



Fundamentals in graphene plasmons and graphene-based optoelectronic applications Invited Talk.

Xiao, Sanshui

Publication date:
2019

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):
Xiao, S. (2019). *Fundamentals in graphene plasmons and graphene-based optoelectronic applications: Invited Talk*. Abstract from The 9th International Multidisciplinary Conference on Optofluidics, Kowloon East, Hong Kong.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Invited Talk

Sanshui Xiao

Associate Professor
Department of Photonic Engineering
Technical University of Denmark



Biography

Sanshui Xiao obtained his PhD degree at Zhejiang University in 2004. In August 2004, he joined the Royal Institute of Technology (Sweden) as a post-doc researcher. In 2006, he started to work at the Technical University of Denmark, and he is now Associate Professor there. His current research interests include exploration of fundamental physics of light-matter interactions at the nanoscale and development of graphene-based optoelectronic devices. He obtained the European Optics Prize from the European Optical Society in 2008.

Fundamentals in graphene plasmons and graphene-based optoelectronic applications

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. I will first discuss fundamentals of graphene plasmon, e.g., plasmon-phonon coupling, graphene plasmons demonstrated in the near-infrared region and Anderson localization of graphene plasmons [1]. Then a few graphene-based optoelectronic applications will be discussed including integrated modulators and photodetectors [2-4].

References

- [1] J. Duan, et. al., “Anderson localized plasmon in graphene with random tensile-strain distribution”, *Adv. Sci.*, 6, 1801974 (2019).
- [2] Y. Ding, et. al., “Effective electro-optical modulation with high extinction ratio by a graphene-silicon microring resonator”, *Nano. Lett.*, 15, 4393 (2015).
- [3] Y. Ding, et.al., “Efficient electro-optic modulation in low-loss graphene-plasmonic slot waveguides”, *Nanoscale*, 9, 15576 (2017).
- [4] Y. Ding, et. al., “Ultra-compact integrated graphene plasmonic photodetector with bandwidth over 110 GHz”, arXiv:1808.04815