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**Chemical Tuning of Metal-Semiconductor Interfaces** DOMINIC RICCI, THOMAS MILLER, TAI-CHANG CHIANG, University of Illinois at Urbana-Champaign — We report a study of the Schottky barrier for Pb films grown on Si surfaces terminated by various metals (Ag, In, Au, and Pb) to explore the atomic-scale physics of the interface barrier and a means to control the barrier height. Electronic confinement by the Schottky barrier results in quantum well states in the Pb films, which are measured by angle-resolved photoemission. The barrier height is determined from the atomic-layer-resolved energy levels and the line widths. A calculation based on the known interface chemistry and the electronegativity yields predicted barrier heights in good agreement with the experiment.

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