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Dynamic Charge Transfer at the C_{60}/Graphene Interface RUI WANG, XIAOWEI WANG, SHENGNAN WANG, ZHIHAI CHENG, XIAOHUI QIU, National Center for Nanoscience and Technology, China — The charge transfer dynamics between C_{60} molecules and graphene was studied using scanning probe microscopy, micro-Raman spectroscopy and transport measurement. Electrons inject from graphene to C_{60} molecules due to the hybridization of energy band was observed. The charged C_{60} molecules act as local electrical gates, which are thermally switching and induce the current or resistance fluctuations (such as 1/f noise) in graphene active channel. The thermally activated carrier trapping/detrapping process was found to be a dominant source for the 1/f noise at room temperature. As temperature decreased, Coulomb scattering from charged C_{60} molecules became a primary influence on the current flow in graphene transistors.

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