

Formation of Dielectric Monolayer of Norbornene on Ge(100) Surface Studied by Scanning Tunneling Microscopy

Ah young Kim, Junghun Choi and Sehun Kim

Department of Chemistry and School of Molecular Science (BK21), Korea Advanced Institute of Science and Technology

Adsorption structures of norbornene molecules on Ge(100) surface at room temperature have been investigated using scanning tunneling microscopy (STM). Norbornene is a building block of polynorbornene which used as a dielectric material. Norbornene consist of bicyclic olefin which possesses ring strain, thus the molecule contains a highly reactive double bond. It is expected that the adsorption configurations are formed by cycloaddition. At low coverages, adsorption of norbornene molecules on top of a single Ge-Ge dimer is the main feature. As the coverage is increased to 0.05ML, the minor features which adsorbed on between the two dimer rows appear. This STM study suggests that the saturation coverage of norbornene molecules on Ge(100) surface is 0.45ML. In this presentation, bias voltage dependance and surface annealing effect will be also discussed in detail.