

Ideal Fermi-Dirac gas: isotherms [tln70]

Reference values for reduced volume $v \doteq gV/\mathcal{N}$ and pressure p :

$$v_T = \lambda_T^D, \quad p_T = gk_B T / \lambda_T^D.$$

Parametric expression for isotherm:

$$\frac{p}{p_T} = f_{D/2+1}(z), \quad \frac{v}{v_T} = [f_{D/2}(z)]^{-1}.$$

Isotherm at low density [tex120]:

$$pv = \text{const}, \quad v \gg v_T.$$

Isotherm at high density [tex120]:

$$pv^{(D+2)/D} = \text{const}, \quad v \ll v_T.$$

