MASA

Sponsorship Packet

Fall 2024

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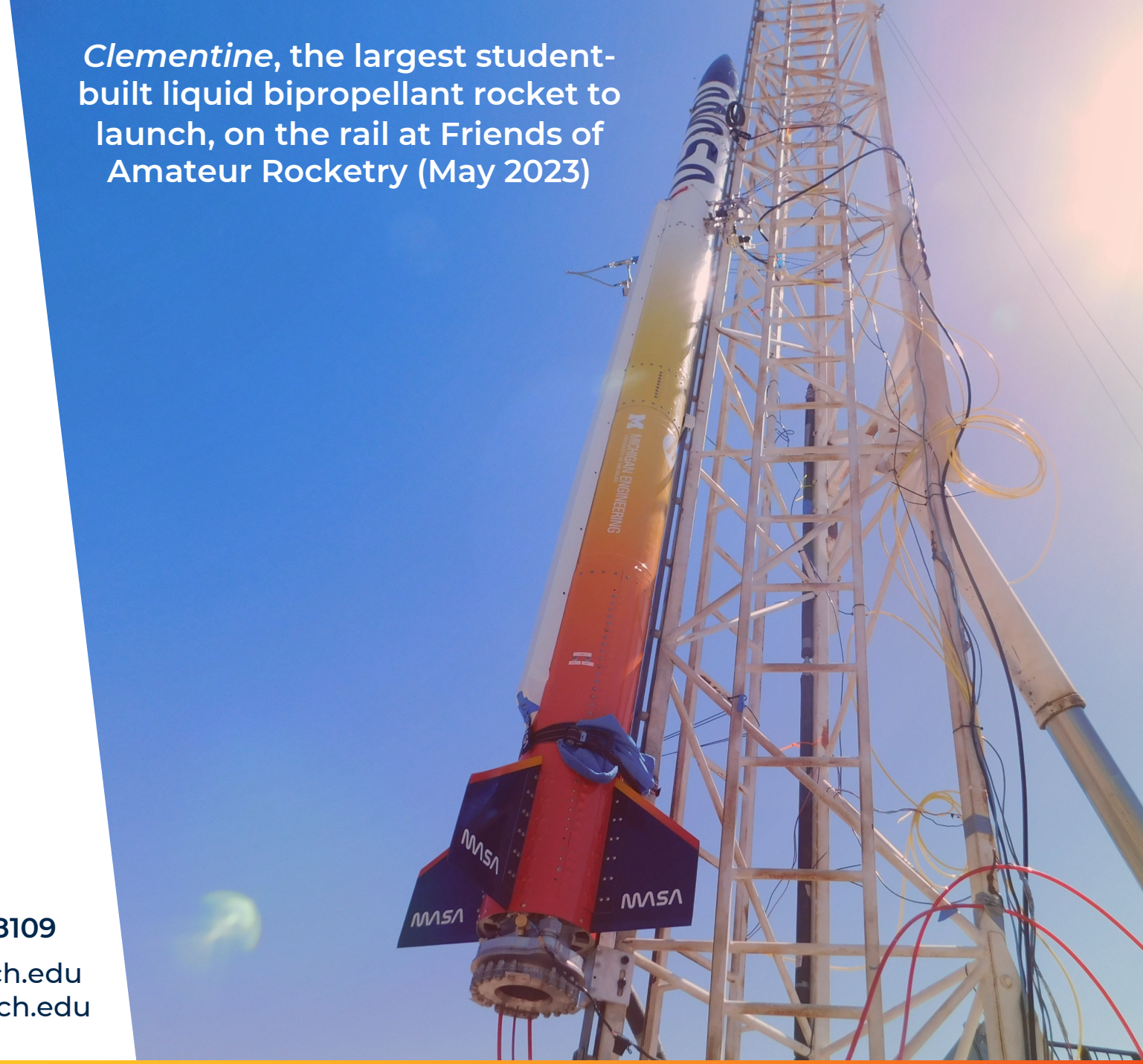

Clementine, the largest student-built liquid bipropellant rocket to launch, on the rail at Friends of Amateur Rocketry (May 2023)

