

Metasurface-enhanced Graphene Photodetector with High Responsivity and Bandwidth for Near-infrared to Mid-infrared Integrated Photonics

presentation given by Dr. Yujie Guo from Photonics Research Group at Ghent University-imec

Abstract A waveguide-integrated, metasurface-enhanced graphene photodetector with steady-state responsivity over 2 A/W and bandwidth beyond 40 GHz is demonstrated. The device benefits from the novel metasurface geometry of asymmetric metalization, featuring also a low noise equivalent power of $\sim 20\text{ pA}/\sqrt{\text{Hz}}$, an optical band tunable in 1500–2300 nm, high stability against constant operation for over 15 hours.



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