

Computational Electronics: Density of States and Scattering

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1. Derive the Density of States (DOS) function for 3D, 2D and 1D system. For 3D system derive the expressions for the electron and hole density using Maxwell-Boltzmann statistics. Following the same procedure calculate the sheet electron density for 2D system using Fermi-Dirac statistics.
2. Fill in the missing steps in the derivation of the Fermi Golden rule that gives us the transition rate from initial state k to final state k' .