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**Systematic study of the transport gap and localization in graphene nanoribbons of varying lengths** PATRICK GALLAGHER, KATHRYN TODD, DAVID GOLDHABER-GORDON, Stanford University — Recent studies of very short graphene nanoconstrictions<sup>1</sup> have found that short constrictions lack the large transport gap displayed by longer nanoribbons, implying that localization behavior plays a critical role in the transport gap. We present transport measurements on graphene nanoribbons of constant width and varying length and report on gap characteristics and Coulomb blockade behavior. We discuss the relevant theoretical models and compare their predictions to our data.

<sup>1</sup>Ponomarenko, L. A.; Schedin, F.; Katsnelson, M. I.; Yang, R.; Hill, E. W.; Novoselov, K. S.; Geim, A. K. *Science* **2008**, 320, 356-358.

Patrick Gallagher  
Stanford University

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