The magnetostriction of $Pd_{97}Fe_{03}$ is linear in H above H $\sim$ 5 kOe, in accordance with Eq. (3) when μ is assumed independent of H. The slope of this linear variation, together with the measured saturation magnetization, gives $\partial \ln\mu/\partial \ln V = -0.06 \pm 0.01$. The non-linear magnetostriction below H $\sim$ 5 kOe is characteristic of these alloys in the field and temperature range where their magnetization is also appreciably field-dependent.[6] In sample $Pd_{99.7}Fe_{00.3}$ this non-linear field-dependence persists up to the highest fields at 4.2°K, since this is close to the Curie temperature of the alloy. However at 1.7°K a satisfactory linear variation over a wide field range is obtained as shown in Fig. 1.

The resultant values of $\partial \ln\mu/\partial \ln V$ for these alloys and also for $Pd_{99}Fe_{01}$, whose magnetostriction is not shown in Fig. 1, are listed in Table 1. The values of $J\chi/(1+J\chi)$ for substitution in Eq. (2) were obtained from the measured saturation magnetization for each alloy by taking $\mu_o = 3.3\ \mu_B$ for the local moment on an Fe site measured by large-angle neutron scattering.[7]

The resistivity of the most dilute PdFe alloy has a discontinuity in the temperature dependence near the Curie temperature T_c, as shown in Fig. 2. Curves obtained at atmospheric pressure and at high pressure in different apparatus[8] show that the discontinuity associated with T_c decreases at a rate $dT_c/dP = -4 \pm 4\times10^{-6}$ °K bar^{-1}. The corresponding value of $d\ln T_c/d\ln V$ is given in Table 1, and $d\ln J/d\ln V$ is evaluated by use of Eq. (5).