



UNITED NATIONS  
Office for Outer Space Affairs



# DropTES 9<sup>th</sup> round Announcement of Opportunity Webinar

21 June 2023  
10:30 & 16:30 CEST



# Access to Space for All

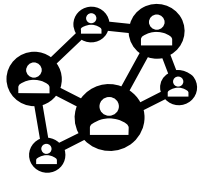
## Welcome! Before we begin...



1) **USE THE chat box** to ask questions and do not raise your hand



2) Please **ANSWER OUR QUESTIONNAIRE** that we will put in the chat box later on



3) Please use the hashtag **#AccSpace4All #DropTES** and follow, like, and share **@UNOOSA** to help us promote this event!







# Access to Space for All

## Hypergravity/Microgravity Track



### DropTES



- Partners: ZARM (Center of Applied Space 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 and GraviTower Bremen Pro in Germany.
- The drop tower experiment series consists of **5 drops or catapult launches** or **5 half-days** to be conducted within one week. Each experiment series is accompanied by an on-site experiment integration taking place one week prior to the campaign.
- 7 experiments have successfully been conducted with the programme.



**2014** German Jordanian University



**2015 & 2020** Universidad Católica Boliviana "San Pablo"



**2016** Universidad de Costa Rica



**2017** Warsaw University of Technology



**2018** University of Bucharest Politehnica

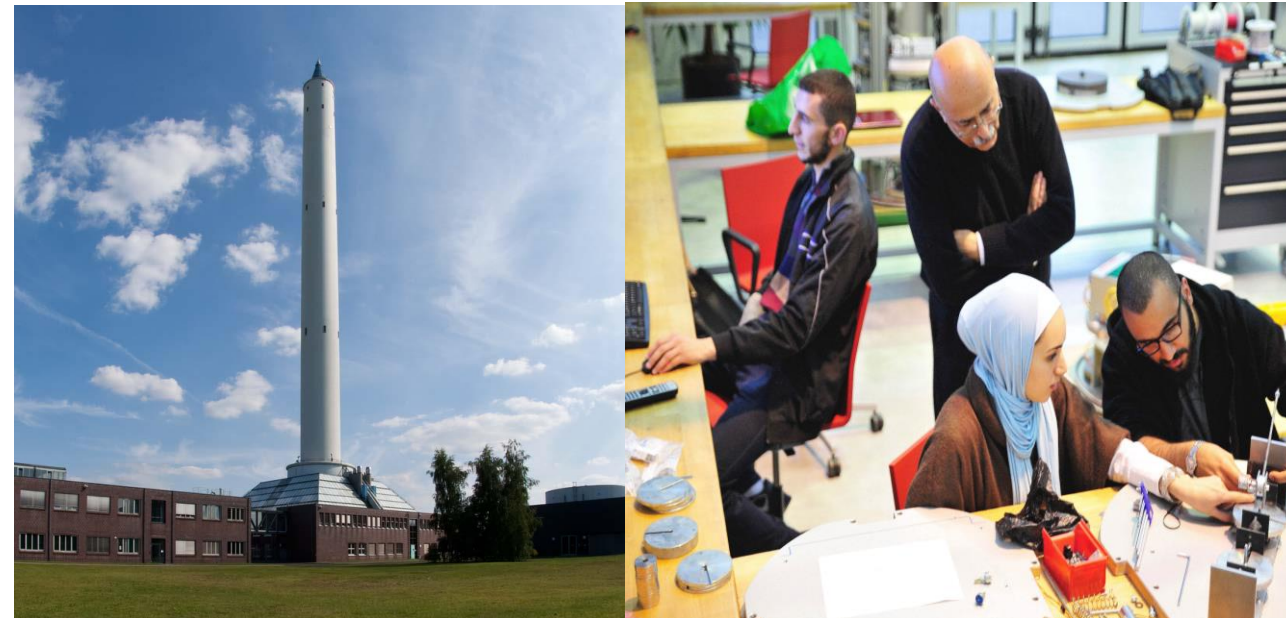


**2019** Politecnico de Milano "Polimi"



**2022** Universidad de Antioquia

Photo credit: ZARM







# Access to Space for All

## Hypergravity/Microgravity Track

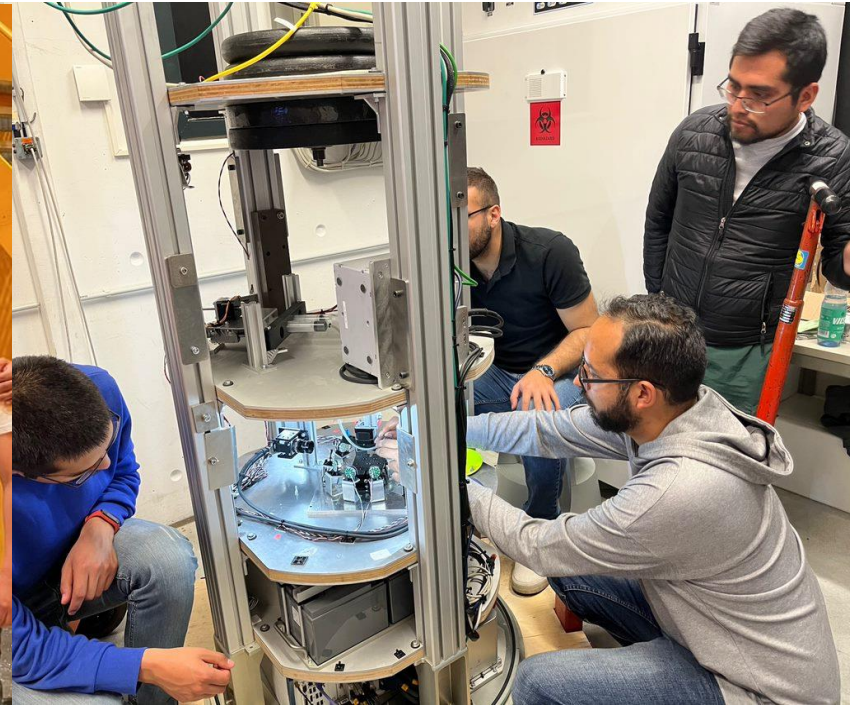
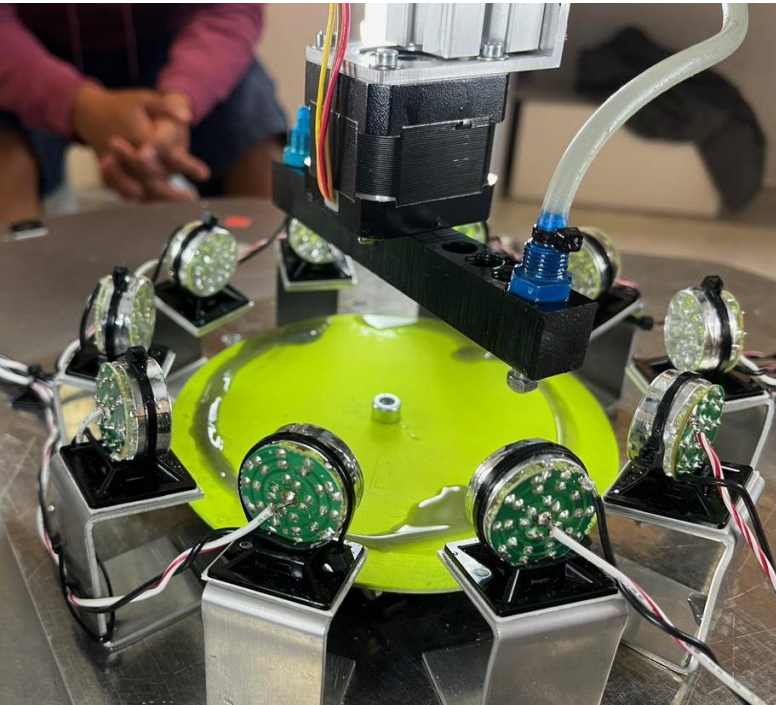


**Universidad Católica Boliviana "San Pablo"** awardee of DropTES 2nd & 7th round

- In 2015, the team **examined and evaluated the property of Nitinol**, which is a metal alloy often used in medical devices.
- In 2022, the team tested **3D printing techniques using liquid resin**, which could lead to new applications in various fields.



