

Coupling light into graphene plasmons through surface acoustic waves

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We propose a scheme for coupling laser light into graphene plasmons with the help of electrically generated surface acoustic waves [1]. The surface acoustic wave forms a diffraction grating which allows to excite the long lived phonon-like branch of the hybridized graphene plasmon-phonon dispersion with infrared laser light. Our approach avoids patterning the graphene sheet, does not rely on complicated optical near-field techniques, and allows to electrically switch the coupling between far field radiation and propagating graphene plasmons.

[1] J. Schiefele, J. Pedrós, F. Sols, F. Calle, F. Guinea, arXiv:1309.0767 (2013).