



Flight Opportunities

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- CubeSat Developer's Workshop: April 26-28, 2022
- Space Tech Expo: May 23-25, 2022
- NSMMS and CRASTE: June 27-30, 2022

Enjoy!

The Flight Opportunities team

Coming Soon: NASA TechFlights 2022 – Synopsis Now Available

NASA anticipates the release of the 2022 TechFlights solicitation in early May. This year, TechFlights will offer up to \$750,000 per awardee to researchers from U.S.-based industry, academia, and private research institutions to rapidly test promising technologies on commercial flight vehicles. In addition to flight testing with commercial suborbital flight providers, this year Flight Opportunities is joined by NASA's **Small Spacecraft Technology** program which will allow researchers to propose flight tests of payloads hosted on commercial orbital platforms as well. Awardees will receive a grant or cooperative agreement allowing them to purchase flights directly from any eligible U.S. commercial flight provider that best suits their technology demonstration.

Prepare now for the solicitation

- Read the **full synopsis** for more information, and watch your inbox for the official solicitation announcement in the coming weeks.
- View our webinar on **Tips for Preparing Proposals for Suborbital Flight Testing**.
- Make plans to attend the Q&A in early May (details to be announced soon).

Register by May 5 for NASA Nighttime Precision Landing Challenge No. 1



The **NASA TechLeap Prize Nighttime Precision Landing Challenge No. 1** invites applicants to submit proposals for sensing systems that can detect hazards from an altitude of 250 meters or higher and process the data in real time to **help spacecraft land safely in the dark**. Up to three winners may receive awards of up to \$650,000 each to build their payloads, as well as the opportunity to test their technology on a suborbital flight at no additional cost.

Watch the Q&A replay.

Apply to the challenge!

Visit the **Challenge webpage** to get started.

Registration due: May 5, 2022

Applications due: May 19, 2022

Get to Know Our New Deputy Program Manager: Danielle McCulloch

With an engineering background and broad experience managing technology and research organizations, Danielle has provided strategic and operational support to Flight Opportunities as a contractor since 2015. Recently hired by NASA as the program's new Deputy Program Manager, she is taking inspiration from key initiatives for Flight Opportunities as it continues to evolve alongside a growing commercial space community.



Thank you so much for taking some time to talk with us. Can you share some background about your new leadership role with Flight Opportunities?

Well, in many ways this role isn't completely new, but rather an extension of much of the work that I've been doing for the last several years with the program. Much of my effort has been focused on connecting the dots between the many programs, missions, flight providers, and researchers that are part of the suborbital flight and space technology development communities. I help ensure Flight Opportunities can maximize its impact – and then help spread the word about that impact! The commercial space landscape is evolving quickly, and I've supported efforts to increase the program's agility in working with our commercial partners and reducing barriers to researchers' access to flight tests. I'm really looking forward to continuing and expanding that work.

What has that looked like in practical or tactical terms?

A great example is the [Community of Practice webinar series](#) we started in 2021 – an idea that we got from our friends over at the [Small Spacecraft Technology](#) program, with whom we work very closely. These once-a-month conversations among researchers, flight campaign managers, flight providers, and other NASA programs really help us share lessons learned within the community. Participants identify best practices for flight tests, share how the impact of flight tests can help technologies advance to other missions, and help researchers new to flight testing consider successful test plans. The live interactions are so much richer than a database, and institutionalizing this type of information exchange and community building has been one of my favorite projects.

With your engineering background, are you also involved with the technologies selected for the program?

Yes. It's been gratifying to find strategic ways to ensure the program is identifying and testing technologies that can have significant impact on missions being conducted both by NASA and industry. The space we're working in is rapidly changing, so we need to be nimble and responsive as well to meet our goal of truly increasing the pace of space. Program Manager John Kelly, Program Executive Chris Baker, and I are all united in this vision. One way we've been looking to do this is with innovative tools like prizes and challenges. Our new [NASA TechLeap Prize](#) is one example. These competitions give us the ability to target specific technology gaps for planned missions and very rapidly select, fund, and provide flight testing to technologists capable of filling those gaps. This is 100% in line with our goal of using commercial capabilities to test technologies and help them get infused into missions quickly while lowering the risk for those missions in the process.

