

MASA

Sponsorship Packet

2020-2021

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MASA Rockets

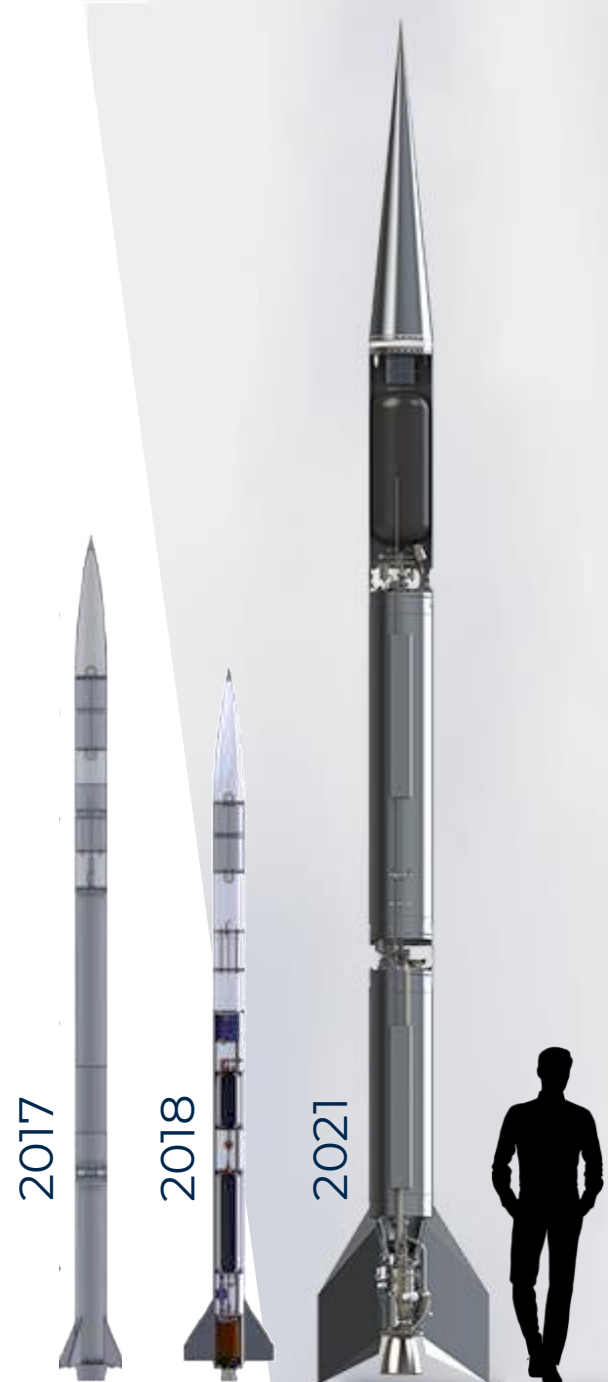
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MASA is launching to 400,000 ft from Spaceport America

We're a student engineering team launching to space in 2021 as we compete for a \$1M prize in the Base 11 Space Challenge. We're building and testing a 3D-printed, regen-cooled liquid rocket engine, welded aluminum propellant tanks, and advanced hardware. It's all part of Tangerine Space Machine - the 1,400 lb. rocket that will take Michigan to space.





Mission

MASA's mission is to design, build, and fly sounding rockets while teaching students about the basics of rocketry. We provide valuable hands-on engineering experience to both students at the University of Michigan and to aspiring engineers, through our outreach projects.

◀ Laika, an experimental liquid-fueled rocket, undergoes final checks at Spaceport America Cup 2018

Team

MASA is an interdisciplinary team comprised of students from seven different majors. It is made up of different subteams, including aerodynamics & recovery, propulsion, assembly, test & launch operations (ATLO), avionics, structures, business, and production.

MASA remains one of only five teams in the world to have launched and recovered a liquid-propellant rocket and was the first to do so, at Spaceport America Cup 2018.

► Blueshift, a solid-fuel rocket, sits on the launchpad at IREC 2017



Sponsoring MASA

MASA's sustained innovation is made possible by our corporate and private sponsors. Join us and become part of a growing legacy of partners that help keep MASA at the forefront of student rocketry, year after year.

