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Anomalous thermodynamic behavior in actinides

ARKADY SHEKHTER, Pulsed Field Facility, NHMFL, Los Alamos National Laboratory

The thermal expansion of some of the actinides metals are strongly dependent upon doping. Extreme examples involve a change of sign of the thermal expansion coefficient upon few percent Ga doping. In contrast, resonant ultrasound spectroscopy of these doping series reveals very weak dependence of the elastic moduli on Ga content. We suggest that the anomalous thermodynamic behavior in these systems has dynamic rather than static origin.