

Abstract Submitted
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Doping graphene with BSO clusters¹ FERNANDO MAGAÑA, GERARDO JORGE VAZQUEZ, JULIO LOPEZ, Instituto de Física, UNAM — Sillenite crystals ($\text{Bi}_{12}\text{MO}_{20}$, $M = \text{Ge, Si and Ti}$) present a number of interesting properties, such as photorefractive, piezoelectric, electro-optical, photoinduced absorption, optical activity and photoconductivity. Employing them at the nanoscale in electronic and optoelectronic devices may result in new applications. For example the electronic properties of inherently two-dimensional (2D) materials such as graphene may be change by doping it with $\text{Bi}_{12}\text{SiO}_{20}$ (BSO) clusters. BSO is the fastest photorefractive crystal to date. By means of a calculation of first principles using the DFT, the density the levels of energy of molecules of BSO was investigated. The evolution was observed from the levels when going adding more molecules from BSO to the system, obtaining a behavior of the levels that looks like the levels in the bulk. In this work also was studied the effect on electronic properties of graphene when BSO clusters was added to it.

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