

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

The Effect of the Size and Type (Dimensionality) of Carbon Nano-Fillers on the Optical Properties of Polystyrene Composites.¹ ADNAN JARADAT, Jordan University of Science and Technology, HIND ABU GHAZLEH COLLABORATION, HASSEN GHANEM COLLABORATION — A set of samples of polystyrene composites with Multi-wall carbon nanotubes (MWCNTs), Graphene nanosheets, and Carbon Black nanospheres (CB) have been prepared with concentrations from 0.01% up to 0.05% using casting technique. The effect of type and dimensionality of the nanofiller on the optical properties of polystyrene composite have been studied. The optical absorbance, reflectance and transmittance were recorded using UV-VIS in the wave length range 290 to 700nm. The results of this study show that films with Multi-Wall Carbon Nanotubes (MWCNTs) filler have the highest refractive index, while films with Carbon Black (CB) filler have the lowest refractive index. The estimated optical band gap was found to depend on the type and dimensionality of the filler with values range between 4.15eV to 3.90eV. The dielectric constant has been calculated using the optical measurements. The study show that lower the dimensionality of the filler gives the highest value of the dielectric constant.

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Date submitted: 12 Nov 2016

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