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Interface-Induced Complex Electronic Interference Structures in Ag Films on Ge(111) TAI CHIANG, YANG LIU, NATHAN SPEER, University of Illinois, Urbana-Champaign, SHU TANG, National Tsing Hua University, TOM MILLER, University of Illinois, Urbana-Champaign, UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN TEAM — We have mapped the electronic structure of atomically-uniform films of Ag grown on Ge(111) by angle-resolved photoemission. Cuts in momentum space at constant energies near the Fermi surface reveal intricate patterns resembling interfering waves emanating from multiple centers. The measured dispersion relations exhibit zigzag patterns with multiple energy gaps. These features are attributed to the mixing of electronic standing waves by the Ag-Ge interface potential, as confirmed by the observed pattern symmetry and by an experimentally deduced interaction strength that scales as the inverse film thickness.

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