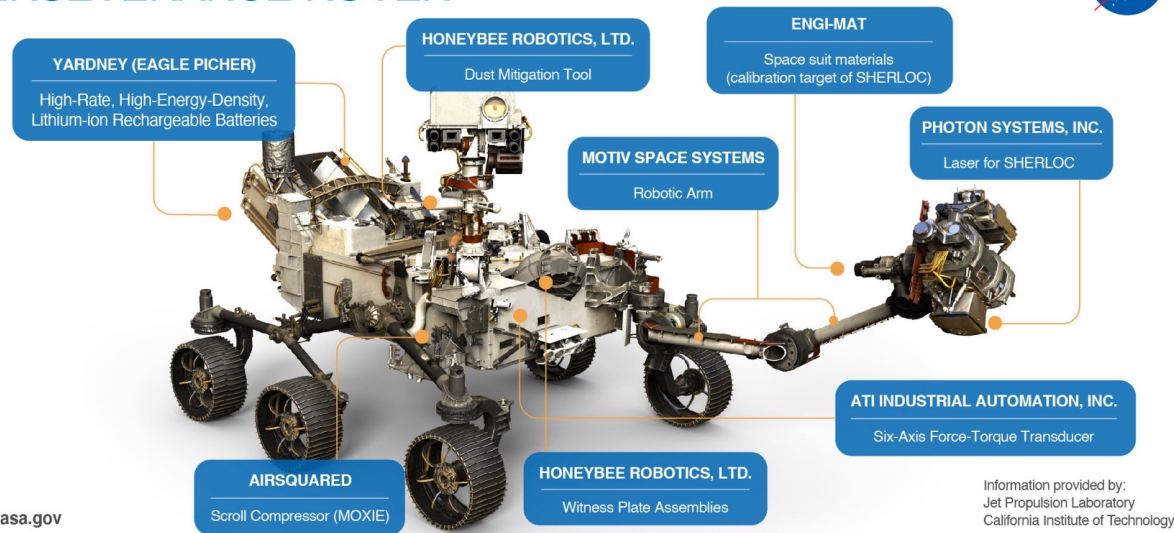
## VISION

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

## MISSION

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

### SBIR TECH ON-BOARD MARS 2020 PERSEVERANCE ROVER



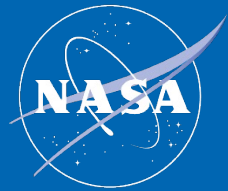
[sbir.nasa.gov](http://sbir.nasa.gov)

NASA's SBIR and STTR programs have awarded **more than \$3.75 billion** to research-intensive American small businesses.

Engineers and scientists from more than 3,100 Firms in all 50 States, DC, and Puerto Rico have participated across the two programs.

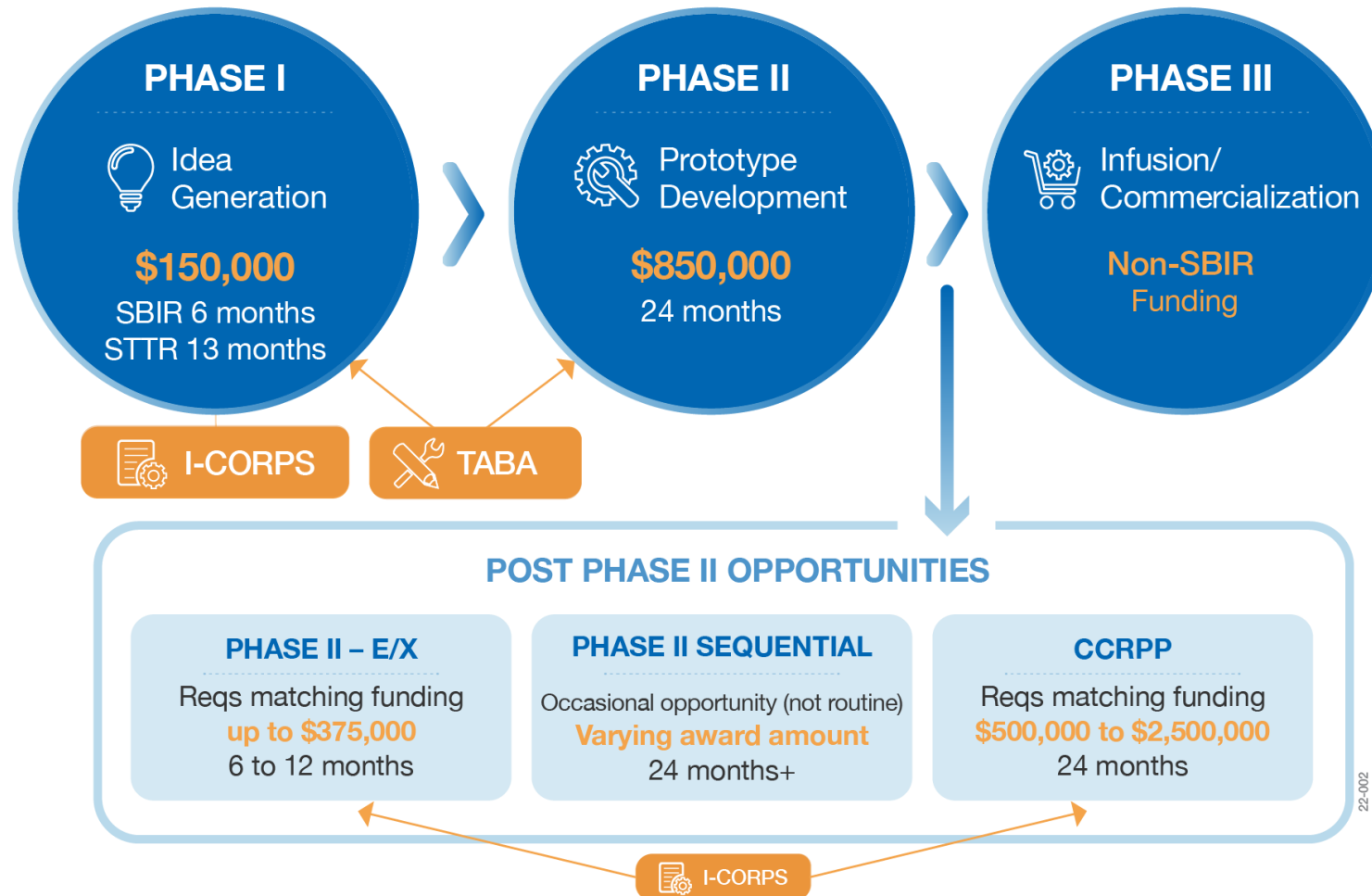
Approximately 15,000 total awards have been made to-date.

