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Enhancement of Subband Effective Mass in Ag/Ge(111) Thin Film Quantum Wells SHU-JUNG TANG, WEN-KAI CHANG, Department of Physics and Astronomy, National Tsing Hua University, YU-MEI CHIU, Department of Electrophysics, National Chiao-Tung University, HSIN-YI CHEN, Department of Physics and Astronomy, National Tsing Hua University, CHENG-MAW CHENG, National Synchrotron Radiation Research Center, KU-DING TSUEI[1], TOM MILLER, TAI-CHANG CHIANG, Department of Physics, University of Illinois at Urbana-Champaign — Subband dispersions of quantum-well states in Ag films on Ge(111) have been determined by angle-resolved photoemission. The effective masses of the subbands at the zone center increase substantially for decreasing film thicknesses. This peculiar behavior is attributed to a kinetic constraint for standing wave formation governed by a momentum-dependent phase shift function. No evidence is found for in-plane electron localization within the confined geometry.

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