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Occupied states of clean Pt(997) and bimetallic Ag/Pt(997) surfaces SERBAN SMADICI, JERRY DADAP, RICHARD OSGOOD JR., Columbia University, TONICA VALLA, PETER JOHNSON, Brookhaven National Laboratory — Stepped surfaces are ideal material systems that permit the growth of regular nanostructures over large areas. The electronic structure of these systems can be probed with photoemission spectroscopy. At low coverage, silver decorates the steps on Pt(997) surface, forming uniform rows with a coverage-dependent width. We report high-resolution angle-resolved photoemission measurements of occupied states of bare stepped Pt(997) and bimetallic stepped Ag/Pt(997) surfaces. The measurements, at the U13UB beamline at the National Synchrotron Light Source, with a typical energy and angle resolution of $\sim$ 5 meV and 5 mrad, respectively, were made at room and low temperatures. Band-structure measurements were carried out along high-symmetry directions parallel and perpendicular to the step edges. The development of Ag-derived states has been studied as a function of Ag coverage. Comparison of the measurements with results obtained using unoccupied state ultrafast photoemission will be discussed. This work was supported by the DOE under contract numbers DE-FG02-90ER14104 and DE-AC02-98CH10886.

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