



Newly developed aerodynamic levitation device for neutron scattering experiments

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We present a new development of aerodynamic levitation for neutron scattering experiments, being developed in order to process both oxide and metallic melts, with a good signal with background ratio by introducing a new type of chamber. This setup enables levitation of metallic spheres up to 4 mm in diameter under a controlled and vacuum-tight atmosphere. The system employs two 100W lasers heating the spherical samples from above and below to reduce the temperature gradient throughout the sample. First experiments have been carried out to study the crystallization behavior of lunar regolith relevant for additive manufacturing under space conditions, as well as studying liquid structure of PdNiS glass forming alloys in order to understand the impact of sulfur on glass formation. The compactness and reliability of our aerodynamic levitation facility make it a valuable tool for neutron scattering experiments, particularly with a focus of in-situ, time resolved studies. Future development includes experiments on time-of-flight spectrometers for studying melt dynamics. Looking ahead, this facility will be available for user access at the Institut Laue-Langevin (ILL), providing the scientific community with a new resource for their experimental needs.

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Hauptautor: ECKSTEIN, Phillip

Co-Autoren: YANG, Fan (Deutsches Zentrum für Luft- und Raumfahrt); SUTHERLAND, Jennifer; HANSEN, Thomas (Institut Laue-Langevin); SAVVIN, Stanislav; MEYER, Andreas (Institut Laue-Langevin, Deutsches Zentrum für Luft- und Raumfahrt)

Sitzung Einordnung: Mounting Posters, Beer and light Dinner

Track Klassifizierung: Instrumentation & Data Management