

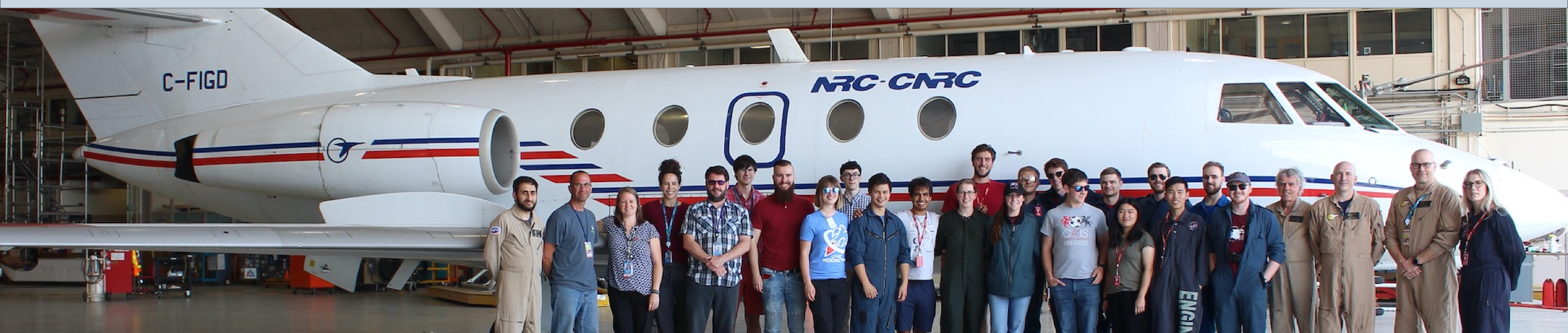
Students for the
Exploration
and Development
of Space



Étudiants pour
l'Exploration et
le Développement
Spatial



Canadian Reduced Gravity Experiment (CAN-RGX) Design Challenge Corporate Support Package



Visit [seds.ca/projects/can-rgx](https://www.seds.ca/projects/can-rgx) for more information



www.seds.ca



SEDS-Canada



@sedscanada

About SEDS-Canada

We are Canada's only student-run non-profit that works at the national level to inspire and empower students joining the space industry, and to advocate for the advancement of space exploration in the public sphere.

Student Empowerment

Along with our annual conference, design challenges, and competitions in entrepreneurship and astrophotography, SEDS-Canada helps students develop a professional network to not only join, but strengthen the space industry.

Advocacy

Through our growing network of student groups and our political advocacy efforts, we are building a collective student voice capable of advocating for the benefits of space exploration to the public at large, media and government.

An investment in **SEDS-Canada** is an investment in the **Canadian** space industry of tomorrow.

