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Rb-intercalated bilayer graphene studied by high-resolution ARPES JAMES KLEEMAN, Dept. of Physics, Tohoku University, KATSUAKI SUGAWARA, WPI-AIMR Tohoku University, TAKAFUMI SATO, Dept. of Physics, Tohoku University, TAKASHI TAKAHASHI, Dept. of Physics, Tohoku University; WPI-AIMR Tohoku University — To elucidate the electronic structure at the thinnest limit of the graphite intercalation compound (GIC) C_8Rb, we have performed high-resolution angle-resolved photoemission spectroscopy (ARPES) and low-energy electron diffraction (LEED) on Rb-intercalated bilayer graphene fabricated by in-situ evaporation of Rb atoms onto graphene grown epitaxially on SiC. Using LEED, the creation of an intercalated layer with in-plane geometry identical to bulk GICs was confirmed by the observation of a 2x2 spot pattern consistent with Rb intercalation. From ARPES measurement, we found that the Dirac point is at a binding energy of approximately 1 eV, compared to 0.4 eV in pristine epitaxial graphene on SiC [1]. The Fermi surface of this material was also measured. The critical differences between C_8Rb, its sister compound C_8K, and pristine bilayer graphene will be examined herein.

[1] T. Ohta et al, Science 313, 951-4 (2006).

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