

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Na induced changes in the electronic band structure of graphene grown on C-face SiC CHARIYA VIROJANADARA, CHAO XIA, LEIF JOHANSSON, Department of Physics, Chemistry and Biology, Linköping University, SE-58183, Linköping, Sweden — Studies of the effects induced on the electron band structure after Na deposition, and subsequent heating, on a C-face 2 MLs graphene sample will be presented. Na deposition shifts the Dirac point downwards from the Fermi level by about 0.5 eV due to electron doping. After heating at temperatures from around 120 to 300°C, the π -band appears considerably broadened. Collected Si 2p and Na 2p spectra then indicate Na intercalation in between the graphene layers and at the graphene SiC interface. The broadening is therefore interpreted to arise from the presence of two slightly shifted, but not clearly resolved, π -bands. Constant energy photoelectron distribution patterns, $E(k_x, k_y)$, extracted from the clean 2MLs graphene C-face sample look very similar to earlier calculated distribution patterns for monolayer, but not Bernal stacked bi-layer, graphene. After Na deposition the patterns extracted at energies below the Dirac point appear very similar so the doping had no pronounced effect on the shape or intensity distribution. At energies above the Dirac point the extracted angular distribution patterns show the flipped, “mirrored,” intensity distribution predicted for monolayer graphene at these energies. An additional weaker outer band is also discernable at energies above the Dirac point, which presumably is induced by the deposited Na.

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Date submitted: 25 Oct 2012

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