Social Media & Online Exposure

With thousands of followers across social media and tens of thousands on University pages which we often partner with, you will gain exposure for your company and products when you sponsor our team!

Access to top-tier engineering students

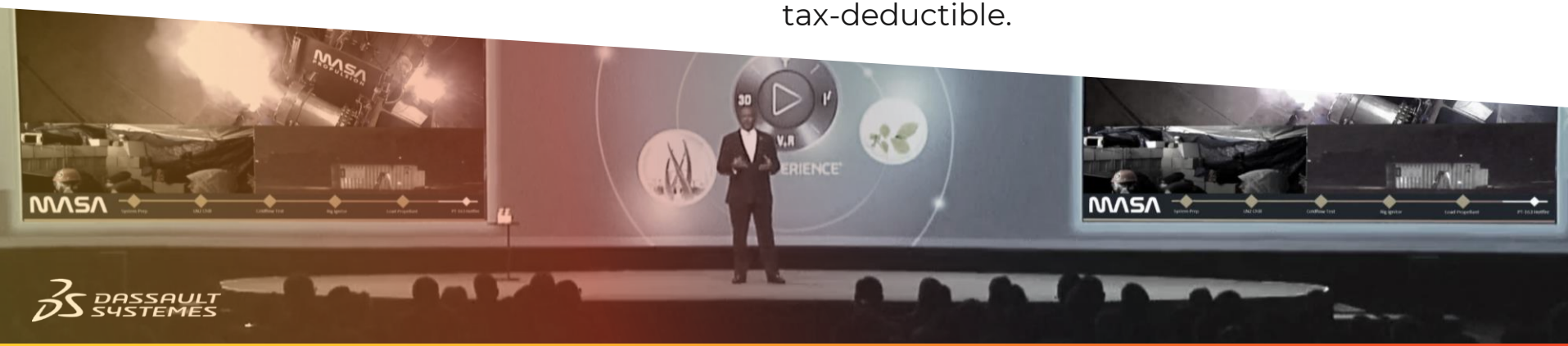
Gain access to MASA's hardworking, diverse and talented workforce with resume books and exclusive recruiting events with the team.

Press & Industry Coverage

In 2019, MASA was featured on-stage at the Dassault Systèmes 3DEXperience Forum in Las Vegas and sent delegates to the annual AIAA Scitech Forum. The first students to launch a liquid rocket to space will receive international attention – as the top contender, MASA will highlight your company's role in our success.

Tax Benefits

MASA has 501(c)(3) non-profit tax-exempt status, and all donations to the team are tax-deductible.



Benefits by sponsorship tier:

	Stratosphere (Up to \$5k)	Mesosphere (Above \$5k)	Thermosphere (Above \$10k)	Kármán Line* (Above \$35k)
Exposure on social media, livestreams, & newsletter	•	•	•	•
Tax Benefits	•	•	•	•
Logo or name on website	•	•	•	•
Logo on engine test cell, team t-shirt, trailer, and banner	•	•	•	•
Access to member resume book	•	•	•	•
Exclusive recruiting/filming events with the team		•	•	•
Logo on suborbital rocket		•	•	•
Invitation to witness engine static fire, rocket launch		•	•	•
Priority logo placement & branding			•	•
Co-branding of TSM Project, custom page on website				•

Design review considered equivalent to \$500 in funding. Cost of donated materials and gift-in-kind agreements is included in sponsorship level values.

*Kármán Line tier: At least \$20k of sponsorship value must be a monetary contribution





How to Help

MASA benefits from:

- **Monetary donations** for rocket & engine development and manufacturing
- **Material donations**, including 6061/7075 aluminum, avionics connectors, PCB printing, engine propellant, pressure transducers and sensors for engine plumbing, etc. These are incorporated directly into rocket and test equipment
- **Design reviews** from industry experts to guide us during the development phase

◁ MASA's PT-163, the most powerful student-built liquid rocket engine in the world, sits on its test stand at the MASA Rocket Propulsion Testing Facility

Current Sponsors

Thank you to our sponsors! Their support is what makes MASA's continued innovation possible.



