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Title

Fields radiated by a nanoemitter in a graphene sheet

Source

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Abstract

The extraordinary properties of graphene make it a very promising material for optoelectronics. However, basic attributes of the electromagnetic field in graphene are still unexplored. Here we report on the in-plane fields radiated by a nanoemitter lying on a graphene sheet in terahertz regime, which present a rich dependence on frequency, distance to the source, and orientation of the dipole moment. The field pattern is mainly composed of a core region, dominated by surface plasmons, where the electric field can be several orders of magnitude larger than in vacuum, and an outer region where the field is virtually the same as what it would be in vacuum.