# SBIR / STTR Program Structure



Up to \$1 million for Phase I and II and nearly \$3 million or more for Post Phase II opportunities!

## NASA SBIR/STTR PHASES





# 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>

### 2022 Focus Areas (FA)

**FA 1:** In-Space Propulsion Technologies

**FA 2:** Power Energy and Storage

**FA 3:** Autonomous Systems for Space Exploration

**FA 4:** Robotic Systems for Space Exploration

**FA 5:** Communications and Navigation

**FA 6:** Life Support and Habitation Systems

**FA 7:** Human Research and Health Maintenance

**FA 8:** In-Situ Resource Utilization

**FA 9:** Sensors, Detectors and Instruments

**FA 10:** Advanced Telescope Technologies

**FA 11: Spacecraft and Platform Subsystems**

**FA 12:** Entry, Descent and Landing Systems

**FA 13:** Information Technologies for Science Data

**FA 14: On-orbit Servicing, Assembly, and Manufacturing (OSAM)**

**FA 15:** Materials, Materials Research, Structures, and Assembly

**FA 16:** Ground and Launch Processing

**FA 17:** Thermal Management Systems

**FA 18:** Air Vehicle Technology

**FA 19:** Integrated Flight Systems

**FA 20:** Airspace Operations and Safety

**FA 21: Small Spacecraft Technologies**

**FA 22:** Low Earth Orbit Platform Utilization and Microgravity Research

**FA 23:** Digital Transformation for Aerospace

**FA 24:** Dust Mitigation

# Small Spacecraft Technologies SBIR Subtopics



## 2022 Small Spacecraft Technologies and Responsive Space Access Subtopics

**Z8.02:** Communications and Navigation for Distributed Small Spacecraft Beyond Low Earth Orbit (LEO)

**Z8.09:** Small Spacecraft Transfer Stage Development

**Z8.10:** Modular Systems for Cost-Effective Spacecraft Missions

**Z8.13:** Space Debris Prevention for Small Spacecraft

<https://sbir.nasa.gov/solicit/79614/detail?data=ch9>



# Post-Phase II Opportunity: NASA Flight Opportunities

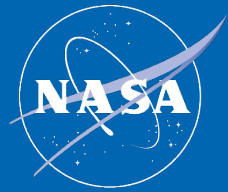


## Suborbital Flight Testing to Mature SBIR/STTR Technologies

- NASA Flight Opportunities (FO) is interested in investing in suborbital flight testing of SBIR/STTR technologies
- Allows for continued maturation of technologies beyond TRL4
- What FO is looking for:
  - Tech pull: NASA customer or commercial application
  - Multiple investors: skin-in-the-game
- Phase II-E option: FO investment matched by SBIR/STTR Program
- Flight Opportunities Contact
  - Alexander van Dijk, [alexander.vandijk@nasa.gov](mailto:alexander.vandijk@nasa.gov)
  - [www.nasa.gov/flightopportunities](http://www.nasa.gov/flightopportunities)



# Typical Timeline



Solicitation Release

January 2022



Proposal Submissions

January 2022 – March 2022



Proposal Reviews  
and Selection

March 2022 – May 2022



Phase I Selection  
Announcement

May 2022

Note: A Federal agency may enter into a Phase III agreement at any time with a Phase I or Phase II awardee.



