Diffusivity-Mobility Relationship for Heavily Doped Semiconductors with Non-Uniform Band Structures

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A general relationship between the diffusivity and the mobility in degenerate semiconductors with non-uniform energy band structures has been presented. The relationship is general enough to be applicable to both non-degenerate and degenerate semiconductors. It is suitable for the study of electrical transport in heavily doped semiconductors and semiconductor devices.

Key words: Semiconductors; Heavy Doping; Diffusivity-Mobility Relationship.