

# Atomic-scale investigation of Epitaxial Graphene Grown on 6H-SiC(0001) Using Scanning Tunneling Microscopy and Spectroscopy

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Graphene was epitaxially grown on a 6H-SiC(0001) substrate by thermal decomposition of SiC under ultrahigh vacuum conditions. Using scanning tunneling microscopy (STM), we monitored the evolution of the graphene growth as a function of the temperature. We found that the evaporation of Si occurred dominantly from the corner of the step rather than on the terrace. A carbon-rich ( $6\sqrt{3} \times 6\sqrt{3}$ )R30° layer, monolayer graphene, and bilayer graphene were identified by measuring the roughness, step height, and atomic structures. Defect structures such as nanotubes and scattering defects on the monolayer graphene are also discussed. Furthermore, we confirmed that the Dirac points (ED) of the monolayer and bilayer graphene were clearly resolved by scanning tunneling spectroscopy (STS).

**Keywords:** epitaxial graphene, STM, STS