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**Electronic structure of epitaxial graphene layers on SiC** LAURENCE MAGAUD, FRANCOIS VARCHON, CECILE NAUD, Institut Néel/ CNRS-UJF Grenoble France, GUY TRAMBLY DE LAISSARDIERE, Universite de Cergy-Pontoise France, PIERRE MALLET, JEAN-YVES VEUILLEN, Institut Néel/ CNRS-UJF Grenoble France, CLAIRE BERGER, Gatech USA and Institut Néel /CNRS-UJF France, DIDIER MAYOU, Institut Néel/ CNRS-UJF Grenoble France — Our DFT calculations [1](VASP) demonstrate the existence of a strong interaction between the substrate and the first carbon layer in the epitaxial graphene system. This prevents any graphitic electronic properties for this layer. However, the graphitic nature of the film is recovered by the second and third absorbed layers in agreement with recent STM experiments[2]. We also present evidence of a charge transfer that depends on the interface geometry. It causes the graphene to be doped and may open a gap in agreement with ARPES experiments [3]. The effect of the complex first carbon layer structure on the ontop graphene like layer will also be discussed. Moreover we will show how a rotational disorder between two graphene sheets leads to an effective electronic decoupling of these layers and then to band structures with linear free graphene like dispersions [4]. [1] F. Varchon et al. Phys. Rev. Lett. 99, 126805 (2007) [2] P. Mallet et al., Phys. Rev. B 76, 041403(R) (2007) [3] T.Ohta et al., Science 313, 951 (2006) [4] J.Hass et al., cond-mat/0706.2134, (submitted to PRL)

Laurence Magaud
Institut Néel/ CNRS-UJF Grenoble France

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