

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Edge Structures of Graphene Layers Grown on the 6H-SiC(0001) Surface ILYOU KIM, C. HWANG, WONDONG KIM¹, Korea Research Institute of Standards and Science — We investigated the edge structures of graphene nano-patches on the vicinal 6H-SiC(0001) surface using Scanning Tunneling Microscopy. We observed the formation of the ribbon-like single-layer graphenes with sharp edge structures at the initial stage of thermal graphitization process of the SiC(0001) surface. However, the overall long-range ordering of the steps of the bare vicinal surface was found out to be lost during graphitization process, and only the local short range ordering of the steps with graphene layer patches existed on the entire surface. From the atom-resolved STM images, we clearly identified the hexagonal interference pattern near edge of graphene layers. By analyzing this interference pattern we could conclude that armchair edge structure were more frequently observed than the zigzag structure. Scanning tunneling spectroscopy experiment was also carried out over the graphene nano-patches to examine the local electronic states at the edge structures.

¹corresponding author

Wondong Kim
Korea Research Institute of Standards and Science

Date submitted: 19 Nov 2009

Electronic form version 1.4