

# Access to Space for All Initiative



UNITED NATIONS OFFICE  
FOR OUTER SPACE AFFAIRS



UNITED NATIONS  
Office for Outer Space Affairs



# Access to Space for All Initiative



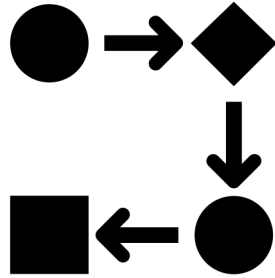
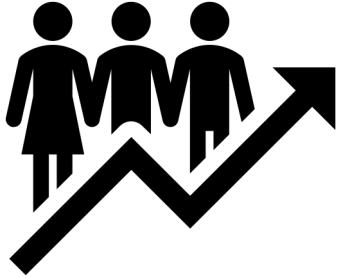
*The goal of the **Access to Space 4 All Initiative** is to provide research and orbital opportunities for UN Member States to access space and to ensure that the benefits of space, in particular for sustainable development, are truly accessible to all*



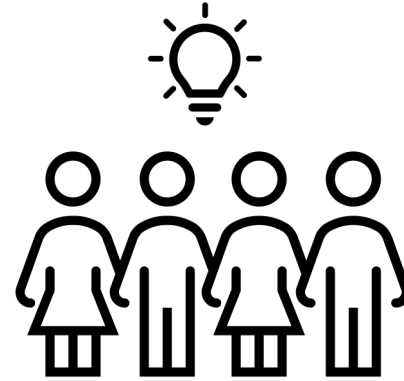
#AccSpace4All



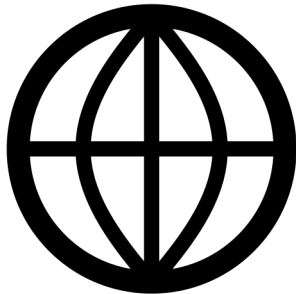
# Access to Space for All Initiative



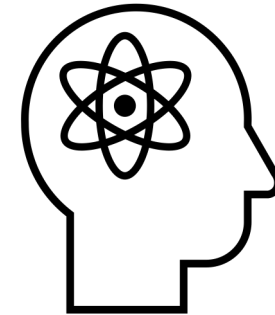
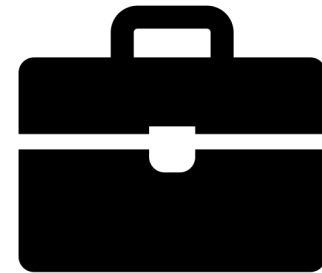
Hands-on Capacity from A-Z  
Responsible & Sustainable Way



Social Impact: To your country,  
region and young generations



Fosters international cooperation



Provides cutting edge skills for  
jobs and other opportunities



# Access to Space for All Initiative



Space is relevant to the SDGs!