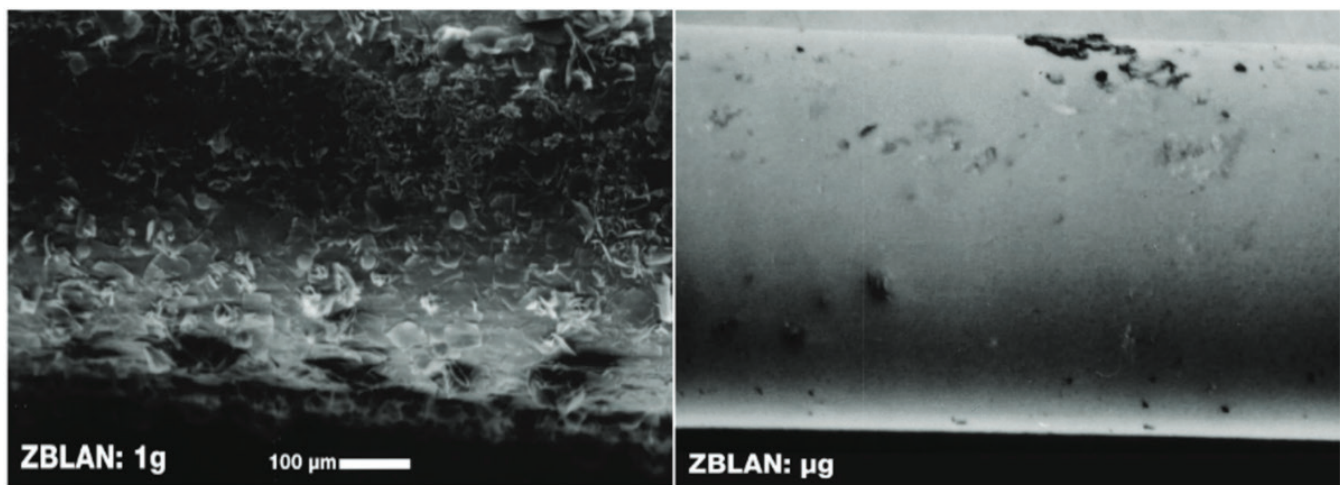
Any other thoughts about where you see the program headed?

I'm passionate about the NASA mission, and programs like Flight Opportunities have a unique role in achieving it because we can do things creatively and at a more rapid pace than is sometimes possible within other government programs. Our work alongside industry gives us the ability to leverage speed within a pragmatic structure that can really help us have great impact.

And beyond your work with NASA, what is inspiring you these days?

Exploring the beautiful wilderness of the Pacific Northwest with my husband and son. And also preparing for my next triathlon. I've completed four Ironman competitions so far – I love the motivation they give me to stay active, and just finishing feels like an accomplishment!

Technology Transition Spotlight



ZBLAN fibers produced in 1 g (left) often exhibit imperfections such as crystallization, whereas those produced in microgravity (right) show a significant reduction in such defects. Credit: NASA

FOMS Leverages Parabolic Flights to Prep for International Space Station

After successful suborbital flight testing supported by Flight Opportunities, FOMS takes its optical fiber manufacturing technology to the International Space Station this summer.

Space Fibers 3: What it is

The Space Fibers 3 project from FOMS, Inc. and NASA's Johnson Space Center (JSC) provides several automation concepts designed to enable volume manufacturing of ZBLAN (short for Zirconium Barium Lanthanum Aluminum Sodium Fluoride) fibers in microgravity.

