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# Applications of Graphene to Electronics and Optoelectronics

Sung-Yool Choi

Center for Graphene Electronics, Electronics and Telecommunications Research Institute (ETRI)

Graphene, a monlayer of carbon atoms arrange to form a 2-dimensional honeycomb lattice, exhibits enormous fascinating properties, such as a linear energy dispersion relation, a wide-range optical absorption, high thermal conductivity, and mechanical flexibility [1]. Because the unique material properties of graphene allow it to be a promising building block for the next generation electronic and optoelectronic devices, sometimes graphene-based devices have refereed to be a strong candidate to overcome the intrinsic limitations of conventional semiconductor-based technology [2,3]. However, there are several fundamental or technological hurdles to be overcome in real applications of graphene in electronics and optoelectronics. In this tutorial we will present a short introduction to the basic materials properties and recent progress in applications of graphene and discuss future outlook of graphene-based electronic and optoelectronic devices.

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[3] F. Bonaccorso, Z. Sun, T. Hansen, A.C. Ferrari, *Nature Photonics*, 4, 611 (2010)

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