The **technical expertise and skills acquired through the experiments** helped develop ventilators during the COVID19 pandemic.







# Access to Space for All

## Hypergravity/Microgravity Track



### Learn from the Past Awardees!

### Access to Space for All Awardees

Through the various programmes under the initiative, UNOOSA has awarded opportunities to 30 awardees from all regions. The awardees conduct various activities, not only for the development of science and technology, but also outreach, education, and other impactful actions. Learn more about the teams and their space/related activities.



UNITED NATIONS Office for Outer Space Affairs

About Us | Our Work | Space4SDGs | Information for... | Events | Space Object Register

Our Work > Access to Space for All

ACCESS TO SPACE FOR ALL  
A joint initiative to offer access to space research facilities, infrastructure and information to promote international cooperation and the peaceful use of outer space.

For Member States | Partnerships | **Awardees** | Contribution to the SDGs | Brochure

Hypergravity/Microgravity Track | Satellite Development Track | Space Exploration Track

Workshops and Expert Meetings

Access to Space for All Latest Information

**EVENT** Access to Space for All will hold a hybrid side event at the 66th session of COPUOS on 31 May 2023, [read more](#) (26 May 2023)

**EVENT** KiboCUBE will hold a hybrid side event at the 66th session of COPUOS on 2 June 2023, [read more](#) (26 May 2023)

**EVENT** 1st Access to Space for All Expert Meeting has been held on 15-17 May 2023 online, [read more](#) (17 May 2023)

**NEWS** UNOOSA and ESA announced the 2nd round HyperGES awardees on 8 May, [watch here](#) (8 May 2023)



### ACCESS TO SPACE FOR ALL AWARDEE PAGE

Our awardees

### Access to Space for All Awardees News

- Hypergravity/Microgravity track awardees
- Satellite development track awardees
- Space exploration track awardees

#### HYPERGRAVITY/MICROGRAVITY TRACK AWARDEES

- ▶ Bartolomeo Awardees
- ▶ China Space Station Awardees
- ▶ Dream Chaser Awardees
- ▶ DropTES Awardees
- ▶ HyperGES Awardees

#### SATELLITE DEVELOPMENT TRACK AWARDEES

#### Our Current Partners

##### SPACE AGENCIES



##### RESEARCH INSTITUTIONS AND UNIVERSITIES



##### PRIVATE SECTOR



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

[read more](#)





# Access to Space for All

## Hypergravity/Microgravity Track

### Learn from the Past Awardees!

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For Member States > Partnerships > Awardees > **Contribution to the SDGs >** Brochure >

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### Contribution to the SDGs

Access to Space for All is key in raising awareness about what space technology can do for the Sustainable Development Goals. Each application for an Access to Space for All hands-on opportunity requests the applicants to provide information on how their activity will support the Sustainable Development Goals. To date, UNOOSA has received applications that spanned over the 17 Sustainable Development Goals. Examples of how Access to Space for All supports the Sustainable Development Goals are:



- **SDG 4 "Quality Education"**: Access to Space for All provides educational resources supporting the hands-on component.
- **SDG 8 "Decent Work and Economic Growth"**: Access to Space for All builds capacity for individuals to access jobs in the space industry.
- **SDG 9 "Industry, Innovation and Infrastructure"**: Thanks to some of the hands-on opportunities of Access to Space for All, institutions create facilities that remain available once the opportunity has been completed.

However, the contribution of the initiative goes beyond those three SDGs. Access to Space for All initiative for Sustainability: Interview Series is a series of interviews of the partners and the awardees in the initiative, where they explain how their projects are tackling different SDGs.

