

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

Author: Prof. Ivan Egrý

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, egrý@t-online.de

Prof. Andreas Meyer

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, andreas.meyer@dlr.de

NEW EXPERIMENT FACILITIES FOR THERMOPHYSICAL PROPERTY MEASUREMENTS IN  
MICROGRAVITY

**Abstract**

Thermophysical property measurements of high-temperature liquids are difficult and challenging. The microgravity environment offers substantial advantages for such measurements as compared to terrestrial laboratories. On the one hand, it allows container-less processing of these materials by suitable levitation techniques, i.e. electromagnetic or electrostatic, without their detrimental side effects when applied under 1g, on the other hand it eliminates gravity driven convective flow and buoyancy effects in container-based techniques.

In recent years considerable progress has been made in this field, allowing the precise determination of a number of thermophysical parameters such as density, electrical resistivity, surface tension, viscosity and diffusion of mass. In this talk, new experimental opportunities as well as some representative results will be presented and discussed.