

Abstract Submitted  
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**High-resolution ARPES studies of atomically uniform Pb films on Si(111).** SHAOLONG HE, MASASHI ARITA, MASAHIRO SAWADA, Hiroshima Synchrotron Radiation Center, Hiroshima University, Higashi-Hiroshima 739-0046, Japan, SHAN QIAO, Lawrence Berkeley National Laboratory, HIROFUMI NAMATAME, MASAKI TANIGUCHI, Hiroshima Synchrotron Radiation Center, Hiroshima University — Investigations on the fundamental physics evolved in the low-dimensional systems are of great interests both in basic research and in potential applications. Atomically uniform metal thin films on semiconductor substrate are the simplest quasi-2D electron systems, which demonstrate quantum confinement and form the quantum well states (QWS). Recently, atomically uniform Pb films on Si(111) have demonstrated novel properties induced by the quantum size effects. We have manufactured atomically uniform Pb films on Si(111)-7x7 surface. The dependence of the Pb films band structures on thickness has been studied by high-resolution angle-resolved photoemission spectroscopy (ARPES). In addition, we have investigated the superconductivity properties in such a quasi-2D electron systems by measuring the ARPES below superconducting transition temperature.

Shaolong He  
Hiroshima Synchrotron Radiation Center, Hiroshima University,  
Higashi-Hiroshima 739-0046, Japan

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