

Abstract Submitted  
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**Graphene on a graphite surface: effect of interlayer coupling.**<sup>1</sup> ADINA LUICAN, GUOHONG LI, EVA Y. ANDREI, Department of Physics and Astronomy, Rutgers University, Piscataway, New Jersey 08854, USA — We present low temperature high magnetic field scanning tunneling microscopy and spectroscopy on a sheet of graphene suspended above a graphite substrate. The sheet consists of two regions that couple to the substrate with different strengths resulting in two distinct sequences of Landau Levels (LL). One region exhibits a sequence that is typical of single layer graphene (square root dependence on field and level index) with a reduced Fermi velocity that is renormalized by electron-phonon interactions. The sequence in the other region is anomalous and, according to recent theoretical work [1], it can be attributed to a bilayer with interlayer coupling that is  $\sim 10$  times weaker than that of normal bilayers. We find that the difference between the two regions is also reflected in the values of the Fermi velocity, suggesting that electron-phonon renormalization is suppressed by interlayer coupling.

[1] *M. Pereira, F.M. Peeters and P. Vasilopoulos, Phys. Rev. B 76, 115419 (2007)*

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