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Electronic Transport through linear strain defects in Graphene
YONG WU, BIN CHENG, CHENG PAN, MARC BOCKRATH, University of California,Riverside — Strain-induced pseudo magnetic fields in Graphene have been studied by STM [1] as well as theoretically.[2] Such pseudo magnetic fields can confine electrons by the presence of magnetic barriers [3] or by the formation of closed cyclotron orbits. Here we report transport measurements through a nanometer-scale width, but micron-scale length linear strain defect in a graphene sheet. The transport data exhibits Coulomb blockade features, indicating the presence of a quantum dot. The charging energy and level spacing are consistent with the defect forming a one-dimensional quantum wire, similar to a carbon nanotube. This suggests the possibility that such defects can be used to confine or guide electrons in graphene. Our latest results will be discussed. [1].Strain? Induced PseudoMagnetic Fields Greater Than 300 Tesla in Graphene Nanobubbles ,N. Levy ,M. F. Crommie etc, Science [2].?Energy gaps and a zero? field quantum Hall effect in graphene by strain engineering, F. Guinea, A.Geim , Nature Physics [3].Magnetic Confinement of Massless Dirac Fermions in Graphene,A. De Martino, L. DellAnna, and R. Egger, Physical Review Letters

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