

IAF MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (A2)
Microgravity Sciences on board of Space stations (6)

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OPPORTUNITIES FOR MICROGRAVITY AND HYPERGRAVITY EXPERIMENTS UNDER THE
UNITED NATIONS ACCESS TO SPACE FOR ALL INITIATIVE: ACHIEVEMENTS IN 2022-2023

Abstract

The United Nations Office for Outer Space Affairs (UNOOSA) works to promote international cooperation in the peaceful use and exploration of space and in the use of space science and technology for sustainable economic and social development. As part of its work and under the Access to Space for All Initiative, UNOOSA provides tracks that offer gradual learning steps to help participants develop capabilities. There are currently three tracks; Hypergravity/Microgravity Track: designed with the end goal of developing the capacity of running space experiments onboard orbital vehicles or space stations; Satellite Development Track: aiming at building the capacity to design, develop, test, operate and utilize a satellite; and Exploration Track: designed to cover aspects related to space exploration beyond the geostationary orbit.

The initiative is supported by governmental, intergovernmental, and private sector entities, which are providing access to world-class facilities and infrastructure to support the development of technical and scientific capabilities in the different tracks. Partnerships are a distinctive feature of the initiative. UNOOSA is working on establishing new partnerships to cover some of the gaps identified in the initiative and expand its portfolio. New contributions to the initiative are possible and encouraged.

The Hypergravity/Microgravity track currently has five hands-on opportunities delivered in partnership with Airbus Defence and Space, the Center of Applied Space Technologies and Microgravity (ZARM), China Manned Space Agency (CMSA), the European Space Agency (ESA), the German Aerospace Center (DLR) and Sierra Space. This track contains both ground-based and orbital opportunities with the aim to initially develop capabilities on ground and eventually attain capabilities for more complex experiments for orbital opportunities. This paper will provide an update on the activities and experiments carried out under the Hypergravity/Microgravity Track during 2022-2023 together with lessons learned, future prospects, and upcoming application opportunities.