- **Article #1** - How Bartolomeo x ClimCam Project Contributes to the SDGs, an interview with Airbus and the awardee in the first round of Bartolomeo, [read more >](#)
- **Article #2** - How Education Through PNST Contributes to the SDGs, an interview with Kyushu Institute of Technology and a graduated student, [read more >](#)
- **Article #3** - DropTES: The Stepping Stone into Space Activities and its Contribution to the SDGs, an interview with ZARM and Universidad Católica de Boliviana, [read more >](#)
- **Article #4** - DropTES: The Opportunity to Expand Your Horizon and its contribution to the SDGs, an interview with the 1st round and 3rd round awardee [read more >](#)
- **Article #5** - PHI: The Platform to Realize Your Dreams, an interview with the two 1st round awardees [read more >](#)





# Access to Space for All

## Education Component



## Conducting R&D in Hypergravity/Microgravity Webinar Series

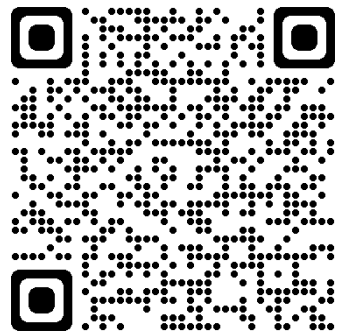
### **9 webinars with 45 speakers from 40 entities in 13 nations**

Covered technical and fundamental knowledge on:

- Benefits of conducting R&D in Hypergravity/Microgravity environment
- What type of R&D can be done (with examples from life science, physical science, and technology demonstration)
- Existing available platforms, opportunities, and networks

[https://www.unoosa.org/oosa/en/ourwork/access2space4all/HMT\\_rack\\_Webinars.html#Tag6](https://www.unoosa.org/oosa/en/ourwork/access2space4all/HMT_rack_Webinars.html#Tag6)

| No. | Contents   |
|-----|--|
| 1   | Introduction to Hypergravity/Microgravity            |
| 2   | Life Science Part 1: Biology                         |
| 3   | Life Science Part 2: Physiology                      |
| 4   | Life Science Part 3: Pharmacology                    |
| 5   | Physical Science Part 1: Material Science            |
| 6   | Physical Science Part 2: Fluid Dynamics              |
| 7   | Technology Demonstration                             |
| 8   | UNOOSA Hypergravity/Microgravity Track Opportunities |
| 9   | Regional Hypergravity/Microgravity Activities        |



### Space Biology and Altered Gravity

**Why study biological effects of microgravity?**

- All life on earth have evolved in the Earth's gravitational field. We have little knowledge of what happens to organisms in the apparent absence of this force.
  - Studies in microgravity will tell us how biological systems acclimate and adapt to this new environment
  - Studies in microgravity will also reveal how gravity has driven evolution and continues to influence biological process on Earth.

**Why study biological effects of hypergravity?**

- During space flight, living systems are not only exposed to microgravity, but also experience around 3 g during launch and 3+ g more landing.
- Chronic hypergravity models can be used complement and predict microgravity-associated changes (i.e., the shift from 2 g to 1 g may recapitulate aspects of the shift from 1 g or microgravity).

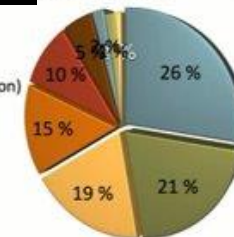
### Gravity has (mainly) impact on:

- Weight
- Hydrostatic Pressure
- Convection
- Buoyancy
- Sedimentation

NB: Spaceflight holds more variables: e.g. isolation, radiation, (pressure, gas composition), stress, training, ...

- Combustion
- Fundamental Physics
- Fluid Dynamics
- Astrophysics (Planet Formation)
- Materials Sciences
- Biology
- Hardware Tests
- Student Programs
- Chemistry

› fundamental research  
› technology development (mission preparations)



over 230 assisted framework contractor of





**Any questions?**

**Contact us**

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

**Help us help  
#AccSpace4All**



**For more stats and information,  
check out the brochure!**

