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Xiao, Sanshui

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Graphene nanophotonics: From fundamentals to applications

Sanshui Xiao^{1,2}

¹DTU Fotonik, Department of Photonics Engineering, Technical University of Denmark, 2800, Kgs. Lyngby, Denmark.

²Center for Nanostructured Graphene (CNG), Technical University of Denmark, DK-2800 Kgs. Lyngby, Denmark.

mail: saxi@fotonik.dtu.dk, website: <http://www.fotonik.dtu.dk/sem>

With unique possibilities for controlling light in nanoscale devices, graphene has opened new perspectives to the nanophotonics community with potential applications in metamaterials, modulators, photodetectors, and sensors. Following a brief introduction of graphene, I will present recent our results on graphene, such as excitation of graphene plasmon polaritons [1], pushing graphene plasmons to short wavelengths, and investigating of graphene plasmon-phonon interactions [2]. Finally I will discuss graphene-based optical modulators [3], particularly focusing on graphene-silicon platforms for electro-absorption modulating.

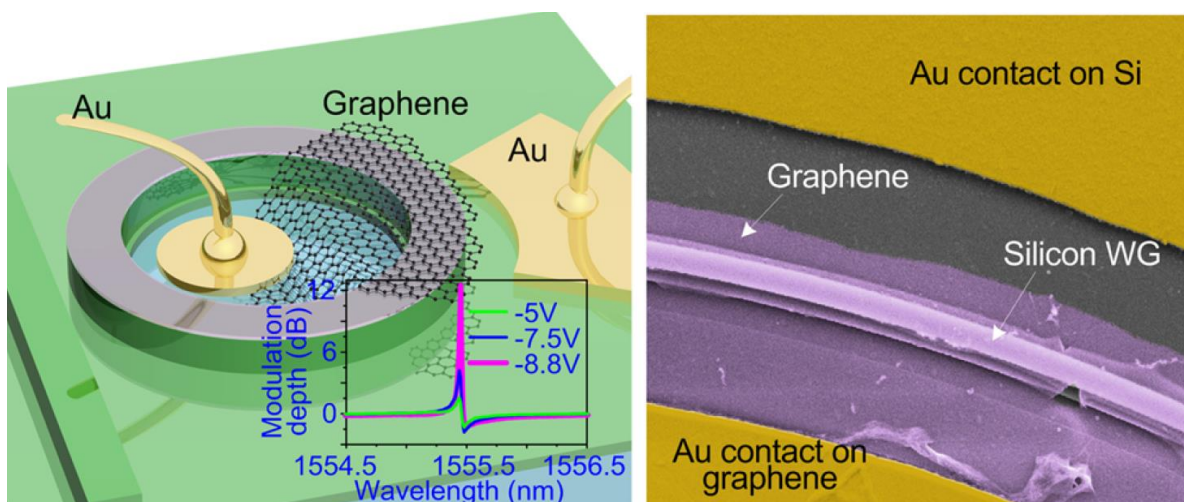


Fig. 1. Graphene based electro-optical modulator

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