

Abstract Submitted
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Graphene/Carbon Nanotube Cross-Junction Devices¹ MELINA BLEES, XIAODONG XU, AREND VAN DER ZANDE, Cornell University, ZHAOHUI ZHONG, University of Michigan, NATHAN GABOR, Cornell University, PHIPHAM, University of Colorado at Boulder, PAUL MCEUEN, Cornell University — We have built crossed carbon nanotube/graphene junctions from CVD graphene and aligned arrays of carbon nanotubes. Large-area single-layer graphene was grown on a copper film and transferred to silicon oxide, then lithographically patterned and electrically contacted. Highly aligned arrays of single-walled carbon nanotubes were CVD-grown on quartz and transferred to complete the devices. We probed these new geometries using electrical measurements, studied their optoelectronic response with scanning photocurrent microscopy, and explored the temperature and gate dependence of the junctions. We found that graphene acts as a very good electrode for carbon nanotubes, pointing to the possibility of creating fully-integrated, transparent, flexible transistors purely from carbon nanomaterials.

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Melina Bles
Cornell University

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