MASA Rockets

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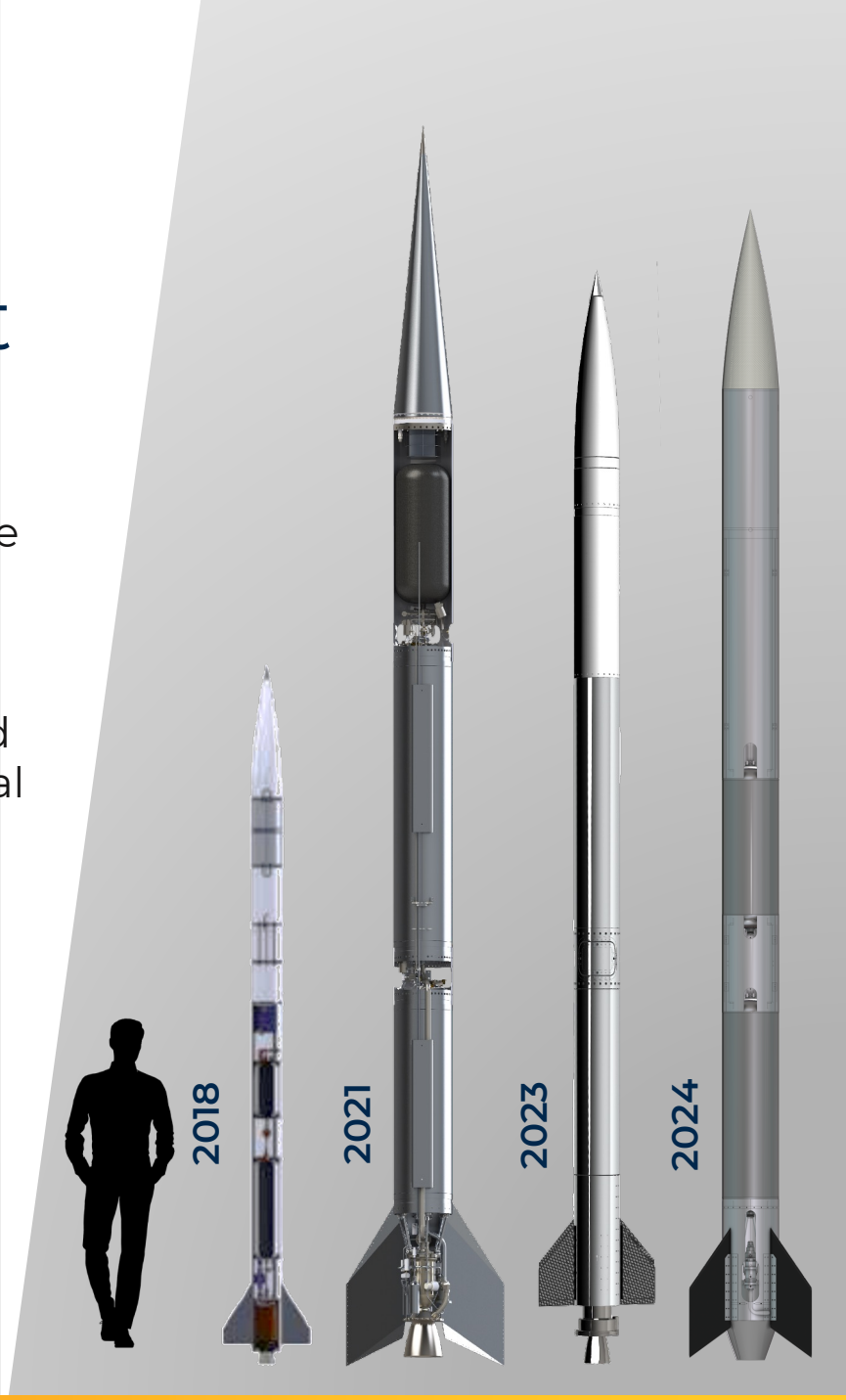
