Tips for Preparing Proposals for Suborbital Flight Testing
Stephan Ord and Dr. Brock LaMeres
February 3, 2021

Community of Practice Webinar Series
NASA Flight Opportunities
https://www.nasa.gov/directorates/spacetech/flightopportunities/community-of-practice

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NASA FLIGHT OPPORTUNITIES

National Aeronautics and
Space Administration

Welcome to the Community of Practice Webinar Series!

Flight Opportunities hopes these webinars will enable researchers, program staff, and flight providers to connect informally and share information

- Designed to distill and share the most important lessons learned to:
  - Increase the impact of suborbital flight tests
  - Transfer best practices
  - Optimize the experience of current and prospective program participants
- Part of a broad effort to capture, organize, and communicate lessons learned by suborbital researchers
- An opportunity to hear from subject matter experts on best practices for preparing for suborbital flight tests

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Today's Speakers

Stephan Ord
Chief Technologist
NASA's Flight Opportunities Program

Brock LaMeres
Professor | Electrical & Computer Engineering
Director | Montana Engineering Education
Research Center

Montana State University

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Talk to us at any time!

Get in touch with Flight Opportunities early in the technology development cycle

- Talk with us about technologies in development

- Identify the earliest opportunities to fly prototypes and preliminary hardware

- Discuss the best available flight platforms/profiles to help de-risk key components of hardware or software

- Contact Stephan Ord, Chief Technologist for Flight Opportunities, to learn more: **stephan.f.ord@nasa.gov**

Contact Flight Opportunities NOW to discuss Future Flight Tests

Flight Opportunities

Idea! — Prototype Development — Ground-based Benchtesting — Further Ground-based Development — TRL-4 (or higher) — Fly!

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Tips for successful Tech Flights proposals

Communicate the connection to NASA's goals

How will your technology and flight experiment benefit NASA's missions and the agency's strategic goals? Stay up to date on NASA's priorities and clearly communicate how your technology may help the agency achieve them.

Explain why your technology is outstanding

Know the state of the art, and clearly explain why your technology is superior to what has been done before – or may be superior by maturing the technology via flight testing.

State your case for flight

Why does your experiment need a test flight, and why now? Communicate what you will learn or gain by doing a flight experiment and why it cannot be done on the ground.

Don't overlook the basics

Pay close attention to flight plan and cost details, and word/page limits. (Extra pages are eliminated and will not be reviewed by the selection committee, regardless of the information they contain.)

Be clear and to the point

Make sure your writing is clear and cogent. Ask for peer reviews to give feedback before you submit your proposal, and make sure you allow enough time to make revisions before the deadline.

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Best practices for preparing for a solicitation

1 Leverage the Flight Opportunities website.

- Review Q&A presentation from prior solicitation.
- Check out the Resources page on the website, which has program factsheets, annual reports, and more.
- Review previous solicitations, keeping in mind that each solicitation may vary.

2 Subscribe to the Flight Opportunities newsletter and monitor NSPIRES to keep up with the latest news about calls and solicitations.

3 Gather your proposal information and line up colleagues to help with peer reviews.

4 Reach out to fellow community members.

www.nasa.gov/flightopportunities
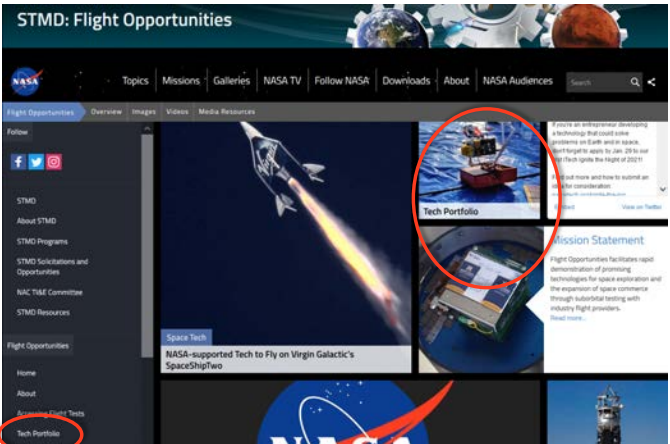
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Leverage the Flight Opportunities community

Search the technology portfolio

- Identify technologies similar to yours
- Familiarize yourself with tests performed on various vehicles
- Identify community members to connect with

www.nasa.gov/flightopportunities

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RadPC – Radiation Tolerant Computer
Technology Maturation Through the NASA Flight Opportunities Program