The 2030 Agenda for Sustainable Development <https://sdgs.un.org/2030agenda>

To learn more about the SDGs go to <https://sdgs.un.org/goals>

UNOOSA SDGs page

<https://www.unoosa.org/oosa/en/ourwork/space4sdgs/index.html>



# Access to Space for All Initiative



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Goals

4

**Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all**

← Prev Next →



Target

**4.4**

By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship

Indicators ▲

**4.4.1**

Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill

Goals

9

**Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation**

← Prev Next →



Target

**9.1**

Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all



Target

**9.5**

Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending



# Access to Space for All Initiative

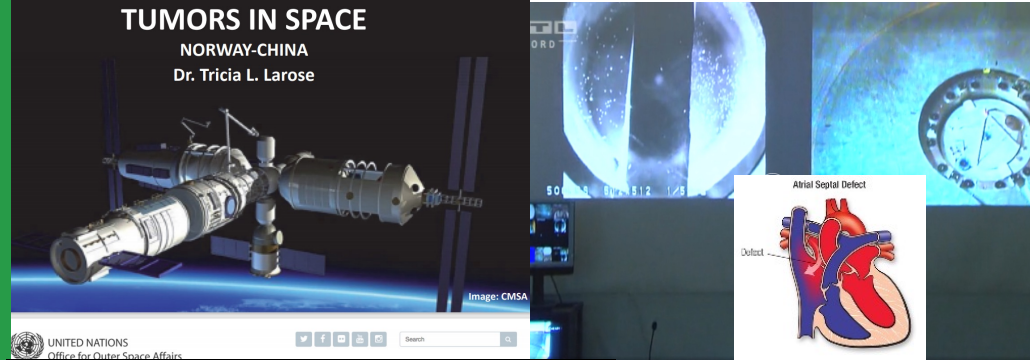


