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Monte Carlo Simulation of Electron Transport in InSb

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Abstract: Transport properties of indium antimonide in an electric field have been calculated at 77 K. The calculation shows that ionized impurity scattering plays a dominant role in InSb at low electric field. The mobility, mean energy, and drift velocity are calculated as a function of the electric field strength, and comparison is made with previous theoretical results. Types of the scattering mechanisms and percentage of each mechanism in the total scattering events are determined.

Key Words: Transport properties; Scattering rates; Infrared detectors; Monte Carlo.

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