

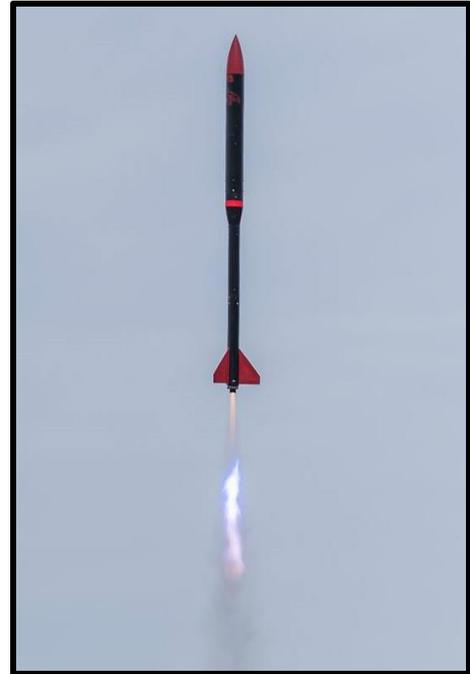
# Mechanical Engineering Students Launch High-Powered Rocket in NASA Competition

The American Institute of Aeronautics & Astronautics (AIAA) Stony Brook University Chapter successfully launched a full-scale, high-powered rocket during the [NASA Student Launch](#) at the NASA Marshall Space Flight Center in Huntsville, Alabama this past April.

The team came to fruition in the summer of 2016 when Mechanical Engineering student, Matthew Lee '18, solicited interest from his fellow classmates and secured an advisor, Assistant Professor of Mechanical Engineering, [Sotirios Mamalis](#). To increase support and manpower the team divided into four subgroups and gained approval from the Department of Mechanical Engineering to build the rocket for their Senior Design project. By the summer of 2017, the founding members were ready to focus their efforts on constructing a rocket that would qualify them for the 18<sup>th</sup> annual competition.

The annual competition is a design-build-fly event, which takes place over eight months. The guidelines are set forth by NASA based on a real-life space mission, as well as the needs of current research and development for the Space Launch System (SLS). This year, the teams were challenged to build a reusable rocket that could be launched to an altitude of exactly one mile while carrying a payload and following the team's predicted trajectory. In order to tackle these challenges, the subteams focused on four different systems: structure, payload, recovery & navigation, and propulsion.

Early in the spring 2018 semester, the team reached the major milestones to begin testing as determined by NASA Marshall Space Flight Center Review Panel: Project Proposal, Preliminary Design



Review, and Critical Design Review. This resulted in [successfully launching](#) their subscale model in Connecticut, demonstrating to NASA that the fundamental design properly operated. The full scale vehicle, standing at 11' and weighing over 40lbs, completed a test launch in Virginia, but resulted in a structural failure. Minor modifications were made and a successful second test flight was completed, landing the team a spot for launch in Huntsville.

The Stony Brook Chapter of AIAA was one of 50 teams to be accepted into the final competition with a working rocket and payload. The group won 3rd place for "Best Rookie Team for

Altitude.” They also received an award from NASA for being a “top 40 team” to complete the design life-cycle, which included completion of all reports, building and testing the rocket, and having the rocket successfully fly and recover during the final competition.

The Mechanical Engineering Department recognized AIAA’s accomplishment by awarding the graduating team members with “Best Overall Senior Design Project.” Reflecting on the hours dedicated to AIAA during his final year at Stony Brook, Mechanical Engineer and AIAA Team Secretary, Gazi Sakib ’18, stated, “Even though we started [AIAA] at Stony Brook, we want to see this project go on and for this team to be much more successful in the future. We hope our early achievement sparks interest related to aerospace and rocketry among engineering students at Stony Brook. From what I have seen, there is a strong team ready to excel in next year’s competition.”



The campus organization is designed to unify students interested in aerospace engineering while practicing their skills under the guidance of advisors and mentors. The team has expressed overwhelming gratitude toward the Department of Mechanical Engineering, particularly Professors Mamalis, Chakraborty, and Mendelson. They also conveyed a great appreciation toward their mentors from the Long Island Advanced Rocketry Society (LIARS).

Additional information about AIAA at Stony Brook University, can be found on the team’s [Facebook page](#) or [website](#). To join the club and to be added to the mailing list, contact the Executive Board at [aiaa.sbu@gmail.com](mailto:aiaa.sbu@gmail.com).