**3** GOOD HEALTH  
AND WELL-BEING



**TUMORS IN SPACE**

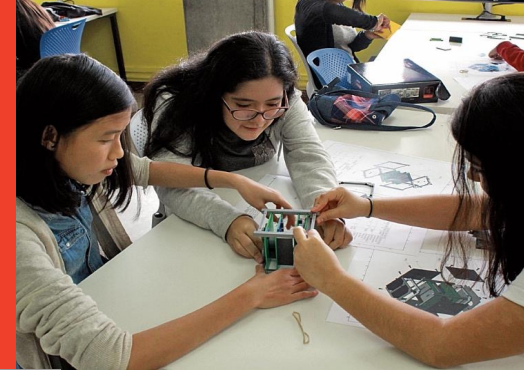
NORWAY-CHINA  
Dr. Tricia L. Larose



**6** CLEAN WATER  
AND SANITATION



**5** GENDER  
EQUALITY

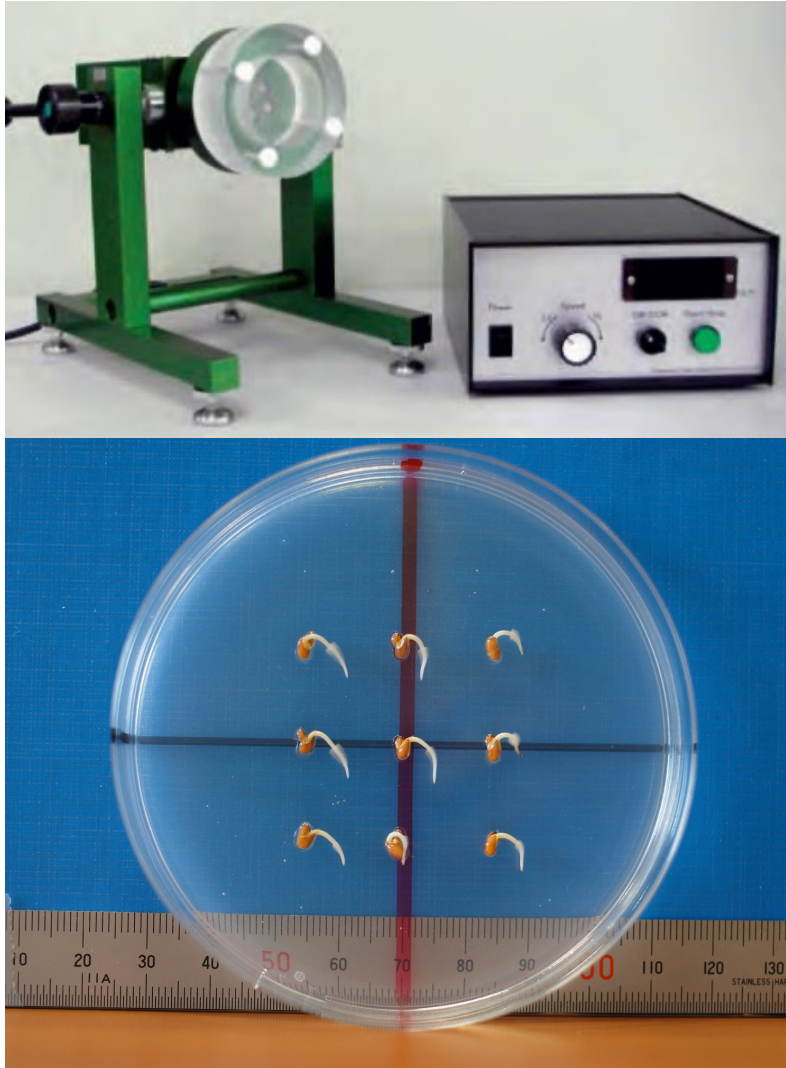


**9** INDUSTRY, INNOVATION  
AND INFRASTRUCTURE

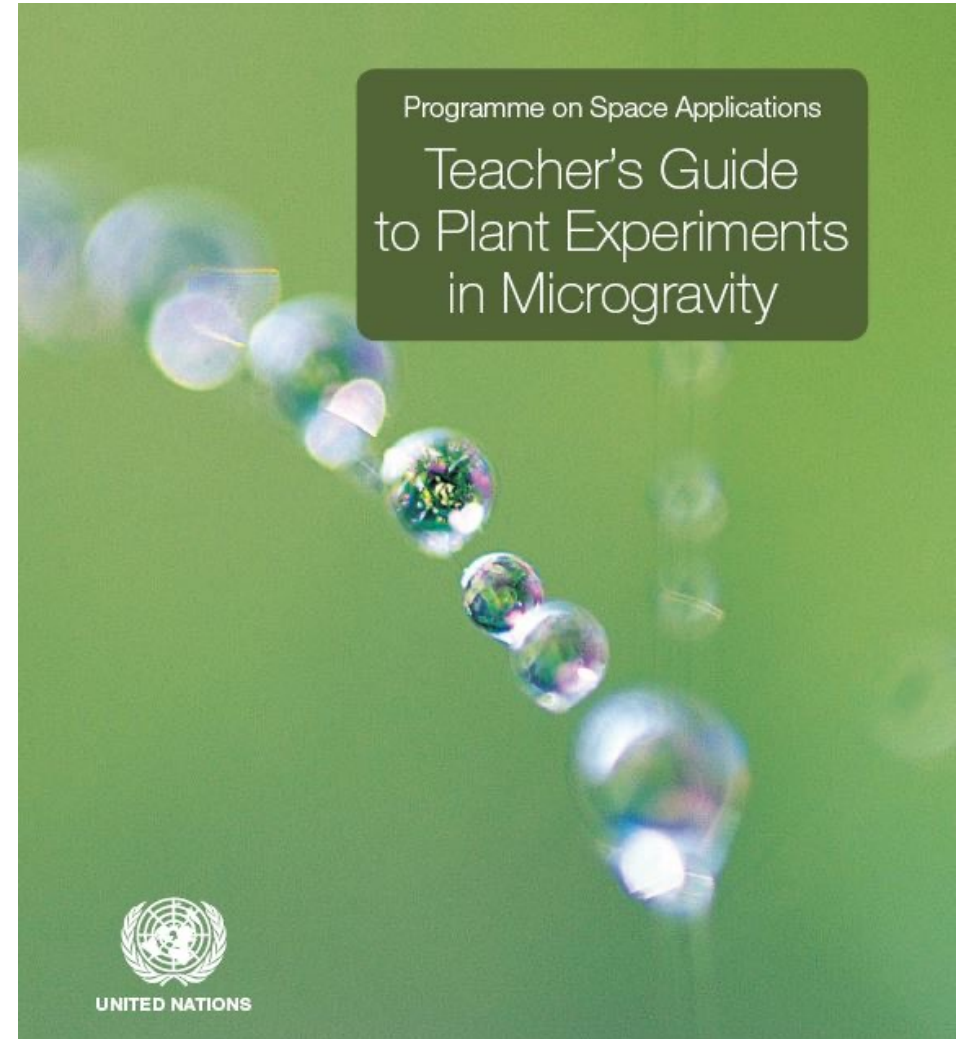




# Access to Space for All Initiative



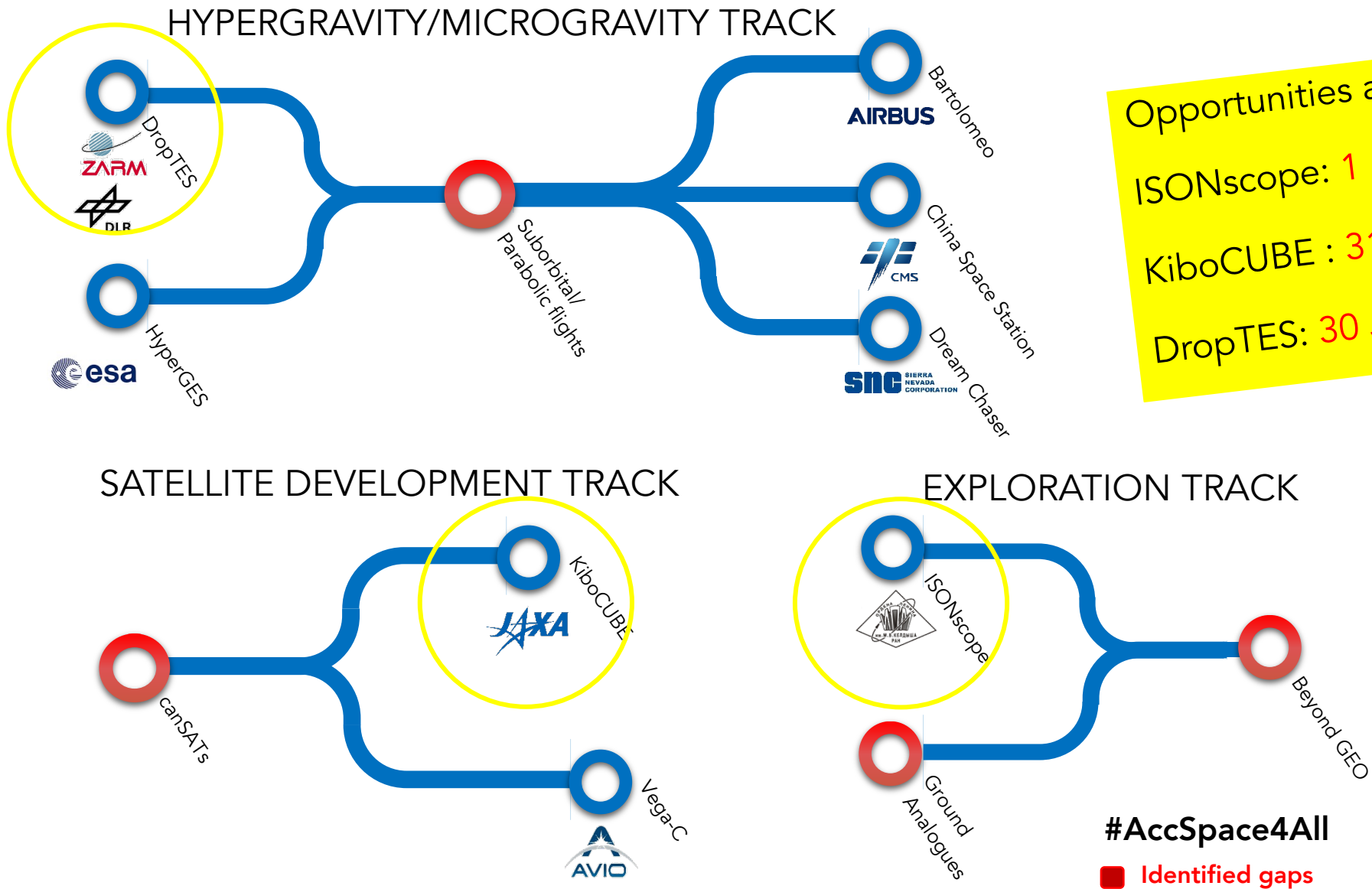
Z-GIP (Zero-Gravity Instrument Project)



