

## **Supplementary materials:**

### **Strain-Induced Conductivity Accelerated Recoveries in LaAlO<sub>3</sub>/SrTiO<sub>3</sub> Heterostructure with Millimeter Scale**

Xiangqi Wang<sup>1</sup>, Min Zhang<sup>1</sup>, Xirui Tian<sup>1</sup>, Yinying Zhang<sup>1</sup>, Junbo Gong<sup>1</sup>, Azizur Rahman<sup>1</sup>, Rucheng Dai<sup>2\*</sup>, Zhongping Wang<sup>2</sup>, Zengming Zhang<sup>2,3\*</sup>

1, Department of Physics, University of Science and Technology of China, Hefei 230026, China;

2, The Centre for Physical Experiments, University of Science and Technology of China, Hefei 230026, China;

3, Key Laboratory of Strongly-Coupled Quantum Matter Physics, Chinese Academy of Sciences, School of Physical Sciences, University of Science and Technology of China, Hefei, Anhui 230026, China

\*Corresponding authors: [zzm@ustc.edu.cn](mailto:zzm@ustc.edu.cn) and [dairc@ustc.edu.cn](mailto:dairc@ustc.edu.cn)

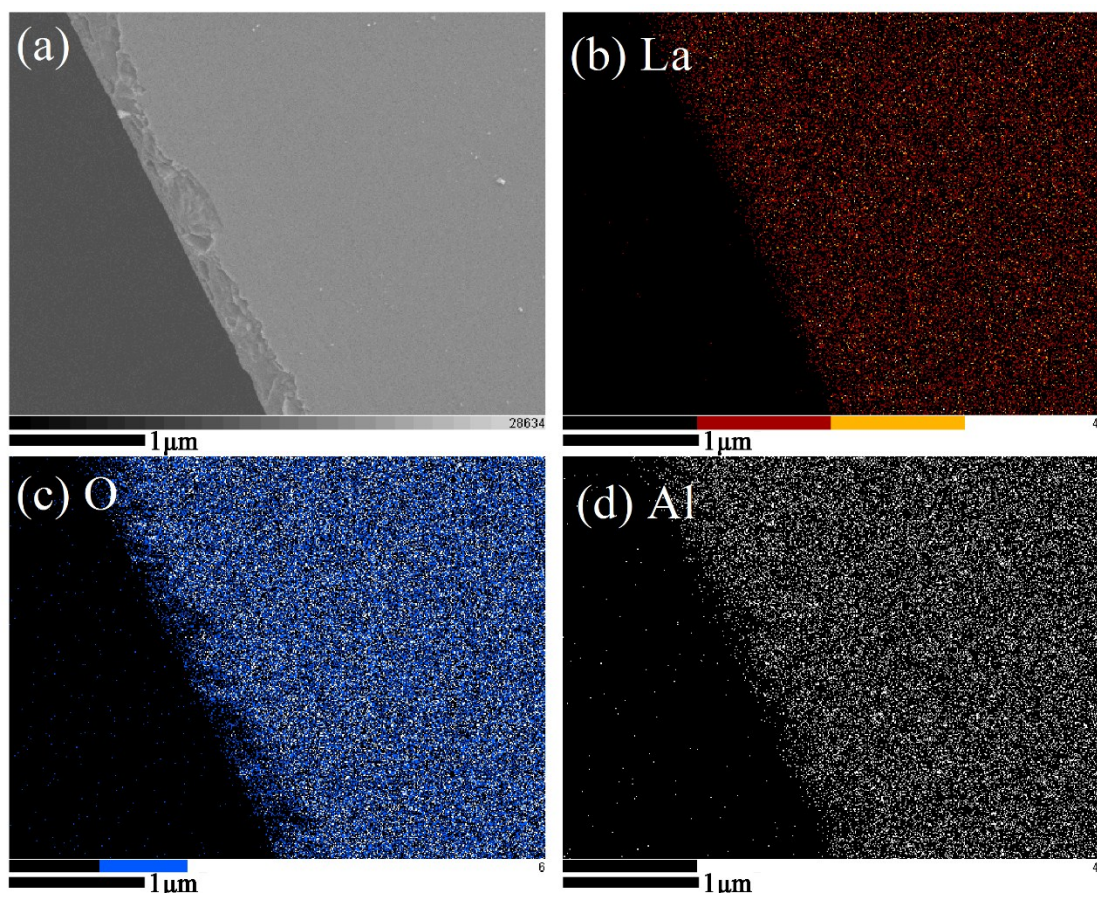


Figure S1. (a) SEM morphology image, and elemental mapping images for (b) La, (c) O and (d) Al in 15 u.c. LAO/STO film.

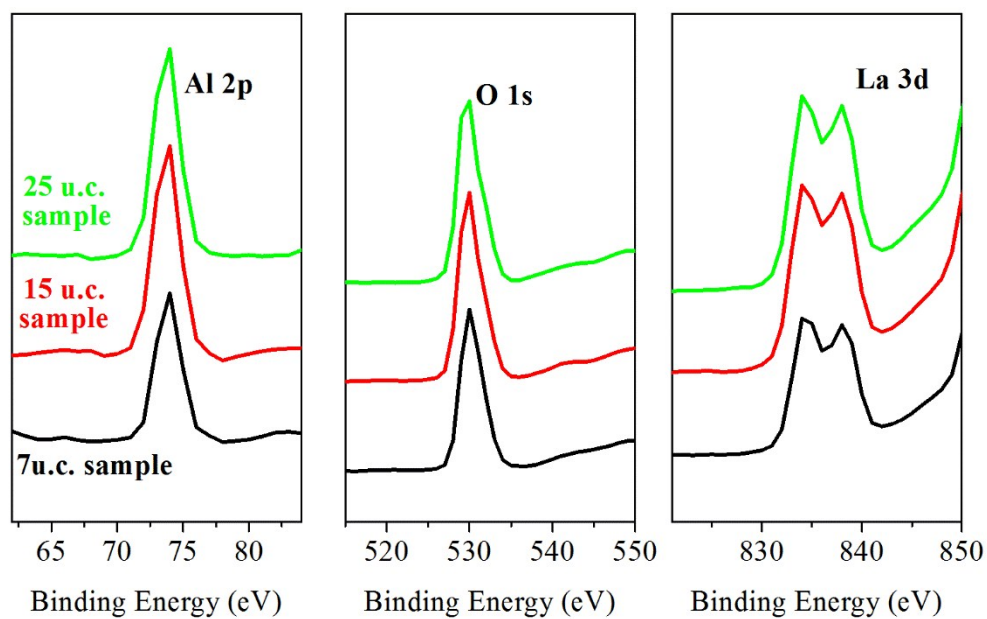


Figure S2. Al 2p, O 1s and La 3d core-level XPS spectra for 7, 15 and 25 u.c. LAO/STO samples.