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Electronic Structure near the Interface of Complex Oxide Heterostructure $SmTiO_3/SrTiO_3$ RYO MORI, University of California, Berkeley and Lawrence Berkeley National Laboratory, BRANDON ISAAC, PATRICK MARSHALL, University of California, Santa Barbara, JONATHAN DENLINGER, Lawrence Berkeley National Laboratory, SUSANNE STEMMER, University of California, Santa Barbara, ALESSANDRA LANZARA, University of California, Berkeley and Lawrence Berkeley National Laboratory — Quantum wells created from oxide heterostructures induce quantum confinement systems at the heterostructure interface, which show unique properties, such as strong electron correlation, two-dimensional superconductivity, high carrier densities and mobility, and/or magnetism. The rare earth titanate, $SmTiO_3$, and the transition metal oxide, $SrTiO_3$, create such confined electron systems at their interface, which has a controllable quantum well length by changing the number of SrO layers in $SrTiO_3$. By Varying the number of SrO layers, we will present the layer-dependent electronic structure of the $SmTiO_3/SrTiO_3$ interface system from angle-resolved photoemission spectroscopy (ARPES) measurements and discuss these results in terms of strong correlations.

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