

## **Tungsten tip catalyst for the S-H dissociative adsorption of thiol derivatives on Ge(100) surface**

민영환, 정순정, 김세훈

한국과학기술원 화학과

Scanning Tunneling Microscopy (STM) tungsten tip was used to chemically catalyze the S-H dissociative adsorption of a thiophenol molecule on a Ge(100) surface at room temperature. As manipulating the distance between the tip and the surface via varying sample bias voltage and tunneling current, the area of tungsten tip which can act as the catalyst for the reaction was controlled. In the case of octanethiol, tungsten tip also acted as the chemical catalyst for the S-H dissociative adsorption, hence the catalytic reaction is the characteristic of thiol functional group. The maintenance of the catalytic activity of tungsten tip independent on the functional group bonded to thiol(-SH) group allows us to produce the compact adsorbed layer terminated by various functional groups linked through Ge-S bond at the nanometer scale.