CUSTOM TRANSLATION GDA

DETERMINATION OF THE HEAT OF THE PHASE TRANSFORMATION IN CERIUM UNDER PRESSURE

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The phase transformation taking place ~~in cerium~~ in metallic cerium at high pressures, first discovered by Bridgman /1/, is of considerable ~~in~~ theoretical interest. It has now been established /2/ that in this transformation the constant a of the close-packed ~~f.c.c.~~ fcc lattice falls from 5.14 to 4.84 A, which corresponds to a 16.6% reduction in volume ; the type of crystal lattice undergoes no change.

There are grounds for believing that the cerium transformation in question is due to the passage of the 4f electron to the 5d level, i.e., to a transformation of cerium from the tervalent to the quadrivalent state. According to calculations of Zachariesen /2/, the ionic radii of ter- and ~~tetr~~ quadrivalent cerium for coordination number 12 respectively equal.....and....., which are almost equal to the values calculated from the lattice