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Title:Manipulation of giant Faraday rotation in graphene metasurfaces

Authors:Fallahi, Arya (1); Perruisseau-Carrier, Julien (2)

Author affiliation:(1) DESY-Center for Free-Electron Laser Science, Hamburg University, Notkestrasse 85, D-22607 Hamburg, Germany; (2) Ecole Polytechnique Fédérale de Lausanne (EPFL), CH-1015 Lausanne, Switzerland

Corresponding author:Fallahi, A.

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Abstract:Faraday rotation is a fundamental magneto-optical phenomenon used in various optical control and magnetic field sensing techniques. Recently, it was shown that a giant Faraday rotation can be achieved in the low-THz regime by a single monoatomic graphene layer. Here, we demonstrate that this exceptional property can be manipulated through adequate nano-patterning, notably achieving giant rotation up to 6THz with features no smaller than 100 nm. The effect of the periodic patterning on the Faraday rotation is predicted by a simple physical model, which is then verified and refined through accurate full-wave simulations. © 2012 American Institute of Physics.

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