Homework 2 :   CePdSb : Molar mass = 368.12 g/mole $n = \dfrac{N}{N_A}$

Ce : 38.04 %, 140.12 g/mole

C = 0.4220 emu·K/mol

$$\chi = \frac{1}{3}\frac{N}{V}(g\mu_B)^2 \frac{J(J+1)}{k_B T}$$

$$\frac{\chi \cdot V}{n} = \frac{1}{3}\frac{N}{n}\cdot \frac{(g\mu_B)^2}{\cancel{}}\frac{J(J+1)}{k_B T}\cdot \cancel{}$$

$$C = \frac{N_A\, p^2 \mu_B^2}{3k_B} \implies p^2 \mu_B^2 = \frac{3C\, k_B}{N_A} \implies p\mu_B = \sqrt{\frac{3C k_B}{N_A}}$$

$$p = \sqrt{\frac{3C k_B}{N_A}}\;\frac{1}{\mu_B}$$

$$p = \sqrt{\frac{3\,(0.422\ {}^{K\cdot cm^3}\!/mole)\cdot 1.3807\times 10^{-16}\ erg/K}{6.022\times 10^{23}\,/mole}}\;\;\circ\;\;\frac{1}{9.2741\ erg/G}$$

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Thursday : 3-D electron in a box (free electron)

Sample 1 :   m = 61.11 mg

Sample 2 :   m = 72.05 mg

$\dfrac{\chi}{6.026}\ emu/mol\cdot Ce \to \mu_B$

Field use 1000 Gauss

1 emu = 16.36 $\dfrac{emu}{g}$ = 43.01 $\dfrac{emu}{g\,Ce}$ → $\bar{\lambda}_i$

1 emu = 1.001 × 10^{-20} emu/Ce

1.08 μ_B/Ce

6.026 $\dfrac{emu}{mol\cdot Ce}$ = 43.01 × 140.12 g/mole