Experimental study of thermal expansion of refractory metals near its melting point

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Millisecond electrical pulse heating is a prominent technique for investigation of thermophysical properties of refractory metals at high temperatures. Meanwhile, some of the properties of such materials, in particular, iridium and vanadium, are still insufficiently investigated at this melting temperature region.

This work contains an experimental study of the temperature dependences of the thermophysical properties of iridium and vanadium at high temperatures and in the melting region by the method of pulse electrical heating.

Using this method, an experimental investigation of the thermal expansion coefficient, electrical resistivity and emission spectra at premelting region of iridium have been carried out. The obtained temperature dependences of the thermophysical properties of iridium and vanadium are of interest, in particular, for constructing wide-range equations of state, as well as for use in new high-temperature technology.

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