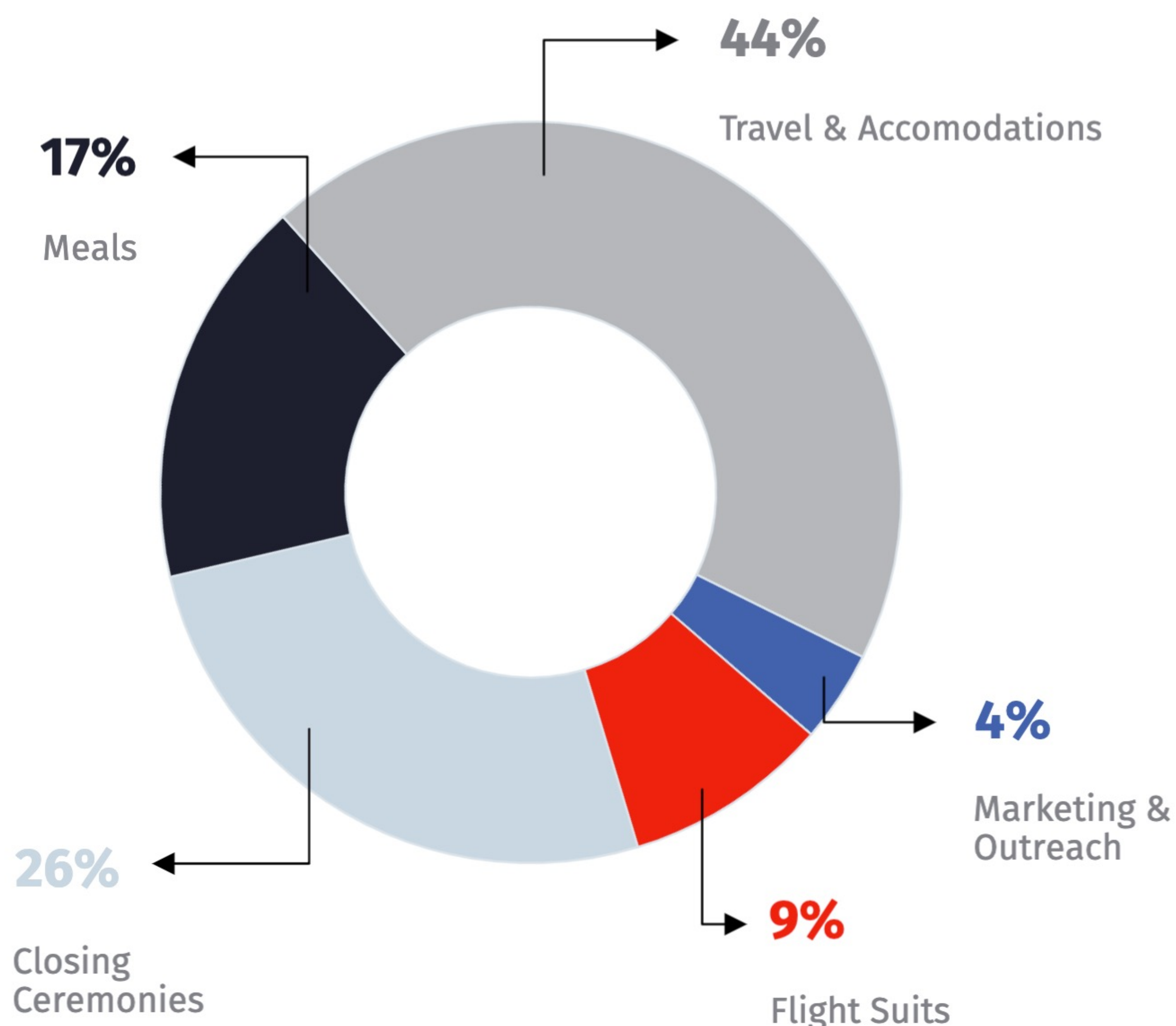


Message from the Team

In addition to having the Canadian Space Agency and the National Research Council of Canada as two of our long-term partners for several projects such as the Canadian Reduced Gravity (CAN-RGX) Design Challenge, we now seek to be the bridge between students and industry leaders such as you. As a sponsoring individual, corporation or organization, you will play a critical role in the realization of CAN-RGX. The total cost of CAN-RGX is \$4,276.10, not including the Falcon 20 flight costs, most of which falls under student travel and accommodation expenses. We currently have no sponsoring organizations.

This sponsorship package will overview the CAN-RGX competition, competition statistics, features of two participating teams, and sponsorship benefits. Our events are excellent advertising and recruitment platforms because our members are exclusively students – most of whom will soon be seeking employment in the near future. We're always interested in hearing how we can mold our benefits to suit your needs.

We hope you are interested in supporting a future generation of Canadian space sector leaders!



Ad astra,



Louis Burelle
CAN-RGX
Project Manager



Patrick Chin
CAN-RGX Asst.
Project Manager



Benoit Saulnier
CAN-RGX Asst.
Project Manager



Alina Kunitskaya
SEDS-Canada
Projects Chair



Competition Overview

The Canadian Reduced Gravity Experiment Design Challenge (codenamed CAN-RGX) is a competition that challenges post-secondary students across Canada to design, build and test a small scientific experiment to be flown onboard the National Research Council's (NRC) Falcon 20, which has been modified for reduced gravity experiments in association with the Canadian Space Agency (CSA). Students can propose experiments from a wide variety of research topics (e.g. life and physical sciences, engineering, natural science) after which four teams will be selected to fully design and build their experiments through a full engineering design cycle. Each team will choose two Mission Specialists to fly onboard the aircraft to run the experiments. Students will gain experience in experiment design and flight operations for a space-related project which will generate real scientific revenue without the high costs of launching an experiment to space.

