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Effect of CNT doping on optical properties of $Cu_5Se_{75}Ge_{10}In_{10}$ glassy alloys

ABSTRACT. Chalcogenide glasses of bulk Cu-Se-Ge-In with 1 wt% CNT were synthesized by melt-quench technique. Thin films of as-prepared and with 1 wt% CNT added Cu-Se-Ge-In glassy alloys were made by a thermal evaporation method. Optical properties were determined using a UV-vis spectrophotometer. The absorption (extinction) coefficient decreased with addition of CNT while the optical bandgap increased from 1.9 to 2.1 eV. The greater optical bandgap found in CNT-doped Cu-Se-Ge-In is explained on the basis of the Mott–Davis model of density of defect states.

Keywords: carbon nanotube, chalcogenides, extinction coefficient, photon energy

Nanotechnology Perceptions **15** (2019) 168–173

doi: 10.4024/N11MI19A.ntp.15.02