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Quantum Transport in Single and Bi-Layer Graphene Coupled to Superconducting Electrodes F. MIAO, S. WIJERATNE, U. COSKUN, Y. ZHANG, C. N. LAU, Department of Physics and Astronomy, University of California, Riverside, CA 92521 — Graphene, the two dimensional honeycomb lattice of carbon atoms, has attracted significant attention in recent years, due to its unique electrical properties. Here we present experimental studies of single and bi-layer graphenes coupled to superconducting electrodes. At low temperatures the devices display signatures of ballistic electrical transport, and the minimum conductivity varies between 6.5 and 20kΩ. When the electrodes become superconducting, we observe gate-tunable low-bias conductance peaks, which are attributed to multiple Andreev reflections. Latest experimental results will be discussed in terms of various theoretical models.

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