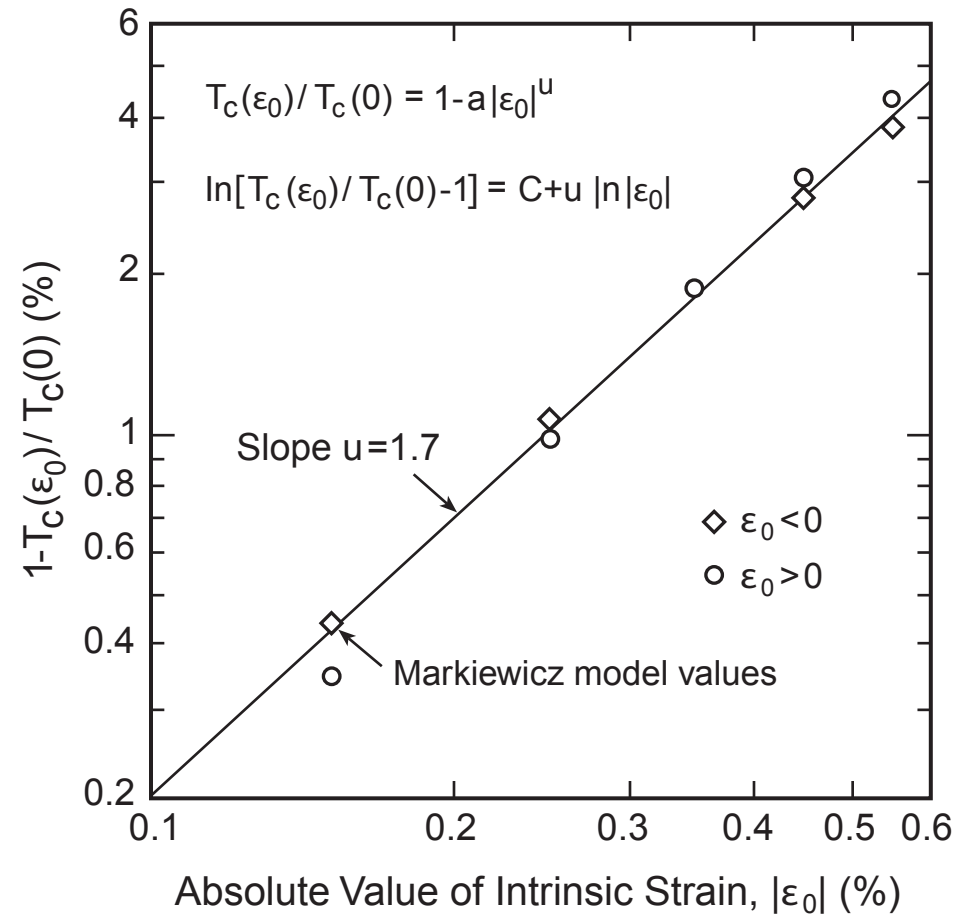


(a)



(b)

FIG. 10.32 Fundamental basis of the power law at moderate intrinsic strains ($-0.5\% < \epsilon_0 < \epsilon_{0\text{irr}}$): (a) Strain dependence of the critical temperature of binary Nb_3Sn calculated by introducing phonon anharmonicity into the McMillan/Kresin equation (from Markiewicz 2004). The model shows that the power-law dependence given by Eq. (10.21) arises mainly through the principal part of the second invariant of the deviatoric strain tensor. (b) Calculated results replotted as $\log\{1 - [T_c(\epsilon_0)/T_c(0)]\}$ vs. $\log |\epsilon_0|$, showing that the anharmonicity model gives the canonical power-law exponent $u = 1.7 \pm 0.1$ without any adjustable parameters for both tensile and compressive intrinsic strains.