

# Graphene Photonics for Optical Communications

*(Invited paper)*

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## **ABSTRACT**

Graphene is a gapless fermion material and this leads to a number of interesting electrooptical properties, one of them is the wavelength agnostic property, that is the possibility to operate devices at any wavelength. Waveguides topped with graphene show both electro absorption and/or refraction modulation with excellent figure of merit. Graphene is also used in photodetection and can be implemented as bolometer or Seebeck ultrafast geometry. In the second case graphene detectors can be used in voltage mode.

Graphene is also an integrable material that results particularly compatible with silicon photonics and related materials. The wafer scale integration technology mainly requires newly developed steps as graphene transfer, encapsulation and contacting. The quality of these steps determines the performance of the device.

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## **REFERENCES**

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