

# Design and analysis of a graphene-based nanoantenna for optical frequencies

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## Abstract

The design of a nanoantenna in emissions with two layers of substrates, where high frequencies can be attained, is presented in this work [1]. A theoretical study of propagation characteristics in a thin layer of graphene is carried out in order to obtain better results for high frequencies [2]. Graphene is defined by its surface conductivity and the propagation properties of the support surface waves are extracted in the far-infrared region [3], resulting in the proper selection of the dimensions of nanoantenna (Figure 1). After a modeling of an initial antenna, the radiation pattern is thoroughly examined. The numerical results, addressing a detailed investigation of various characteristics of radiation, revealing a competing alternative to the classical metallic structures.

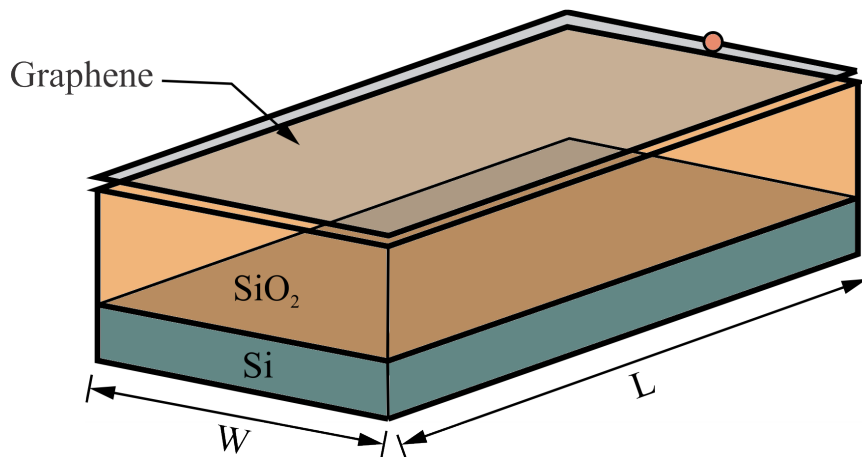


Figure 1: Schematic diagram of a graphene-based nanoantenna for optical frequencies with two layers of substrates

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## References

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