

Thermodynamic Properties Of Pure Elemental Liquids Using Electrostatic Levitation in KRISS

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We developed a new electrostatic levitation (ESL) for high temperature materials properties in Korea Research Institute of Standards and Science. In this presentation, we will describe our ESL system and show the measurement capability of our ESL, such as melting and freezing temperature, specific heat/emissivity, density, viscosity, and surface tension of elemental liquids. In particular, the hypercooling limit of the liquids is estimated by controlling the degree of supercooling so that the reported values of specific heat and total hemispherical emissivity can be justified. From the supercooling experiment using ESL and classical nucleation theory, the interfacial free energy between liquid and crystal is estimated and compared with reported values.