Potential applications in optoelectronics had generated a great interest of study of graphene optical properties. Along with this, the graphene has exceptional properties such as high mobility and optical transparency, flexibility, robustness. Is for these properties of graphene can be used in different devices such as transparent conductors, organic light-emitting diodes, photodetectors, touch screens, saturable absorbers and ultrafast lasers. A transfer matrix method (like Pochi-Yeh) is developed for obtained optical properties, reflection, transmission, and absorption in the far-infrared region. The quasi-periodic structure was compound by intercalating graphene sheets between two consecutive dielectrics. The dielectrics media follows Thue-Morse sequence ($g(\sigma_1) = \sigma_1/\sigma_2$, $g(\sigma_2) = \sigma_2/\sigma_1$, / indicate graphene sheets). The graphene sheets were described by the optical conductivity considering interband and intraband transitions. The structure of the spectra depends on strongly of the number of sequence generation, the width of the different dielectrics and optical contrast (dielectric contrasts). The far-infrared region corresponds when chemical potential is greater than $kT$ energy. The results for transverse magnetic polarization and transverse electric polarization for different angles are shown. In spectra, the geometrical properties of the sequence Thue-Morse can be observed. We obtain absorption band well define. We had made a comparison between quasi-regular and regular structures.

**Keywords:** Graphene, Optical properties, Thue-Morse

**References:**


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