Propelling Swiss engineering to 3000 M

For space oriented applications
The EPFL Rocket Team, or ERT for short, is a student led association that aims to design and build rockets in Switzerland.

The team is based at the EPFL and is made up of bachelor and master students from multiple departments and other engineering schools.

### OUR TEAM’S CORE TENETS

**+ STUDENT RESEARCHED AND DESIGNED +**

The team puts an emphasis on improving its members’ engineering skills through hard work and practical application of theoretical knowledge. The rocket and its components are thoroughly researched and designed to meet the high self imposed standards for excellence and innovation.

**+ PROFESSIONAL AND RESULT ORIENTED +**

The ERT participates in rocket engineering competitions where its members can apply the wide range of technical and engineering related knowledge accumulated in their studies. These competitions confront multiple generations of students to similar constraints of time and money that they will be facing in their professional careers. They encourage engineering students to pursue a career in aerospace. Moreover, the team pursues each project with the rigour and discipline often associated with aerospace projects. Indeed, great care is taken by the team to organise the project and bring it to completion: design, simulation, construction and testing are all thoroughly thought out and minutely carried out.

**+ SWISS MADE, STUDENT BUILT +**

From the smallest screw to the bigger carbon composite hull of the rocket, the team prides itself that most of the rocket’s components have been built or designed in house. Indeed, the emphasis of the team is to improve its members engineering skills by doing and not merely watching. With the support from companies specialised in the aerospace and engineering domains, and from numerous academic institutions, we have the opportunity to access and work with very competent professionals and state of the art equipment and facilities.
The Spaceport America Cup is the largest student rocketry competition in the world. The goal is to assemble a team of future engineers passionate about space technologies, build a rocket to pulse an 8.8lbs (4kg) payload to an altitude of several kilometers and recover the rocket safely in one piece after use. The competition offers multiple challenges: target altitude, type and construction of the propulsion system, payload type, etc. This allows for each team to surpass themselves year after year through new designs, iterations on the previous year's design and adapt their efforts to the chosen challenge.

Since the first edition in 2006, more than 130 teams from world renowned universities such as MIT, Caltech and McGill regularly take part. The competition has also taken an international scale, with teams from countries around the world such as India, Brazil and South Korea taking part. With its sister ETHZ, EPFL is the first european team participating in the competition.

Since 2017, the competition takes place at the Spaceport America in the New Mexico desert. The site is also used by prestigious companies such as Virgin Galactic and hosts a world renowned drone competition.

+ PROJECT MATTERHORN AND BEYOND +

In June of 2018, we launched Matterhorn II at the Spaceport America Cup. We were awarded the «Jim Fufaro award for Technical Excellence», a prize granted to only one of the participating teams. It acknowledges exeptional overall engineering discipline and technical skills.

Fresh from its success at the 2018 Spaceport America cup with project Matterhorn, the EPFL Rocket Team participated once again with project Eiger. We designed a new rocket, building upon what was learned and aiming towards more ambitious goals such as a student researched and developed engine as well as a structure able to withstand supersonic speeds.

Launching a student researched and developed engine is the EPFL Rocket Team’s goal for its participation in the 2020 Spaceport America Cup.
Length : 3060 [mm]
Char. diameter : 155.6 [mm]
Launch mass : 30.542 [kg]

Maximum velocity : 256.5 [m/s]
Maximum acceleration : 6.22 [g]
Apogee : 3225 [m]

Stability margins : 4.1742 [Cal.]
Damping ratio : 0.0682 [-]
Eigenfrequency : 1 [Hz]

Structure :
+ $^6\text{C}$ composite hull
+ $^{13}\text{Al}$ couplers, airbrakes etc.
+ $^{29}\text{Cu}$ antenna and electronic
+ $^{26}\text{Fe}_6\text{C}$ thrustplate, sat$^3$ frame
Nosecone + Payload Bay
The payload is housed in a 3U+ Cubesat frame. It usually houses an experiment and totals 4[kg] of mass.

Recovery Bay
Houses the two stage riefed parachute as well as the CO₂ actuated ejection mechanism of the recovery.

