



Fellowship Programme for “Drop Tower Experiment Series (DropTES)”



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Office for Outer Space Affairs



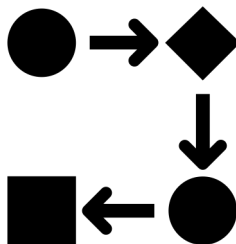
*The goal of the **Access to Space 4 All Initiative** is to provide research and orbital opportunities for UN Member States to access space and to ensure that the benefits of space, in particular for sustainable development, are truly accessible to all*





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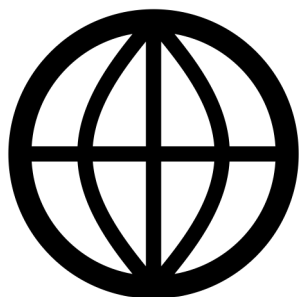
Why Access to Space for All?



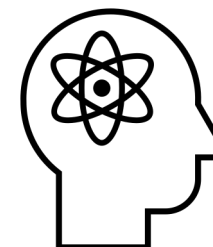
Hands-on Capacity from A-Z
Responsible & Sustainable Way



Social Impact: To your country,
region and young generations



Fosters international cooperation



Provides cutting edge skills for
jobs and other opportunities



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The BIG
Picture



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/osa/en/ourwork/space4sdgs/index.html>



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Goals

4

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

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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



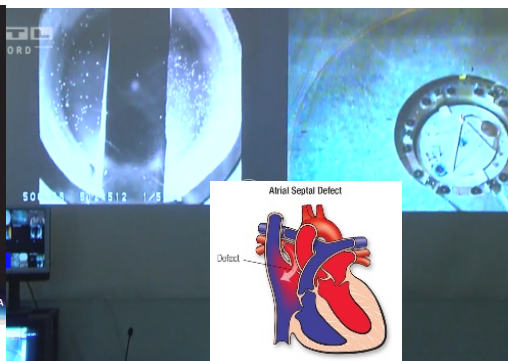
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3 GOOD HEALTH AND WELL-BEING

