عنوان مقاله:

Effects of Dopant Concentrations on Radiative Properties of Nanoscale Multilayer with Incoherent Formulation for Visible Wavelengths

محل انتشار:

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خلاصه مقاله:

Semiconductor materials with coatings have a wide range of applications in MEMS and NEMS. This work uses transfer-matrix method for calculating the radiative properties.Dopped silicon is used and the incoherent formulation is applied. The Drude model for the optical constants of doped silicon is employed.Results showed that for the visible wavelengths, more emittance occurs in greater concentrations and the reflectance decreases as the concentration increases. In these wavelengths, transmittance is negligible. Donars and acceptors act similar in visible wavelengths. At room temperature, the scattering process is dominated by lattice scattering for lightly doped silicon, and the impurity scattering becomes important for heavily doped silicon when the dopant concentration exceeds1018 cm 3 .

کلمات کلیدی:

Dopant Concentrations-Radiative Properties-Nanoscale Multilayer-Incoherent Formulation-Visible Wavelengths