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PHY350 Lab Report
Practical: 4 Registration No.: 11912610 Section: G2903

Aim

To measure the magnetic susceptibility of a paramagnetic material using Quinke's method

Methods

Density of the liquid $\rho = 1.443$ g cm^{-3}

$$\chi = \frac{2\rho g h}{\mu_0 H^2} = \frac{2\mu_0 \rho g h}{B^2}$$

Value for H with varying I was noted. Further, the height level of the liquid in the capillary tube was noted.

Results

I (A)	B	MSR	VSR	Total (cm)
0.5	0.113	12.85	2.0	12.8520
1.5	0.340	12.85	2.4	12.8524
2.5	0.567	12.85	3.2	12.8532
3.5	0.793	12.85	4.2	12.8542

A problem in calculating 'h' was that the zero-point the height measurement is not known. By manual extrapolating from the given data points, it was inferred that the zero point should be very close to 12.8520 cm.

Calculating gave an average value of $\chi = 1.26 \times 10^{-6}$.