Why it is important

Compared with fibers produced here on Earth, when manufactured in 0 g, optical fibers such as ZBLAN demonstrate performance improvements that may lead to superior end products. Applications include products for telecommunications, lasers for medical and scientific uses, spectroscopy, thermal imaging, military technologies, and more.

Suborbital flight milestones

Researchers leveraged three parabolic flights provided by Zero Gravity Corporation in 2021 to validate performance of the Space Fibers 3 automated manufacturing unit. Funded by Flight Opportunities and NASA's Small Business Innovation Research (SBIR) programs, the flights resulted in several key milestones, including:

- Demonstration of gravity-immune, continuous fiber draw in 0 g and 1.7 g
- Identification of multiple design upgrades prior to orbital demonstration
- Verification and rehearsal of crew instructions to be provided to astronauts on the International Space Station
- Verification of test protocols, safety designs, and mission operations prior to station deployment

What's next

Space Fibers 3 will launch to the station on SpaceX Commercial Resupply Service mission 25 (SpX-25), planned for June 2022. Once aboard the station, astronauts will have access to the unit for loading of materials, but the entire fiber manufacturing process will be automated via remote control from a ground station.

Learn more

The success story of Space Fibers 3 transitioning to an orbital demonstration was the subject of our April 2022 Community of Practice webinar. [Watch the replay](#) to learn more.

“The Flight Opportunities program offers payload developers a unique chance to witness the performance of their hardware in a space-like environment, in person. Our flights with ZERO-G have been indispensable, along with the incredible support from NASA through the SBIR and Flight Opportunities programs. These flights have helped us improve our hardware and provided a clear path towards advancing the technology for the space station.”

Dmitry Starodubov, principal investigator for Space Fibers 3, FOMS, Inc.

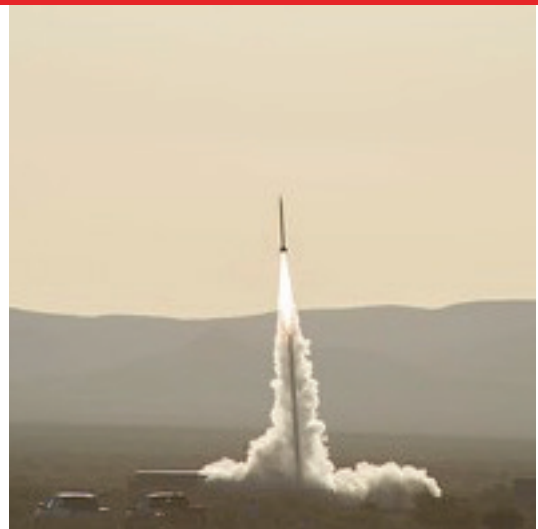
Community of Practice

Join Us For the May Webinar

Sounding Rockets as a Platform for Suborbital Flight Testing

**Wednesday, May 4, 2022
10:00 a.m. - 11:00 a.m. PDT**

Watch your inbox for details and attendance information coming soon.



CubeSat Developer's Workshop

April 26-28, 2022

San Luis Obispo, California

Join team members from NASA's Small Spacecraft Technology program at this event, along with keynote speaker Florence Tan, Deputy Chief Technologist for NASA's Science Mission Directorate, and Chair of the Small Spacecraft Coordination Group at NASA Headquarters.

Space Tech Expo

May 23-25, 2022

Long Beach, California

Flight Opportunities Chief Technologist Stephan Ord will be on hand at this event, along with personnel from NASA's **Game Changing Development** program as well as NASA's Goddard Space Flight Center. Stop by Booth #7048.

NSMMS & CRASTE Joint Symposia

June 27-30, 2022

Madison, Wisconsin

Join Flight Opportunities Program Manager John Kelly for his presentation "Expanding Suborbital Testing: NASA Flight Opportunities and Commercial Partners Advance New Capabilities" on June 29.

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Drop us a line at:

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NASA Flight Opportunities Program

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Flight Opportunities is part of NASA's Space Technology Mission Directorate.