SM-P020

Si Nanostructure on Graphene

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Nanostructures on Graphene surface receive highly attraction for many applications ranging from sensing technologies to molecular electronics. Recently J. Jasuja et al. reported the electrical property tailoring and Raman enhancement by the implantation and growth of dendritic gold nanostructures on graphene derivatives [ACSNANO, 3, 2358, 2013] Here, we introduced Si vapor on the graphen to induce the nanostructure. The surface property change of graphene by controlling the amount of Si and the thickness of graphene were investigated using high resolution photoemission spectroscopy (HRPES), and atomic force microscopy (AFM). The Si nanostructures on graphene show the thickness dependency of graphene, and the size of Si nano-structure reached to 7 nm and 15 nm on the mono and the multilayered graphene after 30 Å Si evaporation.

Keywords: Graphene, Si-nanostructure, Photoemission Spectroscopy

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Conductance Difference of Single Molecular Junctions between Experiments and Computational Simulations

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Recent advances in the synthesis and characterization of nanoscale objects provided us with the atomistic understanding of charge transport through single molecular junctions. The representative examples are the mechanically controlled break junction technique and STM or conducting AFM junction techniques. Theoretical studies have been reported on the dependence of electronic charge transport on the geometry of molecule-electrode contacts, the critical element toward the realization of molecular electronics. In this report, we will clarify the puzzling discrepancies between theoretical predictions and experiments.

Keywords: Molecular Junction Conductance