

New Technique of Estimation of Charge Carrier Density of Nanomaterials from Thermionic Emission Data

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Abstract : A good number of electronic properties such as electrical and thermal conductivities depend on charge carrier densities of nanomaterials. By controlling the charge carrier densities during the fabrication (or growth) processes, the physical properties can be tuned. In this paper, we discuss a new technique of estimating the charge carrier densities of nanomaterials from the thermionic emission data using the newly modified Richardson-Dushman equation. We find that the technique yields excellent results for graphene and carbon nanotube.

Keywords : charge carrier density, nano materials, new technique, thermionic emission

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