[https://www.unoosa.org/oosa/oosadoc/data/documents/2013/stspace/stspace63\\_0.html](https://www.unoosa.org/oosa/oosadoc/data/documents/2013/stspace/stspace63_0.html)



# Access to Space for All Initiative



Opportunities are **OPEN!**  
ISONscope: **1 May 2021**  
KiboCUBE : **31 May 2021**  
DropTES: **30 June 2021**

#AccSpace4All  
■ Identified gaps



# Hypergravity/Microgravity Track



## DropTES -Applications Open until 30 June 2021!

- Partners: ZARM (Center of Applied Science Technology and Microgravity) and DLR (German Aerospace Center)
- Established: 2014
- Aims to provide educational or research institutions with opportunities to conduct a series of microgravity experiments at the Bremen Drop Tower in Germany.
- The drop tower experiment series consists of 5 drops or catapult launches to be conducted within one week. Each experiment series is accompanied by an on-site experiment integrations taking place one week prior to the campaign.



Photo credit: ZARM



# Hypergravity/Microgravity Track



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## DropTES: Winners

|                                                                  | Winner                                                                         |                                                                                       | Objective                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 <sup>st</sup> round<br>2014                                    | German Jordanian University<br>JORDAN                                          |    | to investigate the stability of tether dynamics for satellites with electromagnetic tether systems using a Tilger, a mass damper                                                                                                                                                                                                         |
| 2 <sup>nd</sup> round<br>2015                                    | Universidad Católica Boliviana<br>"San Pablo" BOLIVIA                          |    | to examine and evaluate the property of an alloy of Nickel and Titanium "Nitinol" under the microgravity environment                                                                                                                                                                                                                     |
| 3 <sup>rd</sup> round<br>2016                                    | Instituto Tecnológico de Costa Rica<br>Universidad de Costa Rica<br>COSTA RICA |    | to expand the technical knowledge and information on the behaviour of a reduced-scale robotic arm manipulator such as dynamics, motion, and control under microgravity conditions                                                                                                                                                        |
| 4 <sup>th</sup> round<br>2017                                    | Warsaw University of Technology<br>POLAND                                      |    | to verify, in vacuum and microgravity conditions, the deployment of the deorbit sail system on their two unit CubeSat called "PW-Sat2"                                                                                                                                                                                                   |
| 5 <sup>th</sup> round<br>2018                                    | University of Bucharest<br>Politehnica University of Bucharest<br>ROMANIA      |   | to expose medicine droplets containing aqueous chlorpromazine (CPZ) solution to both laser radiation and microgravity conditions                                                                                                                                                                                                         |
| 6 <sup>th</sup> round<br>2019                                    | Politecnico de Milano (Polimi)<br>ITALY                                        |  | to analyze the lateral sloshing of a ferrofluid solution in low-gravity with the aim of measuring its oscillation frequency while subjected to different magnetic field intensities.                                                                                                                                                     |
| 7 <sup>th</sup> round<br>2020<br>*experiments<br>delayed to 2021 | Universidad Católica Boliviana<br>"San Pablo" BOLIVIA                          |  | to determine the 3D printing feasibility under microgravity conditions, measure intra-structure remaining liquid resin after light exposure and compare manufacturing time, amount of used material, while processing the same piece between 2 different approaches (Fused Deposition Modeling (FDM) and Digital Light Processing (DLP)) |



