

Abstract Submitted
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Time-dependent Surface Electronic Structure of EuB_6 ¹ J.D. DENLINGER, Lawrence Berkeley National Lab, F. WANG, J.W. ALLEN, U. of Michigan, HAN-OH LEE, Z. FISK, B. DELLEY, Paul Scherrer Institut, R. MONNIER, ETH-Zürich, J. LOBO-CHECA, T. OKUDA, J. OSTERWALDER, U. of Zürich — The surface electronic structure of UHV-cleaved divalent hexaboride EuB_6 is investigated using angle-resolved photoemission and the time-dependence of the Eu 4d-character X-point electron pocket, B-p band structure and Eu 4f states are characterized. Surface-slab LDA calculations allow identification in the data of a distinct surface-related band residing in the bulk-projected band gap along X-M and energy-shifted surface-atom Eu 4f states resulting from an electric dipole at the highly ionic surface. The X-point electron pocket size is observed to initially increase in size and then recede to zero occupation. Similarly the Eu 4f surface component initially increases in binding energy and then reverses direction and loses intensity. This behavior is explained in terms clustering of mobile surface Eu atoms on the freshly cleaved surface, followed by adsorption of residual gases.

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Jonathan Denlinger
Lawrence Berkeley National Lab

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