Comparison of two equations of state near the liquid–vapor transition region

Boyarskikh K A[1,2,@] **and Khishchenko K V**[1,2,3]

[1] Joint Institute for High Temperatures of the Russian Academy of Sciences, Izhorskaya 13 Bldg 2, Moscow 125412, Russia
[2] Moscow Institute of Physics and Technology, Institutskiy Pereulok 9, Dolgoprudny, Moscow Region 141701, Russia
[3] South Ural State University, Lenin Avenue 76, Chelyabinsk 454080, Russia

[@] shagom55@gmail.com

This work is devoted to the description of the thermodynamic properties of matter near the region of the liquid–vapor phase transition. The calculations of the boundaries of the liquid–vapor phase equilibrium, as well as the boundaries of stability of metastable states of the liquid and gas phases were carried out using two models of the equations of state: Van der Waals and Likalter. The calculation results are compared with the available experimental data on the temperature dependence of the density of liquid and saturated vapor for mercury and cesium.