

Abstract Submitted
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Optimizing Broadband Terahertz Modulation with Hybrid Graphene/Metasurface Structures SUFEI SHI, BO ZENG, HUI-LING HAN, XIAOPING HONG, HSIN-ZON TSAI, HAE SAE, ALEX ZETTL, MIKE CROMMIE, FENG WANG, UC Berkeley, UC BERKELEY TEAM — We demonstrate efficient terahertz (THz) modulation by coupling graphene strongly with a broadband THz metasurface device. This THz metasurface, made of periodic gold slit arrays, shows near unity broadband transmission that arises from coherent radiation of the enhanced local-field in the slits. Utilizing graphene as an active load with tunable conductivity, we can significantly modify the local-field enhancement and strongly modulate the THz wave transmission. This hybrid device also provides a new platform for possible nonlinear THz spectroscopy study of graphene.

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