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DLR – DAAD Fellowships

Fellowship No. 376

Research Area : Space

Research Topic: **Thermophysical properties of liquid binary alloys under oxygen influence**

DLR Institute: Institute of Materials Physics in Space, DLR Cologne

Position: Senior Scientist

Openings: 1

Job Specification: The activities of the Institute of Materials Physics in Space are focused on the investigation of liquid metals and alloys. Beside other properties, surface tension is a key property for the understanding and simulation of crystallization and solidification processes. As the purity condition of the liquid droplet is crucial for such investigations, containerless investigation techniques, such as electromagnetic levitation, are indispensable. However, even when using levitation, the sample is still in contact with its surrounding atmosphere and pollution of its surface is still possible from adsorption of oxygen.
In the current position, it is planned to investigate the influence of oxygen on the surface tension of liquid Ni-Al alloys as function of both, temperature and composition. For this purpose, an oxygen sensor and control (OSC) device interfaced with an electromagnetic levitator will be used. The present project will collaborate with the ESA supported project OXYTHERM aiming to perform similar investigations using a facility onboard the international space station ISS.
The successful candidate would perform such measurements and corresponding evaluations. Ideally, she or he would have a deep knowledge in the field already and a sound experience with surface tension measurements.

Required Qualification:	PhD in physics, materials science, PhD in science or similar + high level experience in the field of thermophysical property measurements of liquid metals and alloys under the influence of oxygen.
Advantageous Skills:	Experience with levitation techniques
English competence:	English fluent + a willingness to learn German (see requirements on www.daad.de/dlr)
Earliest Start Date:	1.7.2019
Application Deadline:	Until position filled
Further Information:	http://www.dlr.de http://www.daad.de/dlr