

Dependence of the Longitudinal Magnetoresistance of Iron Whiskers on the Measuring Current

R. Berthe, U. Hartmann, and H. H. Mende

The dependence of the longitudinal magnetoresistance of $\langle 100 \rangle$ iron whiskers upon the measuring current is investigated at 4.2 K in magnetic fields up to 20 kA/m. The carbon-saturated single crystal whiskers are 30 to 150 μm in diameter with a residual resistance ratio (RRR) of about 300. The shape of the resulting magnetoresistance curves exhibits a strong dependence on the actual measuring current. Previously existing hysteresis effects and resistivity jumps disappear with increasing current in the range from 0 to 1 A.