Full Paper

Registration Code of Publication: 14-40-11-36Subsection: Thermodynamics.The article is published on the materials of report presented at the "International Scientific Forum Butlerov Heritage –2015". http://foundation.butlerov.com/bh-2015/(English Preprint)Contributed: December 24, 2014.

Connection of the critical parameters of phase transition liquid-vapor with low-temperature elastic properties of solid body

© Ikhtier H. Umirzakov

Laboratory of Modeling. Kutateladze Institute of Thermophysics of Siberian Branch of Russian Academy of Sciences. Prospect Lavrenteva, 1. Novosibirsk, 630090. Russia. Phone: +7 (383) 354-20-17. E-mail: tepliza@academ.org

Keywords: equation of state, the critical point, the bulk modulus, liquid, gas, solid, crystal, tensile strength, fluctuation theory, scaling, scale invariance, critical exponent, critical amplitude, critical parameter, isotropic body.

Abstract

Wehavefound relations between critical parameters, critical exponents and critical amplitude characteristics of the substance, readily identifiable at low temperatures and pressures on the basis of the fundamental equation of state of the fluctuation theory of phase transitions of liquid-gas.