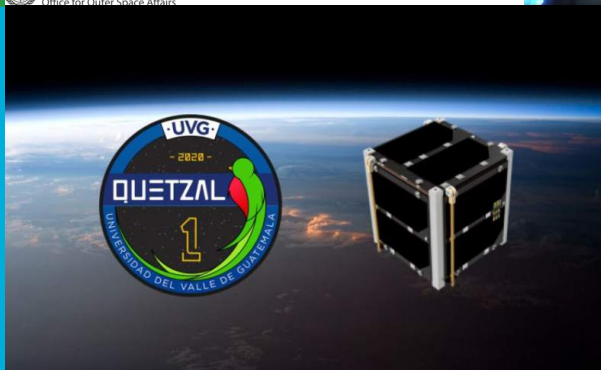


TUMORS IN SPACE

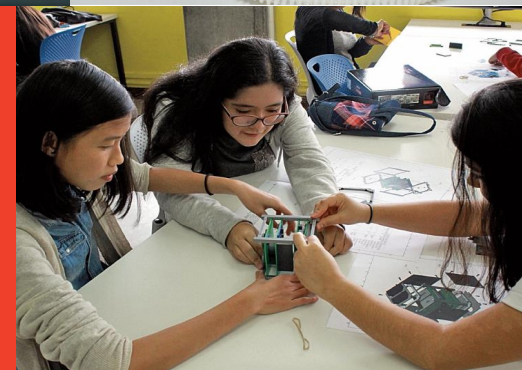
NORWAY-CHINA
Dr. Tricia L. Larose



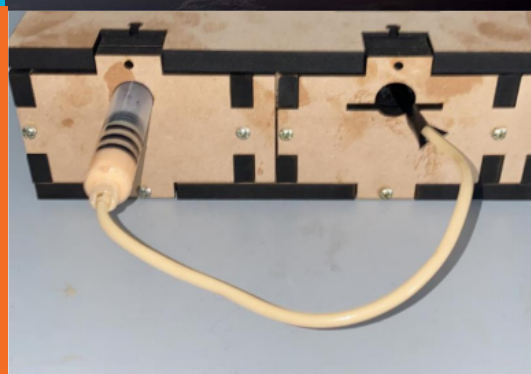
6 CLEAN WATER AND SANITATION



5 GENDER EQUALITY



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



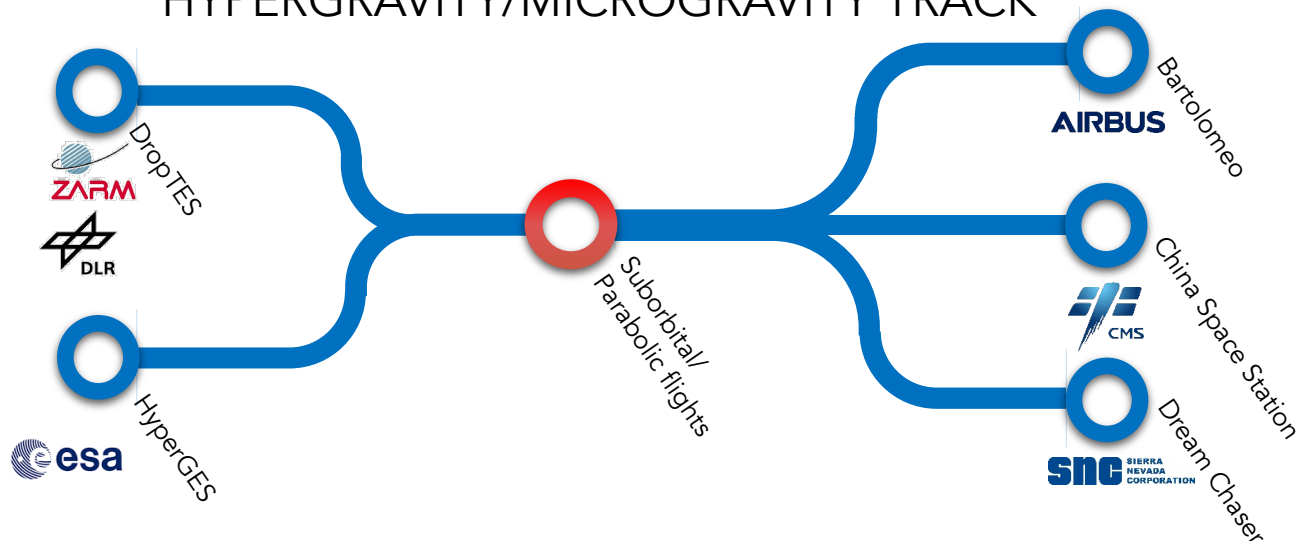
SPACE4SDGS

*All photos from Past-winners of the Initiative

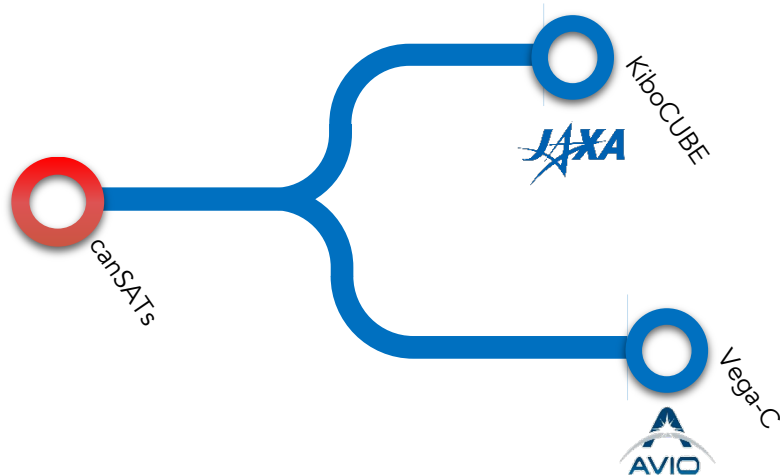


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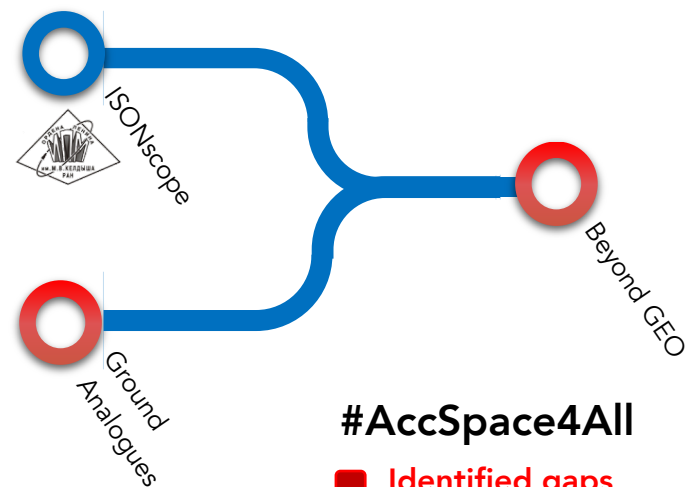
HYPERGRAVITY/MICROGRAVITY TRACK



SATELLITE DEVELOPMENT TRACK



EXPLORATION TRACK

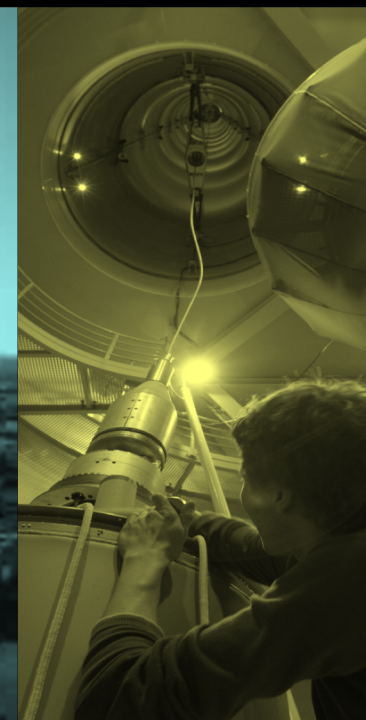


#AccSpace4All

■ Identified gaps

What is DropTES?

- A fellowship programme between United Nations Office for Outer Space Affairs (UNOOSA), ZARM (Center of Applied Science Technology and Microgravity) and DLR (German Aerospace Center) which started from 2014, implemented under the Access to Space for All Initiative.
- 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.



Why DropTES?

- The Bremen Drop Tower is one of the tallest drop towers in Europe and the experiment duration has been extended to 9.3 seconds which is unmatched by any other drop facility worldwide.
- Testing in a microgravity environment represents an achievable entry point to acquire new knowledge and conduct various tests in many different research fields such as astrophysics, biology, chemistry, combustion, fluid dynamics, fundamental physics, and material sciences.
- The Space Administration section of DLR will bear the cost to conduct the series of experiments. ZARM will provide technical support during the campaign along with on-site apartment for student accommodation. UNOOSA will provide financial support for the travel of the selected team.



