



INTERDISCIPLINARY CENTRE FOR
ADVANCED MATERIALS SIMULATION

ICAMS Special Seminar

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Monday, February 18, 2:00 p.m.
ICAMS Seminar Room 0.07

Surface tension of liquid metals and oxygen sensing and control (OSC)

For liquid metals and alloys, the most prominent and ubiquitous surface active element is oxygen. A few ppm can cause a dramatic decrease of the surface tension with a sign-reversal of its temperature coefficient.

To obtain reliable surface tension data, measured in electromagnetic levitation on ground or under microgravity, monitoring and control of the oxygen partial pressure in the processing environment is indispensable. For this purpose, an oxygen sensing and control (OSC) system, based on a zirconia oxygen ion pump, has been developed.

We report on first tests, interfacing the OSC with an electromagnetic levitator. Results of surface tension measurements will be presented for pure liquid metals. A critical review on the results and future challenges will be given.