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Measuring equipment for thermophysical properties of droplet electromagnetically-levitated under axial static magnetic field FUMITOMO ONISHI, KOSUKE NAGASHIO, YUKO INATOMI, KAZUHIKO KURIBAYASHI — EML is used for measurement of thermophysical properties melt with high melting point and with high reactivity. Application of a strong static magnetic field is considered to be a promising method to damp convection and motion in electrically conductive fluid, because the Lorentz force is induced by the magnetic field. Therefore, a novel measuring equipment for thermophysical properties of an electrically conductive droplet has been developed to solve the problem mentioned above based on the principle. In order to observe behavior and shape of melt three-dimensionally and in realtime, high-speed camera and CCD camera were mounted at the top and side of a reaction chamber of EML, respectively. Surface temperature of the melt was monitored by pyrometer from the side. Result, vibrations of Si, Ti droplets levitated by the equipment was stabilized and the convection was seemed to be damped under the magnetic field, though the droplets rotated along the magnetic field as rigid bodies. Some obtained results for thermophysical properties of the droplets will be reported.

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