In the static limit Doniach and Wohlfarth's theory is equivalent to that of Kim,[5] who shows that the Curie temperature of a dilute ferromagnetic alloy varies like

$$T_c \propto J^2 \chi \tag{4}$$

The volume derivative of T_c is therefore

$$\frac{\partial \ln T_c}{\partial \ln V} = \frac{2\partial \ln J}{\partial \ln V} + \frac{\partial \ln \chi}{\partial \ln V} \tag{5}$$

Thus a direct measurement of the pressure dependence of T_c, when combined with the value of $\partial \ln \chi / \partial \ln V$ for pure Pd, provides an independent estimate of $\partial \ln J / \partial \ln V$.

We show in Fig. 1 the longitudinal magnetostriction of pure Pd and of two of the PdFe alloys. We assume the magnetostriction to be isotropic and obtain the volume derivative of the susceptibility of pure Pd by substituting $V^{-1}\partial V/\partial H = 3\ell^{-1}\partial \ell/\partial H$ into the thermodynamic relation,

$$\frac{1}{V}\frac{\partial V}{\partial H} = -\frac{K\chi}{\Omega}\frac{\partial \ln \chi}{\partial \ln V} \cdot H \ , \tag{6}$$

Ω being the atomic volume. In accordance with Eq. (6), the measured magnetostriction of pure Pd integrated from zero field as shown in Fig. 1 is quadratic in the field H, yielding a value[2], $\partial \ln \chi / \partial \ln V = -3.3 \pm 0.1$.