

Terahertz radiation antenna for axions search by excitation of plasmon polaritons in topological insulators

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The terahertz radiation yield from a dialectical substrate covered with polycrystalline graphene and metal intercalated graphite films are studied. For these structures the surface plasmon resonance frequency can be controlled in the range of 0.1 – 0.3 THz by changing the degree of graphite intercalation by metal atoms, the corresponding band gap is changed in the range $(1 - 3)10^{-3}$.

It is possible to use these structures as antennas for detecting ultra-low-power terahertz radiation and searching for axons in the indicated range [1].

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[1] Zhao T, Gong S, Hu M, Zhong R and et al 2015 *Scientific Reports* **5** 16059