MAGNETIC FIELD ENHANCED TIP FABRICATION FOR FOUR-PROBE STM STUDIES

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Here we demonstrate that the presence of a magnetic field produces a significant enhancement of tip length and a concomitant reduction in cone angle. We propose a model in which the Lorentz force acting on the ionic buffer prevents the adhesion of small bubbles at the anode which otherwise limit the tip quality [1]. An increase the magnetic field results in the formation of tips with a smaller cone angle and greater length, allowing the tips to be brought into close proximity. We demonstrate the use of such tips for four-probe conductivity measurements on metallic, template grown nanowires.

References:

[1] I. Ekvall, E. Wahlström, D. Claesson, H. Olin, and E. Olsson. Meas. Sci. Technol., **10** (1999) 11-18

Figures:

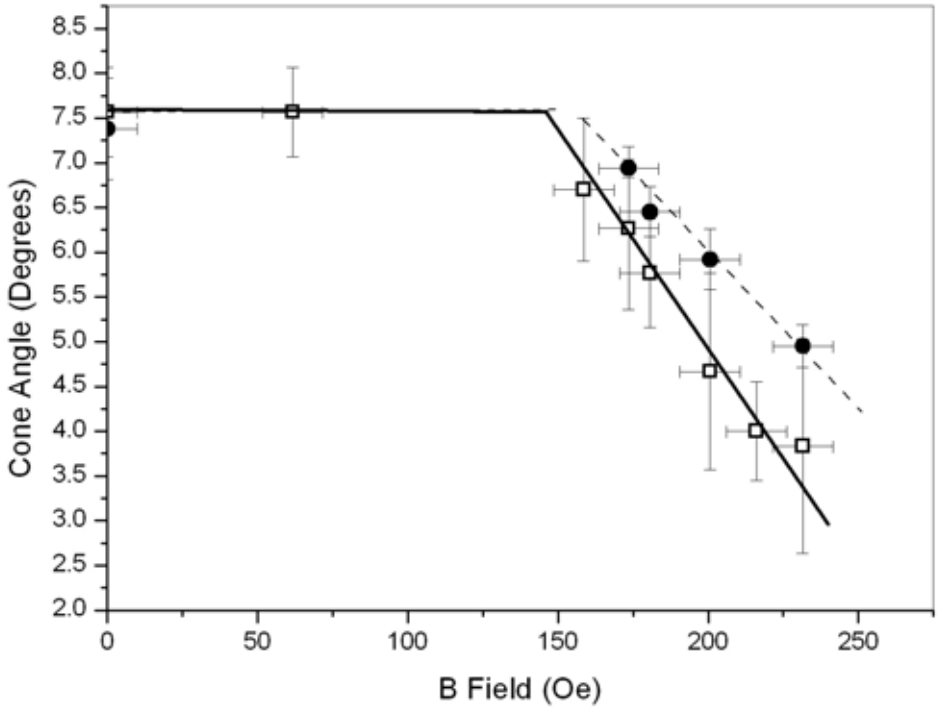

Figure 1. Graph showing the variation in cone angle as a function of the magnetic field. The solid circle points represent cone angles measured at 30000x magnification. The hollow square points represent cone angles measured at 900x magnification. The lines are guides to the eye.