Hall Effect Lab

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(Dated: June 7, 2021)

A doped silicon semiconductor wafer was analyzed to determine its electrical properties. Using two different methods, it was determined that the semiconductor was a p-type. Its resistivity was found to be $\rho = 9 \pm 2\ \Omega\ cm$. The carrier mobility of the semiconductor was measured at 320 $\pm 60 cm/V{\cdot}$s, close to the accepted value of 455 cm/V·s. The carrier concentration was measured at $2.26 \times 10^{15} \pm 9 \times 10^{13}$ holes per cm^3, which is within the range of $10^{14} - 10^{20}\ cm^{-1}$.