Properties of Inclined Silicon Carbide Thin Films Deposited By Vacuum Thermal Evaporation

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Abstract
In this work, thermal evaporation system was employed to deposit thin films of SiC on glass substrates in order to determine the parameters of them. Measurements included transmission, absorption, Seebeck effect, resistivity and conductivity, absorption coefficient, type of energy band-gap, extinction coefficient as functions of photon energy and the effect of increasing film thickness on transmittance. Results explained that SiC thin film is an n-type semiconductor of indirect energy and-gap of ~3eV, cut-off wavelength of 448 nm, absorption coefficient of 3.4395x10^4 cm^-1 and extinction coefficient of 0.154. The experimental measured values are in good agreement with the typical values of SiC thin films prepared by other advanced deposition techniques.

Keyword: Silicon Carbide, Vacuum Thermal evaporation, thin film semiconductors