

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

Author: Dr. Olivia Borgue  
Luxembourg , olivia.borgue@yurigravity.com

MICROGRAVITY AS A SERVICE AND ITS ROLE ON DEMOCRATIZING THE ACCESS TO SPACE

**Abstract**

The microgravity environment in Earth's orbit has great potential to benefit life and materials science research, e.g. in drug discovery, tissue engineering, crystal formation, or materials processing. Moreover, it is an accessible environment for testing instruments and components that will then be implemented in future interplanetary missions. Nowadays, in-space microgravity research relies mostly on the International Space Station (ISS), which has a successful track record with space agencies. However, the use of their facilities comes with a high cost and inherent limitations including long undefined waiting times, high-costs, limited and expensive crew interactions, the fact that ISS has been limited mostly to governmental institutions, and that its operations will be discontinued in the near future. In this article, past and current in-space microgravity test platforms are reviewed. Moreover, the implementation of ISS-independent, low-cost, in-space test platforms is assessed in terms of their benefits and drawbacks. The value and potential of these platforms for democratizing the access of space is emphasized and future development initiatives are proposed.