Team & Technical Updates

October 2020

PT-163 Breaks Records

MASA successfully tests our LOx/Ethanol engine for a 1.4-second burn with a thrust of 2650 lbf, breaking the thrust record in student liquid rocketry!



RP-D2 Engine Revealed

MASA unveils RP-D2, the flight engine that will propel our rocket to space. RP-D2 is expected to produce over 4000 lbf of thrust.



MASTRAN Simulator Ready

MASA completes work on the first version of our custom 6DOF flight simulator which improves on commercially available rocket simulator options.





2020 Goals

Technical Goals

- Longer-duration burn of new regeneratively-cooled engine in Fall 2020
- Development of new LOx/RP-1 rocket engine & recovery systems for Tangerine Space Machine in Fall 2020
- Full stack vertical hotfire at FAR (California) test site & launch in May 2021

Team Goals

- To continue implementation of Diversity, Equity, and Inclusion plan that strengthens team by broadening perspectives and promoting teamwork
- To encourage members to obtain trainings to ensure longevity of machining capabilities
- To improve documentation to ensure knowledge continuity and safety

Team History

2003: MASA is founded as an amateur rocketry club at the University of Michigan, Ann Arbor.

IREC 2013: MASA successfully launches *Helios*, its first rocket with a composite airframe, and its largest rocket to date.

2013-2015: MASA develops its first hybrid rocket engine, *Alpha Centauri*, alongside its new solid rocket, *Young Hickory*.

IREC 2016: MASA successfully launches *The Great Emancipator* with the *Alpha Centauri* engine to 13,800 ft. It places 2nd in the Advanced Category.

2016-17: MASA improves on its proven hybrid engine and unveils *Gamma Centauri*, designed to propel a rocket to 30,000 ft.

Spaceport America Cup 2017: MASA is awarded 1st place in the Hybrid/Liquid Category for the flight of *Tortas 8* with the *Gamma Centauri* engine, and is declared the overall winner of the competition.



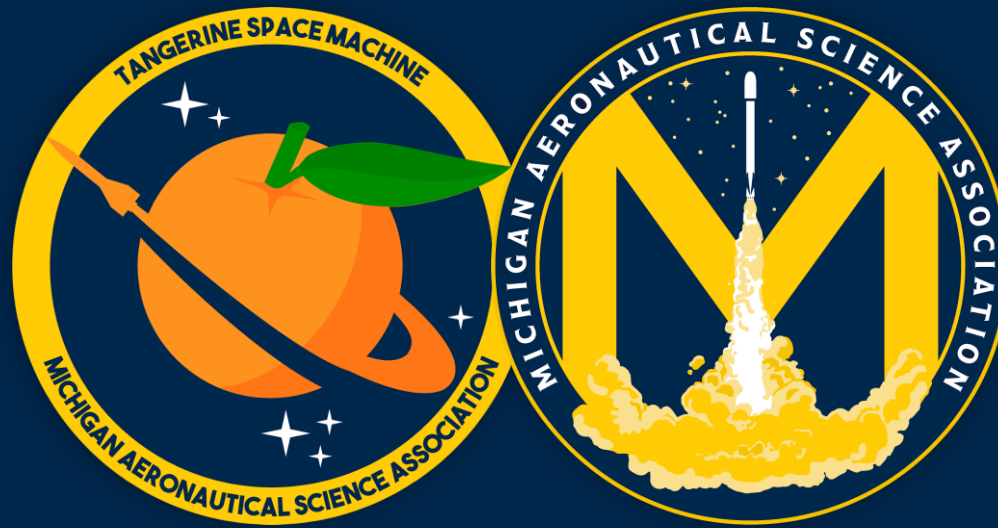
◀ Laika liquid engine stack

Spaceport America Cup 2018: MASA is the first team to launch and recover a liquid bi-propellant rocket, *Laika*, at the competition. It receives the highest score in the hybrid/liquid category, and the sportsmanship award.

June 2019: MASA is awarded first place in Phase 1 of the Base 11 Space Challenge for its preliminary design report (PDR) for Tangerine Space Machine, at the Next Frontier event at Caltech.



MASA at the award ceremony at Mojave Air and Spaceport in California in 2017



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