Avionic Bay + Antenna
Housing a modular avionic, the multiple modules (GPS, Barometers, etc) slot themselves onto a rigid spine that carries all the data to a main processing unit. If a component comes to fail, it can quickly be swapped.

The conformal patch antennas are on the outside of the avionics bay. They are curved to efficiently transmit data regardless of the rocket’s roll.

Airbrakes
The Shuriken airbrakes can deploy lateraly in a matter of milliseconds and are crucial in the task of the rocket to reach a target apogee within a 5% error margin.

Motor Bay
Can house either a commercial off the shelf solid powder motor or a student researched and developed hybrid motor.
BUDGET AND SPONSORSHIPS:
Cost breakdown of the project and sponsoring opportunities
The budget cut-down shown below illustrates the costs incurred for Project Eiger. The Rocket Team has a proper oversight on its finances and is regularly audited. Our budget takes into account both the « in kind » and plain cash sponsoring. The costs associated are high, in direct correlation with the level of technical expertise we strive to, and the project is highly dependent on the support of its generous partners.

Total: 151,408 CHF
Help students further their knowledge in engineering and management! Empower the young minds of tomorrow to innovate and make our dreams come true! Help promote Swiss excellence, technology and innovation worldwide by supporting us. We need you!

Our sponsorship packages give your firm exposure during our various outreach events at EPFL. Rockets also draw interest from medias. Over the course of project Matterhorn over 30 articles were written on us; we were also put forward on RSI and Couleur 3.
At the EPFL Rocket Team, we enjoy new challenges. By supporting our project, you are supporting students in their endeavors.

At the EPFL Rocket Team, we get hands-on experience and are confronted to problems we will be facing in our future jobs. By supporting us, you are shaping the future generation of engineers.
# SPONSORING PACKAGES

## REQUIREMENTS

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<tr>
<th>UNIVERSITY</th>
<th>MAIN SPONSOR</th>
<th>GOLD SPONSOR</th>
<th>SILVER SPONSOR</th>
<th>BRONZE SPONSOR</th>
<th>WHITE SPONSOR</th>
<th>SUPPORT</th>
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<td>Official university</td>
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<td>15 000.- CHF</td>
<td>5 000.- CHF</td>
<td>2 500.- CHF</td>
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<td>Laboratory or non-profit organization</td>
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## BENEFITS

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<th>LOGO ON WEBSITE</th>
<th>LOGO ON TEAM T-SHIRTS</th>
<th>SOCIAL MEDIA POSTS</th>
<th>INVITATION TO DESIGN REVIEWS</th>
<th>LOGO ON TEAM’S PRESENTATION BROCHURE</th>
<th>PROMOTIONAL MATERIAL DISTRIBUTION AT ERT EVENTS</th>
<th>LOGO ON ROCKET</th>
<th>LOGO ON ERT PROMOTIONAL FLYERS</th>
<th>LOGO ON PROJECT’S TECHNICAL POSTER</th>
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## LOGO ON WEBSITE

- Yes
- Yes
- Yes
- Yes
- Yes
- Yes
- Yes
- Yes

## LOGO ON TEAM T-SHIRTS

- Back
- Front and Back
- Back
- Back
- Back
- Back
- Back
- Back

## SOCIAL MEDIA POSTS

- At team’s discretion
- At least 5
- At least 3
- At least 2
- At least 1
- -
- -

## INVITATION TO DESIGN REVIEWS

- Yes
- Yes
- Yes
- Yes
- -
- -
- -

## LOGO ON TEAM’S PRESENTATION BROCHURE

- Big
- Big
- Medium
- -
- -
- -
- -

## PROMOTIONAL MATERIAL DISTRIBUTION AT ERT EVENTS

- Unlimited
- Unlimited
- On request
- -
- -
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- -

## LOGO ON ROCKET

- Yes
- Big
- Yes
- -
- -
- -
- -

## LOGO ON ERT PROMOTIONAL FLYERS

- Yes
- Yes
- -
- -
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## LOGO ON PROJECT’S TECHNICAL POSTER

- Yes
- Yes
- -
- -
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- -
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THANK YOU FOR YOUR CONSIDERATION

For any further information, feel free to contact us at info@epflrocket-team.ch