

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

In situ characterization of pulsed-laser-deposition grown Co doped BaFe_2As_2 on SrTiO_3 (001) SUNWOUK YI, SUNGMIN KIM, MINJUN LEE, HANHO LEE, HOYEON JEON, YONGCHAN YOO, INHAE ZOH, CHAO ZHANG, MYUNGCHUL OH, YOUNG KUK, Department of Physics and Astronomy, Seoul National University, Republic of Korea — We report epitaxial growth of $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$ (BFCA) thin films on SrTiO_3 (001) substrates using pulsed laser deposition (PLD) technique under ultrahigh vacuum. The growth was performed using a pellet with the optimal Co concentration $x=0.08$. The temperature dependent conductivity of BFCA films was compared with those in the pellet form. The crystallinity was monitored with reflection high-energy electron diffraction during the growth and low energy electron diffraction (LEED) patterns. Optimal growth condition was obtained at the substrate temperature of $700\pm 20^\circ$. The grown sample was immediately transferred to measure the topography and spectroscopy using a scanning tunneling microscope. LEED/STM result reveals modulation of $\sqrt{2} \times \sqrt{2}$ surface reconstruction on the top plane and STM result shows the same structure. The average sizes of terraces were $\approx 10\text{nm}$ with a homogeneous electronic structure. The geometric and electronic structure of BFCA films will be reported.

Sunwouk Yi
Department of Physics and Astronomy, Seoul National University, Republic of Korea

Date submitted: 06 Nov 2015

Electronic form version 1.4