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Dependence of Device Characteristics of Graphene upon Fabrication Process

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Although graphene may be considered to be inert two-dimensional carbon material, it has been found to be sensitive to the exposure to gas, electron beam, and chemical reagents, implying that the device fabrication process can affect the device characteristic incorporating the graphene. Here, we report on the effect of fabrication procedure on the device properties like field modulation, which was affected more than the IV characteristic. Effect of the polymeric residues on the electric contact and graphene channel is considered to be crucial, which in turn abated remarkably by the introduction of a simple additional process. The results were discussed with a scattering model of the electron transport through the conduction channel of graphene.