

## **Thermophysical Property Measurement of Molten Materials by the Electrostatic Levitation Furnace (ELF) on the International Space Station (ISS)**

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JAXA operates the Electrostatic Levitation Furnace (ELF), which was launched to the International Space Station (ISS) in 2015. The ELF levitates a sample using static electricity on its surface and melts it using semiconductor lasers. The ELF enables the melting of the sample with a high melting temperature over 2000 °C without a container, so that it can measure thermophysical properties (density, surface tension, and viscosity) of the molten state without contamination. The ELF can also create metastable phase materials using super cooling. Recently, a high-speed camera was installed in the ELF. The camera captured solidification behaviour and resonance oscillation of molten metals. Many researchers all over the world have utilized the ELF, and JAXA welcomes new users. There are three categories to utilize the ELF. 1) Domestic basic research, 2) International collaboration, 3) Commercial utilization. We will explain the ELF overview and measurement data and future prospects in this presentation.