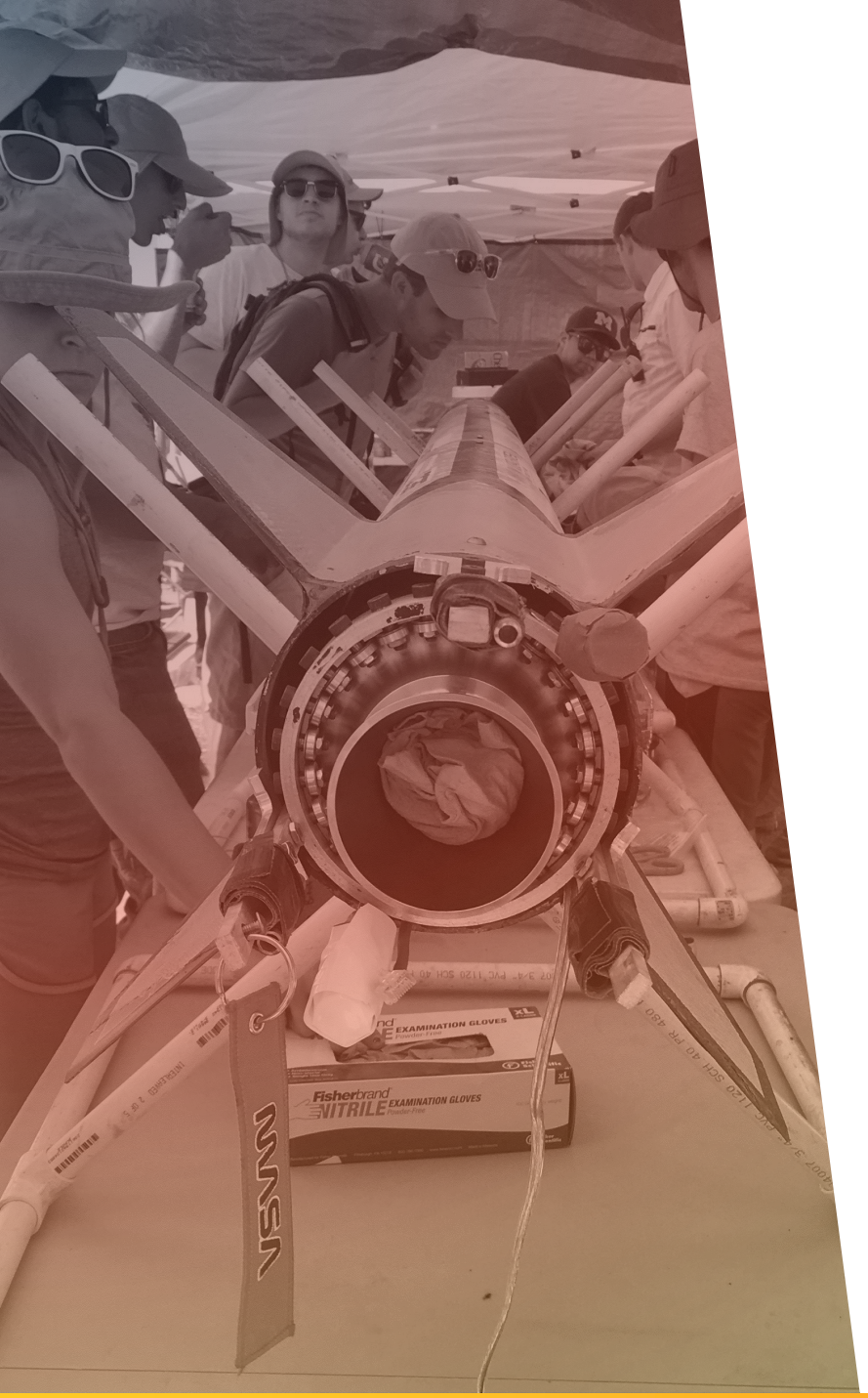
MASA is pushing the boundaries of student rocketry!