# Hypergravity/Microgravity Track

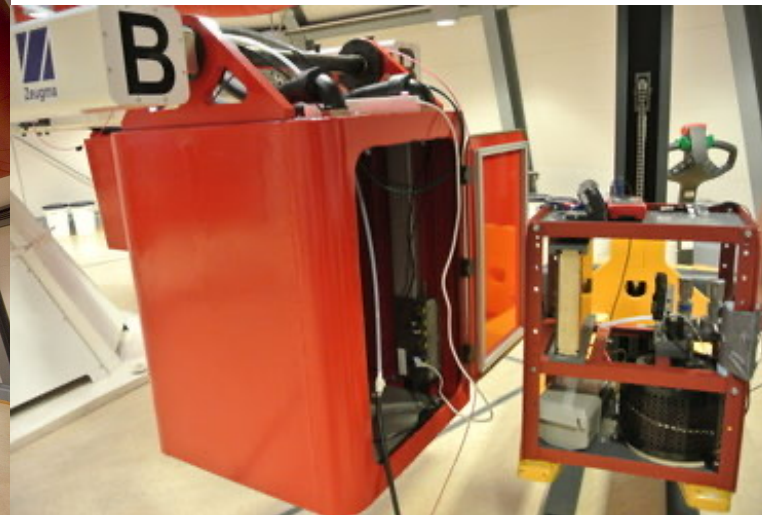


## HyperGES -Applications for the next round will open this year!



- Partner: ESA (European Space Agency)
- Established: 2019
- Aims to provide educational or research institutions with opportunities to conduct a series of hypergravity experiments at the Large Diameter Centrifuge (LDC) facility at the European Space Research and Technology Centre (ESTEC) in the Netherlands.
- The LDC allows samples to be exposed to acceleration forces of 1-20 times Earth's gravity. The experiment series consists of 1-2 weeks for on-site experiment integration/preparation and actual experiment campaign.
- First round winner is a team from Thailand that will study the effect of hypergravity on watermeal, the future food source for space exploration.

Photo credit: ESA





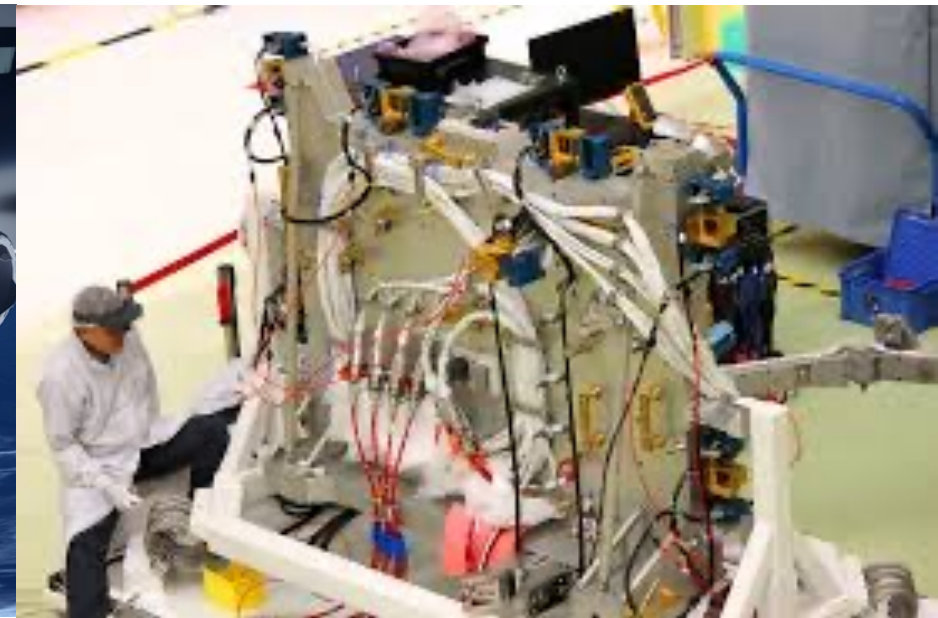
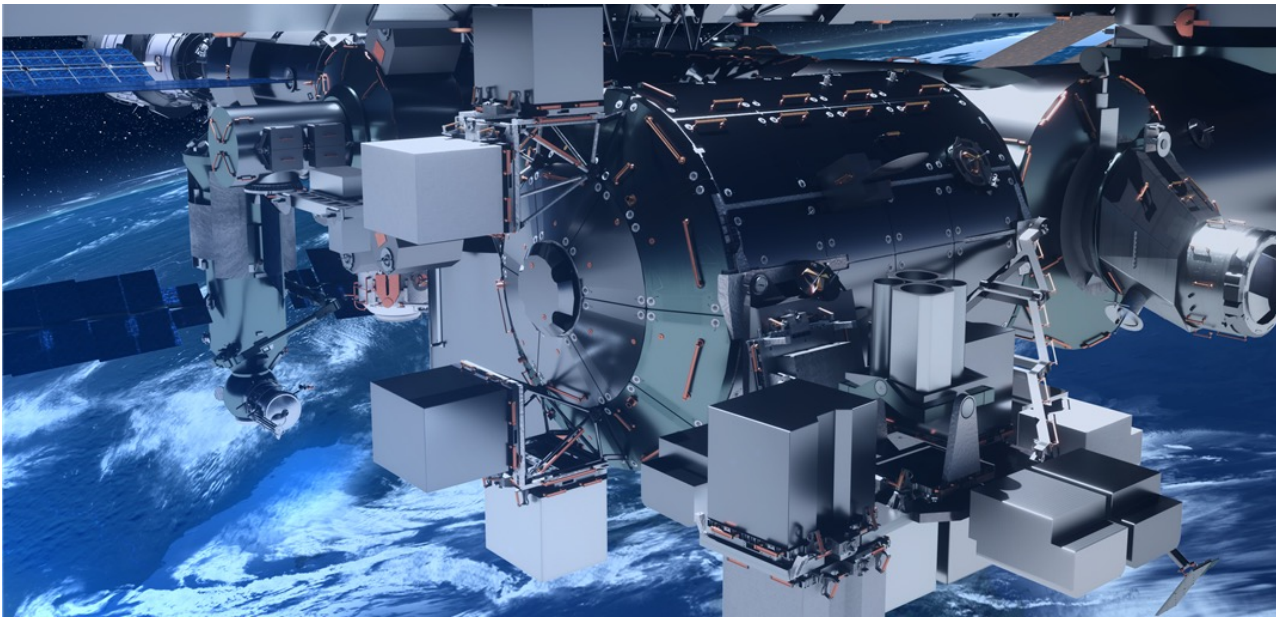
# Hypergravity/Microgravity Track