Principal Investigator

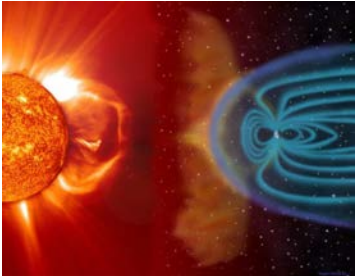**Dr. Brock LaMeres**
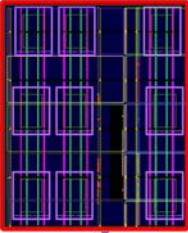Montana State University

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RadPC

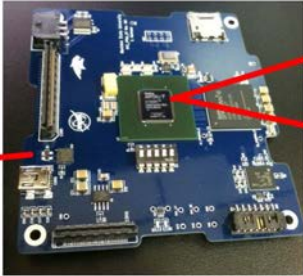**A Novel Computer Architecture Implemented on a COTS FPGA**

- A modern COTS part (<65nm) provides ~600krad TID immunity inherently.
- A modern COTS parts significantly reduces cost over custom, "Rad-Hard" parts.
- SEUs are handled via the redundant processing cores, each that can be partially reconfigured to a healthy state if faulted by radiation.

9-Tile MicroBlaze System
(TMR + 6 Spares)

RadSat

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Flight Opportunities Testing

MONTANA STATE UNIVERSITY

Sounding Rocket Testing #1

- Flown on an *UP Aerospace* vehicle on 10/23/2014 out of New Mexico.

RadSat 15

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Flight Opportunities Testing

MONTANA STATE UNIVERSITY

Sounding Rocket Testing #2

- Flown on a NASA Terrier-Orion vehicle on 3/7/2016 out of Wallops.

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Flight Opportunities Testing

High Altitude Balloon Testing #1
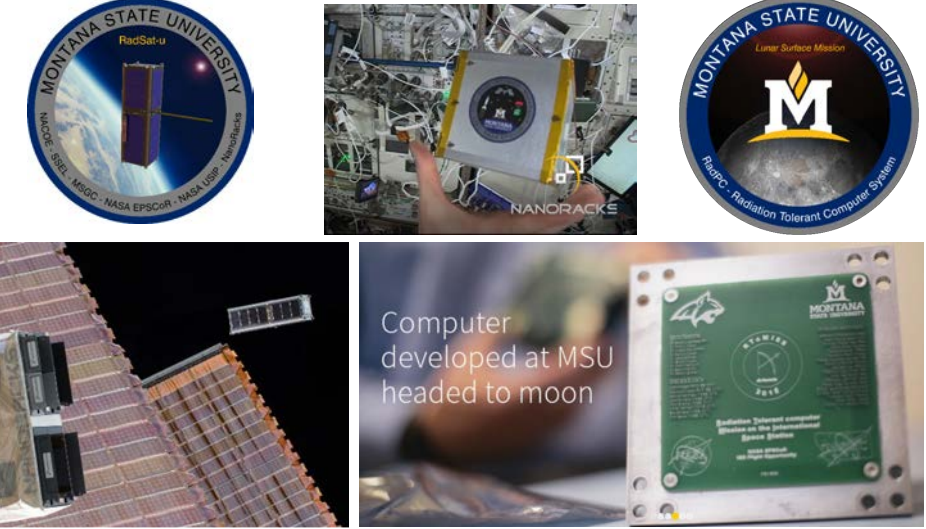
- Flown on a World View Stratocraft on 9/22/2019.

RadSat

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What's Next for RadPC?

FOP Enabled Demos on CubeSats, the ISS, and the Moon

Computer developed at MSU headed to moon

RadSat

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Join us for future Community of Practice webinars!

Look for the March topic in our newsletter & on the website

📅 March 3, 2021 at 10 a.m. PST

Future webinars

- Webinars are held 1st Wednesday of each month at 10 a.m. PT

- Topics will be announced in the Flight Opportunities newsletter and website

- Session recordings will be posted on the Flight Opportunities website

- Let us know session topics you would like to see covered

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Thank you!

Flight Opportunities website:
http://nasa.gov/flightopportunities

Contact us:
NASA-FlightOpportunities@mail.nasa.gov

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