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STM Investigation of the (001) surfaces of the Parent and Co-doped $BaFe_2As_2$[1] S. H. PAN, A. LI, D. R. JAYASUNDARA, Y. XUAN, J. P. O'NEAL, University of Houston, Houston, Texas 77204-5002, R. JIN, E. W. PLUMMER, Louisiana State University, Baton Rouge, LA 70803-4001, R. JIN, A. S. SEFAT, M. A. MCGUIRE, B. C. SALES, D. MANDRUS, Oak Ridge National Laboratory, Oak Ridge, TN 37831 — We have used a UHV Low Temperature STM to study the surface structure of the parent and the Co-doped $BaFe_2As_2$ single crystals. Various STM images with different structural symmetry were observed. The dominant apparent surface structure is $(\sqrt{2}\ \mathrm{x}\sqrt{2})\mathrm{R45}^O$ for the parent compound and 1 x 2 stripe-like for the Co-doped ones. We will compare the different surface structures and discuss the identification of the atomic plane exposure and the possible origins for such variety in surface structure.

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