Contract  
Negotiations/Awards

May 2022 – July 2022



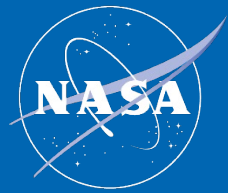
Phase II Proposal  
Submission

Due by Phase I Contract  
End Date



Note: Dates are subject to change. For the latest dates, please visit the SBIR website's "Schedule & Awards" page.

# New SBIR Opportunity for Commercially-Viable Technologies



## NASA SBIR IGNITE

fuels the entrepreneurial community  
to help shape the aerospace market

### Technology Topics:

- Technologies Using NASA Data to Foster Climate Resilience
- Enabling technologies for the development of a robust Low-Earth Orbit Economy
- Low-Cost Photovoltaic Arrays for Space
- Electric and Hybrid Electric Systems for Unmanned Aerial Vehicle (UAV) and Aircraft in the 1500 to 5000 lbs. size class
- Point-of-use Recycling for Optimized Space-Age Logistics
- Commercial Development of Active Debris Remediation (ADR) Services

### GOAL

Fund early-stage tech to help make companies and their tech more attractive to private sector investors, customers, and partners.

### 2022 SUBMISSION PERIOD

Open through September 1, 2022

### 2022 AWARD AMOUNT

Phase I: \$150,000

Phase II: \$850,000

### 2022 PERIOD OF PERFORMANCE

Phase I: 6 months

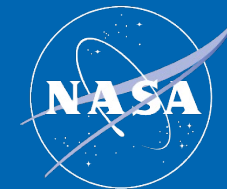
Phase II: 24 months

### LEARN MORE

[sbir.nasa.gov/ignite](https://sbir.nasa.gov/ignite)



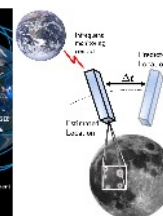
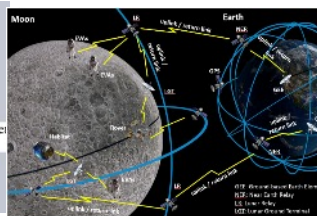
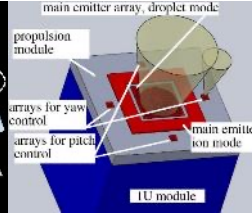
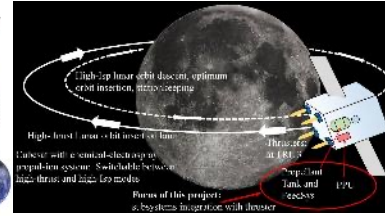
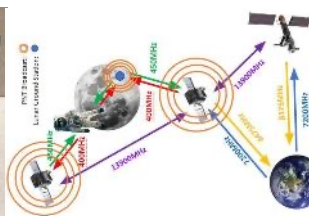
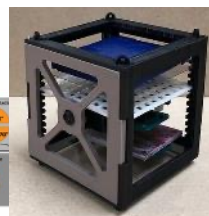
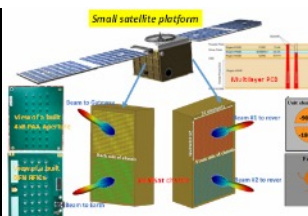
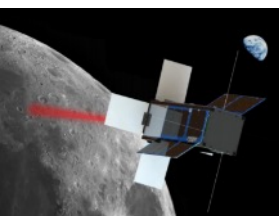
# SST's Smallsat Technology Partnerships



## The SST program sponsors regular Smallsat Technology Partnerships (STP)

- 2-year PI-led cooperative agreements between a U.S. university team and a NASA center to develop specific technologies for small spacecraft
- \$200k / year + 0.5 FTE for NASA/JPL partner + \$25k procurement for NASA/JPL in 2<sup>nd</sup> year
- Competitive solicitations – specific technology topics vary
- Starting Technology Readiness Level (TRL) typically 3-6
- NASA benefits from rapid, innovative academic processes yielding new technologies
- Universities gain experience and recognition through hands-on NASA collaborations

Image credits - STP 2020 Cohort:



Arizona State University

San Diego State University

California State University, Los Angeles

University of Colorado, Boulder

University of Illinois, Urbana-Champaign

University of California, Irvine

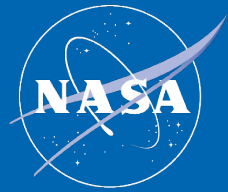
University of California, Los Angeles

University of Texas, Austin

Utah State University<sup>9</sup>

NASA SBIR/STTR Program | [sbir.nasa.gov](https://www.nasa.gov/sbir)

# Contact us and let's innovate together!



## **NASA STMD booth**

Booth 77, Taggart Student Center, Juniper Lounger

## **SBIR / STTR Hyperwall presentation**

Fieldhouse

## **Website**

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

## **Sign up to our Newsletter**

[Sbir.nasa.gov/info](http://Sbir.nasa.gov/info)

## **NASA Help Desk**

301.937.0888