We are the student-run rocketry team at the University of Michigan.

Our current project, *Limelight*, will utilize state-of-the-art avionics, aerostructures, and propulsion systems to work towards the goal of **surpassing the student liquid-rocket altitude record.**





Mission

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

◁ MASA's *Laika*, the first-ever liquid-bipropellant rocket to be launched by students at Spaceport America Cup in 2018, undergoes final checks

Team

MASA is the student-run rocketry team at the University of Michigan. We take a multidisciplinary approach to engineering, bringing students together to **design, build, and launch pioneering liquid-fueled rockets**. MASA is composed of 8 subteams, allowing team members to grow in all aspects of engineering, business, outreach, and leadership. Together, MASA works to take Michigan to new heights!

MASA remains one of the **only teams in the world to have launched and recovered** a liquid-propellant rocket and was the first to do so at the Spaceport America Cup in 2018. Most recently, we launched a liquid bi-propellant rocket, which holds the record for **the largest liquid rocket launched by a student team**.

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 networking events with the team.

Press & Industry Coverage

In 2019, MASA was featured on-stage at the Dassault Systèmes 3DExperience Forum in Las Vegas and in 2022, we participated in the launch of the Academic Rocket Launch Alliance at AIAA SciTech. MASA constantly receives recognition, and your company can be front and center with us!

Tax Benefits

MASA has 501(c)(3) non-profit tax-exempt status, and donations to the team may be 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 team t-shirt	•	•	•	•
Access to member resume book and networking events	•	•	•	•
Access to rocket & test footage, filming events†		•	•	•
Logo on rocket		•	•	•
Invitation to witness engine static fire, rocket launch‡		•	•	•
Priority logo placement & branding			•	•
Co-branding of next project, custom statement on website				•

Sponsorships span 12 months or until the end of the Limelight program, whichever comes last. The duration of Kármán Line partnerships is determined individually.

Design review considered equivalent to $500 in funding. Value 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*
† Footage use & filming events: *Each request must individually be reviewed and approved by the University*
‡ Invitation to events: *As permitted by safety policies and range safety considerations*

How to Help

MASA benefits from:

- **Monetary donations** for rocket & engine development and manufacturing
- **Material donations**, including metal stock, tooling, 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.

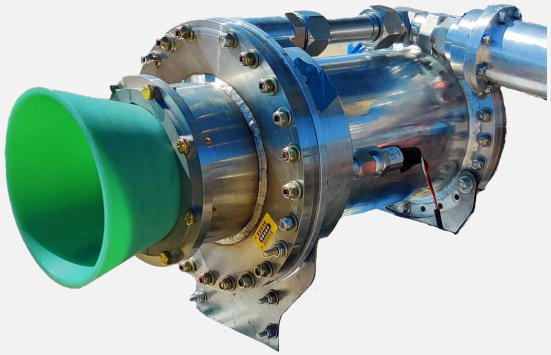
◁ MASA's *ME-5* Engine on the test stand at the Mojave Test Area during the 2024 Spring Hotfire Campaign

Team & Technical Updates

Summer 2024

Evolving Our Engine

Phoenix, our latest engine, designed by our Propulsion subteam, is incorporating learnings from *ME-5* and other previous engines in order to achieve full regenerative cooling.



ME-5 Engine on test stand

Assembling Hotfire GSE

Our mobile ground support equipment (GSE) trailer designed by our ATLO subteam will be used to hotfire *Phoenix* in 2025 to prepare our engine for launch!

Ground Support Equipment Trailer

Integrating *Limelight*

Our Structures subteam is developing the full-rocket CAD for *Limelight* and is preparing our team for the manufacturing, assembly, and testing phases on the path to a 2025 launch.

2024-25 Goals

Technical Goals

- To update and test our evolved high-performance engine design
- To fully integrate Limelight's main structure, aerodynamics, and propulsion hardware
- To launch *Limelight* in 2025

Team Goals

- To continue implementation of Diversity, Equity, and Inclusion plan that strengthens team by broadening perspectives and promoting teamwork
- To train members in machining to ensure longevity of production 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.

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.

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.

◁ Spitfire liquid rocket engine stack, 2018

2018-2021: MASA participated in the Base 11 Space Challenge, placing 1st in Phase 1 (PDR) and 2nd in Phase 2 (CDR) of the most ambitious student rocket competition to date.

2021-2023: MASA successfully launched *Clementine*, a liquid bi-propellant rocket, which holds the record for the largest collegiate liquid rocket.

2024: MASA successfully validates GSE system for *Limelight*, but experiences issues with *ME-5* engine leading to the development of the new *Phoenix* Engine

MASA before *Clementine's* Launch May 2023

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