

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

Author: Dr. Jaroslav Kousal  
Czech Technical University In Prague (CTU), Czech Republic

Mr. Michal Vaclavik  
Czech Space Office, Czech Republic

Mr. Jaromír Kucera  
Czech Technical University In Prague (CTU), Czech Republic

NEW MICROGRAVITY AND HYPERGRAVITY FACILITY IN THE CZECH REPUBLIC

**Abstract**

A new facility for microgravity and hypergravity education and research is being finished at the Czech Technical University in Prague campus. The facility consists of a drop tower and a centrifuge. Both facilities are designed as low-cost and they use COTS components as much as possible. The drop tower uses an abandoned chimney with drop height of about 25 meters and corresponding free-fall time of over 2 seconds. Use of drag shield reduces the aerodynamic forces in order to produce low gravity level conditions with residual acceleration  $\sim 10^{-4}$  g. The 5-meter diameter centrifuge with maximum acceleration up to 8 g is a second part of the facility.

The experimental container/capsule is shared for the drop tower and the centrifuge. Currently, educational and small ( $\sim 5$  kg) research experiments can be accommodated. The container is equipped with independent power source, sensors, cameras and programmable control and data acquisition system. Sharing of the container with unified interfaces enables easy preparation and accommodation of the same experiment in both facilities and performing an experimental campaign from  $10^{-4}$  g up to 8 g. The facility is integrated into the education and provides a valuable hands-on experience with changed gravity conditions for the students. Due to low operating costs, it is open also for educational and research proposals from other institutions.

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