

[SP-12]

Adsorption of Styrene on the Ge(100) Surface

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Adsorption structures of styrene molecules on the Ge(100) surface at room temperature are investigated by scanning tunneling microscopy (STM) under ultra high vacuum condition. At the low coverage, the STM images reveal that styrene molecules are adsorbed through vinyl group, and they are adsorbed either on top (OT) of a single Ge-Ge dimer or in a paired end-bridge (PEB) between two neighboring Ge dimers within the same dimer row. The feature of the PEB configuration extends across three dimer rows and induces buckling of the neighbor surface atoms. Moreover, there are two kinds of the PEB configuration according to the arrangement of phenyl ring of each styrene molecule: right paired end-bridge (r-PEB) and tilted paired end-bridge (t-PEB) configuration to the dimer row. The t-PEB configuration predominates not only the r-PEB configuration but the OT configuration which is almost favorable on the Si(100) surface⁽¹⁾. We also observed diffusion, which enables styrene molecule to form the PEB configuration, and tip induced desorption of the styrene molecule adsorbed in the PEB when the sample bias is -1.8 V.

[참고문헌]

1. Michael P. Schwartz *et al*, *J. Am. Chem. Soc.* 122, 8529 (2000).