Note: because of COVID-19, four teams that were selected in November 2019, and a fifth team selected in Nov 2020, will fly together in August 2021.



Competition Overview

Experiment Selection

The CAN-RGX competition leverages the expertise of well-established scientific personnel from industry and academia. These individuals will act as Subject Matter Experts (SMEs) for the competition, serve as judges, and become objective mentors to the design teams. In a typical year, judges choose 4 teams to participate in CAN-RGX based on criteria such as scientific merit, design feasibility, risk assessment, financial planning and educational outreach. There are **five** student teams flying this year; two of them are featured on the next page.

Flight Campaign

The campaign will consist of 3 flights, with 2 students from up to 2 teams on each flight. Each flight will last 1.5 hours and consist of at least 8 parabolic maneuvers, each of which will produce about 20 seconds of near zero-gravity. **Sponsor banners can be placed in visible areas of the aircraft cabin**, as seen in the picture below.

After the flight campaign, the teams will be invited to a **virtual** closing ceremony, where our sponsors can speak to the students and interact via a Q&A session (other options are available). The finalists will present their work and be awarded prizes: the team which demonstrates overall excellence in engineering, execution, and teamwork is awarded the Overall Excellence Award, and the team which excels in outreach will win the Outreach Award.

Promotion

SEDS-Canada promotes CAN-RGX to Canadian students in the space and science community at large. We are targeting hundreds of university departments and faculty across the country, as well as advertising the competition through our University partners and social media networks. SEDS-Canada will arrange for teams to showcase their work on our website and at certain events, solicit general media participation, invite media to a press conference, and produce a summary video from footage collected during the flight campaign. At each step, our sponsors will be featured in our promotional efforts.



Competition Overview

CAN-RGX At a glance: some stats

 103 students have participated in CAN-RGX

 43 students (including 7 high school students) are currently participating

 34 students have flown on the Falcon 20

 Alumni represent 12 Universities in 4 provinces

 Alumni represent 21 different disciplines (the most popular being mechanical, aerospace, and electrical engineering)

 Alumni have been awarded 11 major grants or awards

 Results from CAN-RGX have been presented at 11 conferences

 Results from CAN-RGX have been published in 5 journal articles

Team Features

In November 2019 a panel of judges from SEDS-Canada, CSA, and the NRC selected four teams to compete in the 2020 CAN-RGX Design Challenge. These are UA Space Design Group from the **University of Alberta**, uO Rocketry from the **University of Ottawa**, UBC Rocket from the **University of British Columbia**, and Phi-Six from **Thompson Rivers University**. A fifth team, TelOmG from the **University of Toronto** was selected in November 2020.

UBC ROCKET



UBC Rocket's experiment will **study the behaviour of microbial fuel cells in both micro- and hyper-gravity conditions**. Microbial fuel cells are likely to play an important role in the future of space travel due to their ability to produce electricity while simultaneously doing useful work such as wastewater treatment in extreme conditions or methane production. The team intends to measure the current and voltage of two microbial fuel cells throughout a parabolic flight path, which will yield information about the behaviour of multiple types of bacteria in various gravitational environments.

Did you know that approximately **1/6 of people on Earth are affected by knee osteoarthritis**? For this year's CAN-RGX campaign, UASDG's team of engineering and medical students are excited to investigate gene expression of bio-engineered cartilage tissue in micro-gravity. We will be tracking changes in precise gene expression and metabolites, as well as comparing male and female tissues. Not only is the experiment pertinent to astronauts returning to the ground, their findings could contribute to improving the health outcomes of knee osteoarthritis patients on earth!

