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Electron states of mono- and bilayer graphene on SiC probed by STM FRANÇOIS VARCHON, PIERRE MALLET, CÉCILE NAUD, Institut NEEL CNRS/UJF, 25 rue des Martyrs BP166, 38042 Grenoble, CLAIRE BERGER, The Georgia Institute of Technology, Atlanta, Georgia 30332-0430; Institut NEEL CNRS/UJF, 25 rue des Martyrs BP166, 38042 Grenoble, LAURENCE MAGAUD, JEAN-YVES VEUILLEN, Institut NEEL CNRS/UJF, 25 rue des Martyrs BP166, 38042 Grenoble — We present a scanning-tunneling microscopy (STM) study of a gently graphitized 6H-SiC(0001) surface in ultrahigh vaccum [1]. From an analysis of atomic scale images, we identify two different kinds of atomic scale contrasts, which we attribute to mono- and bilayer (or trilayer) graphene capping a C-rich interface. At any temperature, both terraces show quantum interferences generated by point defects. Such interferences are a fingerprint of pi-like states close to the Fermi level. We conclude that the metallic states of the first graphene layer are almost unperturbed by the underlying interface, in agreement with recent ab initio studies [2] and photoemission experiments [3]. However, a significant density of interface states is detected close to the Fermi level in the C-rich interface. [1] P. Mallet et al., Phys. Rev. B 76, 041403(R) (2007) [2] F. Varchon et al., Phys. Rev. Lett. 99, 126805 (2007) [3] A. Bostwick et al., Nat. Phys. 3, 36 (2007)

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