

IAF MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (A2)
Facilities and Operations of Microgravity Experiments (5)

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OPERATION OF THE MICROGRAVITY VIBRATION ISOLATION SYSTEM (MVIS) FACILITY ON
THE INTERNATIONAL SPACE STATION

Abstract

The Microgravity Vibration Isolation System (MVIS) is a facility on the International Space Station (ISS) that provides microgravity researchers with a damped-acceleration chamber in which vibration-sensitive experiments can be placed. MVIS is a six-degree-of-freedom magnetic-levitation system that isolates experiments from a number of vibrational perturbations on the ISS, ranging from crew activities to attitude and orbit maneuvers. Many experiments in areas such as material science, fluid physics, crystal growth, and fundamental processes are affected by these perturbations and can achieve significantly improved science results when vibrations are minimized. MVIS has been commissioned as part of the Fluid Science Laboratory (FSL) in the ESA Columbus module of the ISS and will soon be supporting the RUBI (Reference mUltiscale Boiling Investigation) experiment. This paper presents the MVIS facility, from its origins to results of the latest on-orbit activities and concludes with some concepts of how MVIS might support future microgravity science experiments on the ISS and potentially other spacecraft platforms.