

Effect of Geometrical and Physical Properties of Cantor Structure for Gas Sensing Applications

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In this article, the effects of geometrical and Physical properties of gyroidal graphene and porous silicon of Cantor sequence terminated by gyroidal layer are studied for Gas sensing applications. The study is investigated in THz frequencies with transverse electric polarized light. Gyroidal graphene layers have good tunable optical properties and can excite Tamm resonance due to the metallic property of graphene in the THz range. The recorded spectral sensitivity of the proposed detector is 2431 THz/RIU when the analyte index of refraction is in the range from 1.000 to 1.002. Our research will be highly useful in the development of a high-sensitivity, multi-parameter Tamm resonance sensor.

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