## Bartolomeo

- Partner: Airbus S.A.S.
- Established: 2018
- Aims to provide institutions with opportunities to accommodate a payload on the Airbus Bartolomeo external platform on the International Space Station.
- The opportunity is for a 3U CubeSat payload which will get an “All in One” Space mission service (integrated, launched, installed as a part of the Bartolomeo for a mission operation span of a year)
- The first round winner will be announced soon!

**AIRBUS**

Photo credit: Airbus





# Hypergravity/Microgravity Track

## China Space Station



- Partner: CMSA (China Manned Space Agency)
- Established: 2018
- Aims to provide scientist from around the world with opportunities to conduct their own experiments on board the China Space Station (CSS) either inside or outside the CSS.
- 9 projects involving 23 institutions from 17 UN Member States has been selected for the first round. The research areas vary from life science, biotechnology, fluid physics, combustion, astronomy to space technologies.

Photo credit:  
(left) CMSA  
(right) Norwegian  
University of  
Science and  
Technology  
(NTNU) ; one of the  
winners of the  
programme  
conducting  
research on tumors  
in space





# Hypergravity/Microgravity Track



## Dream Chaser

- Partner: Sierra Nevada Corporation
- Established: 2018
- Aims to provide institutions with opportunities to participate in an orbital space mission utilizing the Dream Chaser<sup>®</sup> space vehicle.
- A technical briefing of the capabilities of the vehicle was conducted in 2018 and a call for interest for a landing site was conducted in 2019. Currently in discussion of opening a round for applications.





