

Abstract Submitted
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The suppression surface state near a monostep of Au(111) surface studied by low temperature scanning tunneling microscopy¹ QING LI, PETER MAKSYMOVYCH, SERGI KALININ, MINGHU PAN, Center for Nanophase Materials Sciences, Oak Ridge National Laboratory — The dynamics of electronic states on metal surfaces is a fundamental probe of electron transport and electronic interactions with practical relevance for nanodevices and reactions. In our study, series of scanning tunneling spectroscopy near a monostep of Au(111) surface are used to investigate the behavior of surface state. We found that the Shockley surface state of Au (111) was suppressed near the step. By carefully analyzing each dI/dV spectroscopy, we determined the lateral tip-step distance dependence of the lifetime of the surface electrons. The lifetime broadening of surface state shows linear decay close to the monostep, possibly due to the electron-electron interactions.

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