

## **Thermodynamic Behaviors and Melting of Highly Symmetrical Monoatomic Structures**

### **Abstract**

Contemporary thermodynamics assumes that with the introduction of the volume coefficient of thermal expansion and the bulk modulus the thermodynamic description of the solid phase is completed. This assumption will be challenged and new thermodynamic description for elastic solids will be proposed. Rooting from theoretical considerations new formulas describing the temperature dependence of the volume coefficient of thermal expansion and the bulk modulus will be introduced. Analyzing the physical process of melting, a possible model explaining the latent heat of fusion will be presented.