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Local Gating of Graphene Devices via Contactless Top Gates
JAIRO VELASCO JR., GANG LIU, CHUN NING LAU, Department of Physics and Astronomy, University of California at Riverside — Graphene devices with local electrostatic gates are promising candidates for investigation of novel phenomena such as Klein tunneling and the veselago lensing effect. However, it is experimentally challenging to fabricate local gates without inadvertent introduction of dopants or defects. We have developed a novel lithography process that enables fabrication of contactless, suspended top gates above single and bi-layer graphene devices. Using this technique, we have demonstrated graphene p-n junctions. We will discuss latest progress towards electrical transport of such devices in the zero-magnetic field regime, as well as in the quantum Hall regime.

Jairo Velasco Jr.
Department of Physics and Astronomy, University of California at Riverside

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