STM/STS study of ridges on epitaxial graphene/SiC

Y. Y. Li, Y. Liu, M. Weinert, L. Li, Department of Physics, University of Wisconsin, Milwaukee, WI 53211 — The graphitization of hexagonal SiC surfaces provides a viable alternative for the synthesis of wafer-sized graphene for mass device production. During later stages of growth, ridges are often observed on the graphene layers as a result of bending and buckling to relieve the strain between the graphene and SiC substrate. In this work, we show, by atomic resolution STM/STS, that these ridges are in fact bulged regions of the graphene layer, forming one-dimensional (nanowire) and zero-dimensional (quantum dot) nanostructures. We further show that their structures can be manipulated by the pressure exerted by the STM tip during imaging. These results and their impact on the electronic properties of epitaxial graphene on SiC(0001) will be presented at the meeting.

1Supported by DOE (DE-FG02-05ER46228)