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Identification of surface terminations of iron pnictides with low-temperature STM/STS JIHUI WANG, ANG LI, JIHUA MA, ZHENG WU, JIAXIN YIN, BING LV, C.W. CHU, Department of Physics and Texas Center for Superconductivity, University of Houston, A. SEFAT, M. MCGUIRE, B. SALES, Oak Ridge National Laboratory, D. MANDRUS, CHENGLIN ZHANG, PENGCHENG DAI, University of Tennessee, RONGYING JIN, JIANDI ZHANG, E.W. PLUMMER, Department of Physics and Astronomy, Louisiana State University, GENFU CHEN, HONG DING, Institute of Physics, Chinese Academy of Sciences, SHUHENG H. PAN, Department of Physics and Texas Center for Superconductivity, University of Houston, and Institute of Physics, Chinese Academy of Sciences — The alkaline-earth metal iron pnictide superconductor AEFe2As2 (AE=Ca, Sr, Ba) have been studied extensively with modern surface techniques, such as scanning tunneling microscopy/spectroscopy (STM/STS) and Angle Resolved Photoemission Spectroscopy (ARPES). Yet the surface termination upon cleaving is still controversial. Hence, the interpretation of those results of STM/STS and reconcile with results of other surface techniques tend to be challenging. We have performed a systematic low-temperature STM/STS study on a series of (Ca,Na)Fe2As2, (Ba,K)Fe2As2, Ba(Fe,Co)2As2, and BaFe2(As,P)2. We found that, with cryogenic cleaving method, all three crystalline atomic layers can be revealed and identified. We will discuss their identities and their implications.

Jihui Wang
Department of Physics and Texas Center for Superconductivity,
University of Houston

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