Fig.7. A detailed scan of the near-zero magnetic field region showing the resonance due to the coherence effect with relaxation time corresponding to multiple wall collisions. To our knowledge, this is the narrowest resonance in magnetic field dependence of the optical rotation (40 µGs peak-to-peak) observed so far. The steep derivative of the rotation near the center provides for a high sensitivity to small magnetic fields. Laser power: 100 µW. The slight asymmetry of the resonance is due to a residual transverse magnetic field of a few µGs.
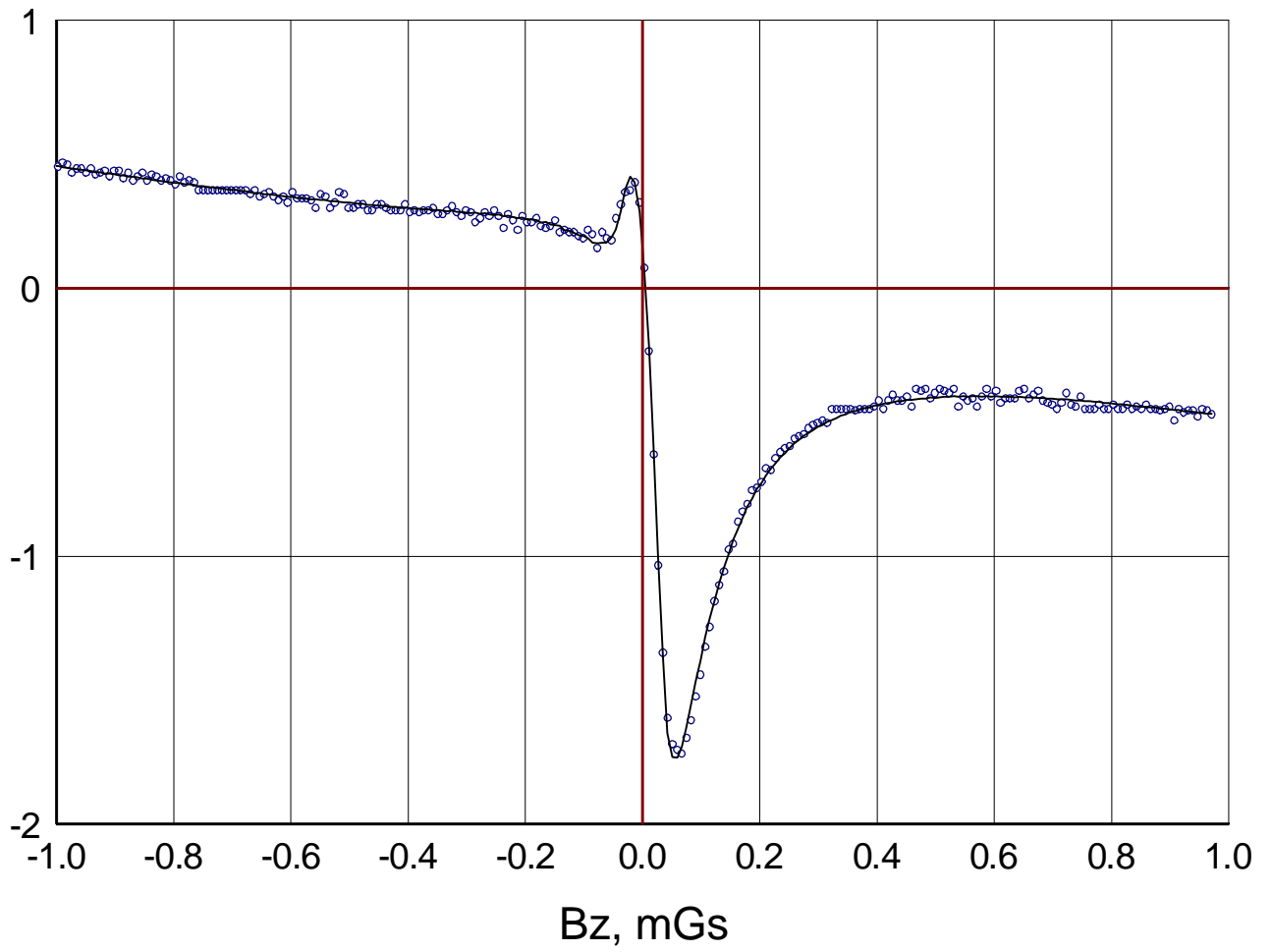
Fig. 8. An example of the longitudinal magnetic field scan in the presence of applied transverse fields: B_x=43.5 µGs, B_y=65.2 µGs. Laser power: 89 µW. Solid line is a fit with a simple theoretical model described in the text. Since the lineshape is sensitive to all components of the magnetic field, this method can be applied to sensitive 3-axis magnetometry.