

Abstract Submitted
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Structural Investigation of the $\text{BaFe}_2\text{As}_2(001)$ Surface Using LEED and STM¹ VON BRAUN NASCIMENTO, X.B. HE, R. JIN, E.W. PLUMMER, Louisiana State University, Baton Rouge, LA, T.Y. CHIEN, BIAO HU, GUORONG LI, University of Tennessee, Knoxville, TN, M.H. PAN, J.F. WENDELKEN, A.S. SEFAT, M.A. MCGUIRE, B.C. SALES, D. MANDRUS, Oak Ridge National Laboratory, Oak Ridge, TN, ANG LI, DILUSHAN R. JAYASUNDARA, YI XUAN, JARED O'NEAL, SHUHENG PAN, University of Houston, Houston, TX — BaFe_2As_2 , a parent compound to one of the newly discovered high- T_c superconductors, presents very interesting physical properties such as a structural transition occurring prior to the formation of a spin density wave. It is surely of interest to investigate the effect of breaking the symmetry by creating a surface. Single crystals of BaFe_2As_2 were cleaved in vacuum exposing a (001) surface. Quantitative LEED I-V measurements and low-temperature STM topography revealed an ordered As surface with disordered Ba atoms present. LEED shows a clear (1×1) periodicity with a surface structure slightly different than the bulk. STM reveals a weak $C(2 \times 2)$ periodicity. We will explore the possibility that the $C(2 \times 2)$ STM image is electronic in origin.

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