Linear magnetoresistance in non-degenerately doped SrTiO$_3$\textsuperscript{1}

ANAND BHATTACHARYA, Materials Science Division and Center for Nanoscale Materials, Argonne National Laboratory — I will present transport measurements on non-degenerately doped $n$–SrTiO$_3$ single crystals. The samples were doped by annealing at high temperatures in vacuum. The resistance decreases monotonically down to the lowest temperatures, for carrier densities as low as $3.85 \times 10^{15}$/cm$^3$. The magnetoresistance (MR) is found to be positive and linear at high fields, with $R(9 \text{T})/R(0 \text{T}) > 28$ at 2 K for the lowest doping levels measured. The magnitude of the MR decreases with increasing temperature, and with increased doping. I will discuss the data in light of various mechanisms for linear magnetoresistance in the context of $n$–SrTiO$_3$. 

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