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Doping Single-Layer Graphene from SiO₂ Substrates or Jointed Few-Layer Graphene LAIN-JONG LI, YUMENG SHI, Nanyang Technological University — Electrostatic force microscopy (EFM) measurements reveal that the surface potential of graphene either increases or decreases, depending on the initial surface potential of substrates, to a “bulk” value with their thickness. Graphene layers tend to screen of the substrate potential, which drives the charge exchange between graphene and the substrates. The direct consequence is the effective doping of graphene, where the substrate-dependent p- or n-doping of graphene is corroborated by Raman spectroscopy and electrical measurements for the transistor devices. Our results promise a practical method for tailoring the electronic properties of graphene for nanoelectronics.

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