

Anomalies in the Thermophysical Properties of Undercooled Glass-forming Alloys

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The surface tension, viscosity, and density of several glass-forming alloys have been measured using non-contact techniques in the electrostatic levitation facility (ESL) at NASA Marshall Space Flight Center. Further measurements on these alloys have been made using NASA's Beamline ESL in conjunction with structural studies at the Advanced Photon Source. All three properties show unexpected behavior in the undercooled regime. Similar deviations were previously observed in titanium-based quasicrystal-forming alloys, but the deviations in the properties of the glass-forming alloys are much more pronounced. New results for anomalous thermophysical properties in undercooled glass-forming alloys will be presented and discussed.