

## Photoemission spectroscopy and NEXAFS study of epitaxial graphene on 6H-SiC(0001)

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Graphene has recently sparked much experimental and theoretical interest because of its unique electronic properties. In this study, we investigated the electronic and structural properties of graphene layers grown on a 6H-SiC(Si-terminated) substrate by using low energy electron diffraction (LEED), photoemission spectroscopy (PES), and near edge X-ray absorption fine structure (NEXAFS). The formation of graphene layers on the surfaces was confirmed with LEED and atomic force microscopy(AFM). The chemical and electronic structure changes upon heat treatment were measured with PES. The  $\pi^*$  transition features of C K-edge in the NEXAFS spectrum show good angle dependences. The angle between the plane of the graphene sheet and the SiC substrate was estimated by monitoring the variation of the  $\pi^*$  transition in the NEXAFS spectrum with the thickness of the graphene layers. As increasing the thickness of the graphene layers, the angle gradually decreased.