# Webinar Series



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April 21

Introduction to Hypergravity/Microgravity



Life Science R&D

- ✓ Biology April 28
- ✓ Physiology May 5
- ✓ Pharmacology May 12

Physical Science R&D

- ✓ Material Science May 19
- ✓ Fluid Dynamics May 26

June 2

Technology Demonstration



June 9

June 16

Available Opportunities/Regional Activities



# Webinar Series



Updates to the agenda, recordings and presentations will be uploaded to our Access to Space for All Initiative Website:  
<https://www.unoosa.org/oosa/en/ourwork/access2space4all/index.html>

Recordings can be found on our  **YouTube** channel @UN Office for Outer Space Affairs  
<https://www.youtube.com/c/UNOfficeforOuterSpaceAffairs/featured>

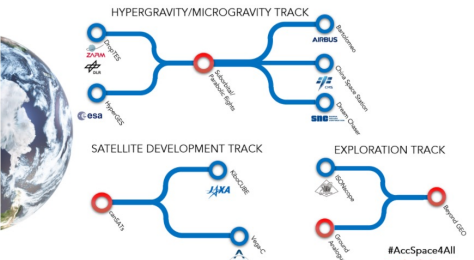
Make sure to come visit our website and check it out!

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Our Work > Access to Space for All

### Access to Space for All Initiative

A single opportunity has limited impact but a structured initiative has long-lasting effects permeating all societal pillars



The United Nations Office for Outer Space Affairs (UNOOSA) has conducted capacity-building activities such as conferences and training courses for almost 50 years. However, we have noticed an increasing demand for hands-on expertise related to access to space. To answer to the increasing demand for hands-on capacity-building, UNOOSA started to provide hands-on opportunities in collaboration with various partners back in 2012 and, in 2018, launched the Access to Space for All Initiative which organizes all the hands-on opportunities offered by UNOOSA in three different tracks of increasing complexity, aiming at **developing capacity in different space-related areas from A to Z**.

Jump to the specific pages of the opportunities listed in the table below or continue reading to get practical advice to improve your application.

| Hypergravity/Microgravity Track                                          | Satellite Development Track | Exploration Track |
|--------------------------------------------------------------------------|-----------------------------|-------------------|
| DropTES<br>HyperGES<br>Bartolomeo<br>China Space Station<br>Dream Chaser | KiboCUBE<br>Vega-C          | ISONscope         |

### News

#### Open opportunities

- The Opportunity with ZARM and DLR Space Administration on DropTES is open until **30 June 2021 at 23:59 CEST**
- The Opportunity with KIAM on ISONscope is open until **1 May 2021 at 23:59 CEST**
- The Opportunity with JAXA on KiboCUBE is open until **31 May 2021 at 23:59 CEST**

#### Webinars

\*Webinars dedicated to each of the programmes are found on each page.

**Hypergravity/Microgravity Webinar Series: Every Wednesday 21 April - 16 June**  
A new series of 9 webinars with experts all over the world to introduce what Hypergravity/Microgravity is and the benefits, what type of research can be done, the fundamentals and technical aspects of research/development and more!  
We will also dive into specific scientific topics such as life science, physical science and technology demonstration.

For the agenda and more details, please click [here](#).  
**Webinar#1 - Introduction to Hypergravity/Microgravity**  
When: **Wednesday 21 April 2021 10:30CEST/16:30CEST**  
Registration: Please kindly register from the [link here](#).

\*We will have registrations for each webinar and the links for the webinars will only be

#### Our Work

- Secretariat of COPUOS
- Programme on Space Applications
- UN-SPIDER
- International Committee on GNSS
- UN-Space
- UNISPACE+50
- Space Law
- Benefits of Space
- Space4Health
- Access to Space for All
- Space for People with Disabilities
- Space4Youth
- Space4Water
- Space4Women
- World Space Forum
- Worldwide Space Agencies
- Capacity Building Activities

#### Our Current Partners



Partnership is a distinctive feature of the Initiative. The Access to Space for All Initiative is only possible thanks to partnerships with various public and private actors, who are contributing to the initiative in various manners. **New contributions to the initiative are possible and encouraged.**

**Thank you!**

**For inquiries:**

**UNOOSA Access to Space**

**[unoosa-access-to-space@un.org](mailto:unoosa-access-to-space@un.org)**

