A NEW SIMILARITY BETWEEN THE CRITICAL AND ZENO-LINE PARAMETERS

E.M. Apfelbaum, V.S. Vorob'ev

Joint Institute for High Temperatures,
Russian Academy of Sciences
*(ldg. 2, 13, Izhorskaya Str., Moscow 125412, Russia;
e-mail: apfel_e@mail.ru, vrbv@mail.ru)*

S u m m a r y

We set new regularities between the critical and Zeno-line parameters. The most important one has the form $T_c/T_{\mathrm{B}} + \rho_c/\rho_{\mathrm{B}} = S(\beta)$, where T_c and ρ_c are the critical temperature and density. The parameters T_{B} and ρ_{B} determine the position of the straight line along which the compressibility factor is equal to 1 on the density-temperature plane. The quantity $S(\beta)$ is weekly dependent on the critical exponent β: $S(\beta) = 0.64$ for the classical value $\beta = 0.5$ and 0.67 for $\beta = 1/3$. We show that this similarity faithfully describes both the numerical simulation data and experimental data for a wide class of real materials.