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Scattering from localized strain profiles in graphene: effects on conductance MATTHEW BARR, Harvard University, ERIC HELLER, HELLER GROUP TEAM — Graphene has attracted significant attention for, amongst other properties, its Dirac-like quasiparticles and long coherence length. In the ballistic regime, we theoretically investigate the scattering properties of localized strain profiles. Manipulating strain in graphene has been proposed as a novel method of shaping graphene devices; modulated hopping parameters effectively introduce vector potentials equivalent to pseudomagnetic fields up to 300T [1]. We determine the localized potential and scattering parameters of several such "bubbles"; with this information we calculate the effects on conductance in both valleys of introducing one or many such impurities.

[1] N. Levy, S. A. Burke, K. L. Meaker, M. Panlasigui, A. Zettl, F. Guinea, A. H. Castro Neto and M. F. Crommie, Science 30, July 2010

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