Abstract Submitted
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1/f Noise in Gated Epitaxial Graphene Nanoribbons OWEN VAIL, JEREMY YANG, ANNA MIETTINEN, JOHN HANKINSON, School of Physics, Georgia Institute of Technology, CLAIRE BERGER, School of Physics, Georgia Institute of Technology, CNRS-Institut Neel, WALTER DE HEER, ZHIGANG JIANG, School of Physics, Georgia Institute of Technology — Epitaxial Graphene Nanoribbons (EGNR) grown on sidewall SiC have gained interest as a high-quality interconnect enabling room temperature ballistic transport over micron lengths. To be useful as an interconnect a proper characterization of the noise level in the EGNR needs to be determined. Toward this end, we fabricated EGNR devices with an Aluminum-Oxide top gate and use field effect to tune the fermi energy in the graphene channel. Our studies of the electronic noise and its dependence on the charge density in the ribbon reveal information about the subband structure of the density of states in addition to the ribbon's spectral density at low frequencies. Comparisons to the widely reported 1/f noise in silicon and other forms of graphene provide strong references for analyzing our results.

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