Photo credit: ESA



DropTES for Sustainable Development Goals (SDGs)

DropTES may contribute to the SDGs below by fostering innovation and supporting education and training on skillsets for developing cutting-edge technology.

SDG 4 “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”;

SDG 9 “Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

4 QUALITY
EDUCATION



9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE





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Previous Winners

	Winner		Objective
1 st round 2014	German Jordanian University JORDAN		to investigate the stability of tether dynamics for satellites with electromagnetic tether systems using a Tilger, a mass damper
2 nd round 2015	Universidad Católica Boliviana "San Pablo" BOLIVIA		to examine and evaluate the property of an alloy of Nickel and Titanium "Nitinol" under the microgravity environment
3 rd round 2016	Instituto Tecnológico de Costa Rica Universidad de Costa Rica 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 th round 2017	Warsaw University of Technology POLAND		to verify, in vacuum and microgravity conditions, the deployment of the deorbit sail system on their two unit CubeSat called "PW-Sat2"
5 th round 2018	University of Bucharest Politehnica University of Bucharest ROMANIA		to expose medicine droplets containing aqueous chlorpromazine (CPZ) solution to both laser radiation and microgravity conditions
6 th round 2019	Politecnico de Milano (Polimi) 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 th round 2020 *experiments delayed to 2021	Universidad Católica Boliviana "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))

THANK YOU!

**For any inquiries:
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space@un.org>**



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