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Superconducting Proximity Effect in Sidewall Graphene Nanoribbons OWEN VAIL, JOHN HANKINSON, School of Physics, Georgia Tech, CLEMENT BOUVIER, CLAIRE BERGER, Gatech - School of Physics, CNRS-Institut Neel, WALT DE HEER, ZHIGANG JIANG, School of Physics, Georgia Tech — Epitaxial graphene nanoribbons (EGNRs) grown on sidewall SiC have recently emerged as a novel material system enabling single channel room temperature ballistic transport over micrometer distance. In this work, we fabricate Al-EGNR-Al junctions and study the electronic transport as a function of bias voltage, temperature, and magnetic field. We show that although the measured resistance across the junction is dominated by the EGNR, spectral features associated with superconductivity of Al electrodes are evident. These features are fully developed at low temperatures and evolve with magnetic field. We comment on the implication of our observations with respect to the electronic properties of sidewall EGNRs.

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