 University of Alberta
Space Design Group



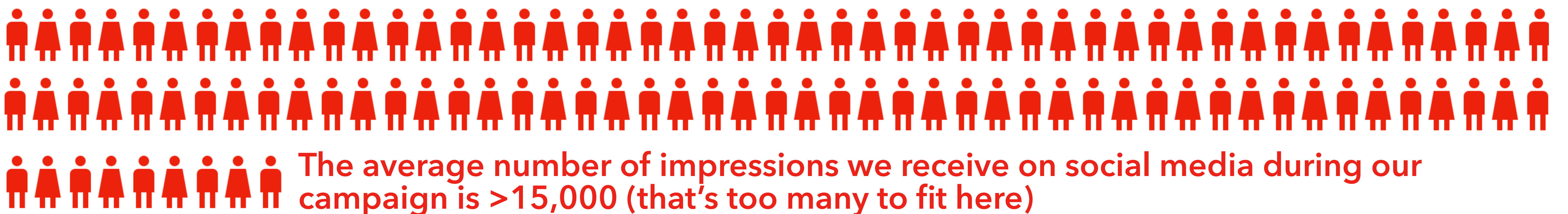
Sponsorship Benefits

Your support will go towards acquiring promotional materials and equipment, student flights and lodging, catering, and logistics for our flight campaign and closing ceremony. In return for supporting Canada's only reduced gravity experiment design competition we offer a number of benefits. **We are always looking for creative means to provide visibility to our sponsors and look forward to hearing your ideas on how to optimize your benefits.**

Advertising

Online

- Our CAN-RGX webpage will feature your logo in a size depending on the level of support. Gold sponsors have an opportunity to provide a brief description of their organization for our website and competition documents.
- Sponsors will be featured on our Twitter, Facebook, and Instagram pages prior to and during the Flight Campaign. We'll work with you to find the right content to post.
- Our promotional and project summary videos will feature our sponsors. Gold sponsors have an opportunity to provide a brief statement or be interviewed for each video.

 The average number of impressions we receive on social media during our campaign is >15,000 (that's too many to fit here)

Flight Campaign

- Gold sponsors may send 1 representative to the flight campaign at the NRC's Flight Research Laboratory in Ottawa to meet the teams.
- Students and SEDS-Staff will wear patches displaying the logo of our Gold sponsors on the sleeve of their flight suits (if worn).
- A small banner that showcases our sponsors will be placed inside the aircraft cabin. This, along with the flight suit patches, will be visible in our cabin footage which will be used in our project multimedia portfolio.
- Sponsors will have the banner with their logo behind students during filmed testimonials
- All sponsors have the opportunity to bring their own banners and any give-aways (i.e. swag) to the flight campaign
- Gold sponsors may give a brief speech at the (virtual) closing ceremony.
- The Gold Sponsor will receive naming rights to the Overall Excellence award. Their logo will be placed on the engraved crystal award for that prize.

Sponsorship Benefits

Participation and Recruitment

As a sponsor, you have the opportunity to not only indirectly support the project through financial contributions but also directly impact the students in this competition and SEDS at large.

SEDS-Canada Board of Advisors

A seat on the SEDS-Canada Board of Advisors is available to interested parties among our Corporate Partners. As an Advisor to SEDS-Canada, you will have the opportunity to guide the next generation of space leaders.

Ascension - Our Annual National Conference

A discount can be made available for the corresponding sponsorship level at our annual conference. This is a great way to further support and make an impact on the wider student space community.

Recruitment

By attracting student space enthusiasts from across Canada to our events, we present a great opportunity for our sponsors to recruit students. We are creating a database of entry-level jobs in the space sector available to our chapter members, with highlighted job postings and ad space given to our sponsors. Sponsors will also have access to a SEDS-Canada resume book.

Sponsorship Levels

	Gold: \$1500+	Silver: \$750+	Bronze: \$300+
Logo Placement on flight suits via Mission Patches	✓	✗	✗
Send Representative to the Flight Campaign	✓	✗	✗
Speaking slot at the (virtual) Closing Ceremony	✓	✗	✗
Logo Placement (website, social media, documents, banners, Closing Ceremony)	Large Logo	Medium Logo	Small Logo
Logo Placement (in flight Cabin, videos)	✓	✓	✗
SEDS-Canada Resume Book	✓	✓	✗
Ascension 2022 Discount	50%	50%	30%

We'd love to chat about how we can mold these benefits to your needs!

Give us a shout: canrgx@seds.ca

**We hope you join SEDS-Canada as a
Corporate Partner and help support the
next generation of space leaders!**



The CAN-RGX competition is a collaboration with the National
Research Council of Canada and the Canadian Space Agency

Canada



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