

Electronic Structures of Graphene on Ru(0001) : Scanning Tunneling Spectroscopy Study

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Graphene is the hottest topic in condensed-matter physics due to its unusual electronic structures such as Dirac cones and massless linear dispersions. Graphene can be epitaxially grown on various metal surfaces with chemical vapor deposition processes. Such epitaxial graphene shows modified electronic structures caused by substrates. Here, local geometric and electronic structures of graphene grown on Ru(0001) will be presented. Scanning tunneling microscopy (STM) and spectroscopy (STS) was used to reveal energy dependent atomic level topography and position-dependent differential conductance spectra. Both topography and spectra show variations from three different locations in rippled structures caused by lattice mismatch between graphene and substrate. Based on the observed results, structural models for graphene on Ru(0001) system were considered

Keywords: graphene, Ru(0001), Scanning tunneling microscope, Scanning tunneling spectroscopy