

Supporting Information

***In situ* TEM analysis of reversible non-180° domain switching in (K,Na)NbO₃ single crystals**

Qinwen Guo,^{a,b} Chengpeng Hu,^d Xiangfei Li,^{a,b} Ying Meng,^{a,c} Luyao Wang,^{a,b} Haoyu Zhuang,^{a,c} Xi Shen,^{*a} Yuan Yao,^a Hao Tian,^d Zhongxiang Zhou,^{*d} and Richeng Yu^{*a,c,e}

^a Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, Beijing 100190, China

^b College of Material Science and Opto-Electronic Technology, University of Chinese Academy of Sciences, Beijing 100190, China

^c School of Physical Sciences, University of Chinese Academy of Sciences, Beijing 100049, China;

^d School of Physics, Harbin Institute of Technology, Harbin 150001, P. R. China.

^e Songshan Lake Materials Laboratory, Dongguan, Guangdong 523808, P. R. China

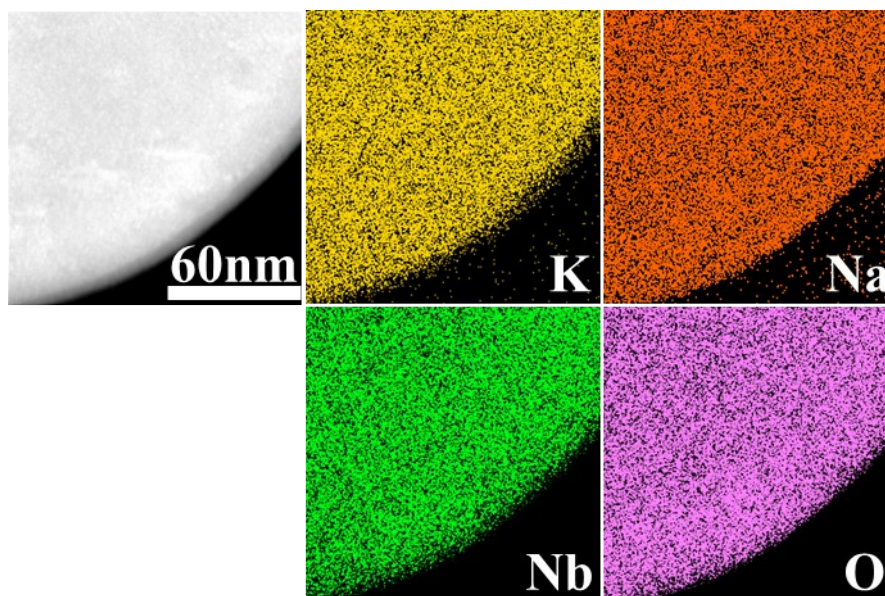


Figure S1. ADF-STEM image and corresponding EDS mapping results.

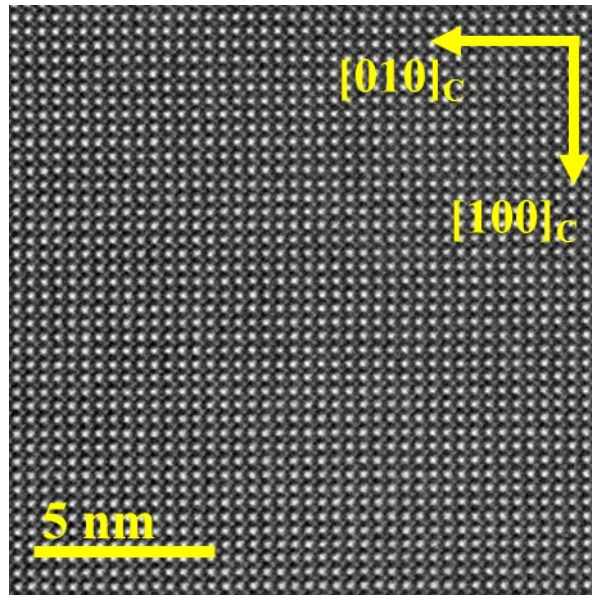


Figure S2. High-magnification HAADF-STEM image of KNN single crystal filtered by low pass filter.

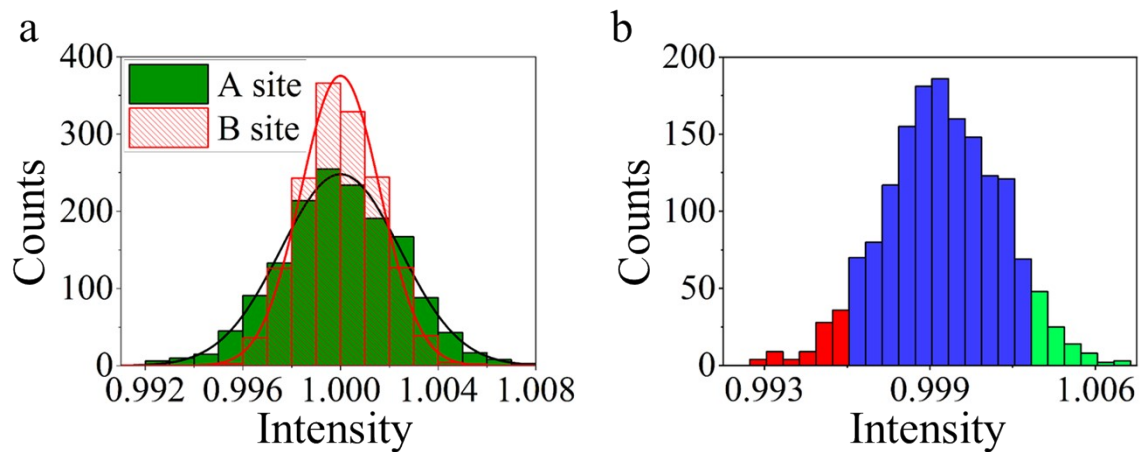


Figure S3. Intensity statistics of each atomic column. (a) Comparison between intensity distributions of A site and B site of 39×39 atom array in Figure S2, normalized by respective average. The intensity statistics conforms to normal distribution. (b) Intensity statistics of A site. The lower and higher intensities are indicated by red and green, respectively, and the corresponding atomic column positions are shown in Fig. 4b.

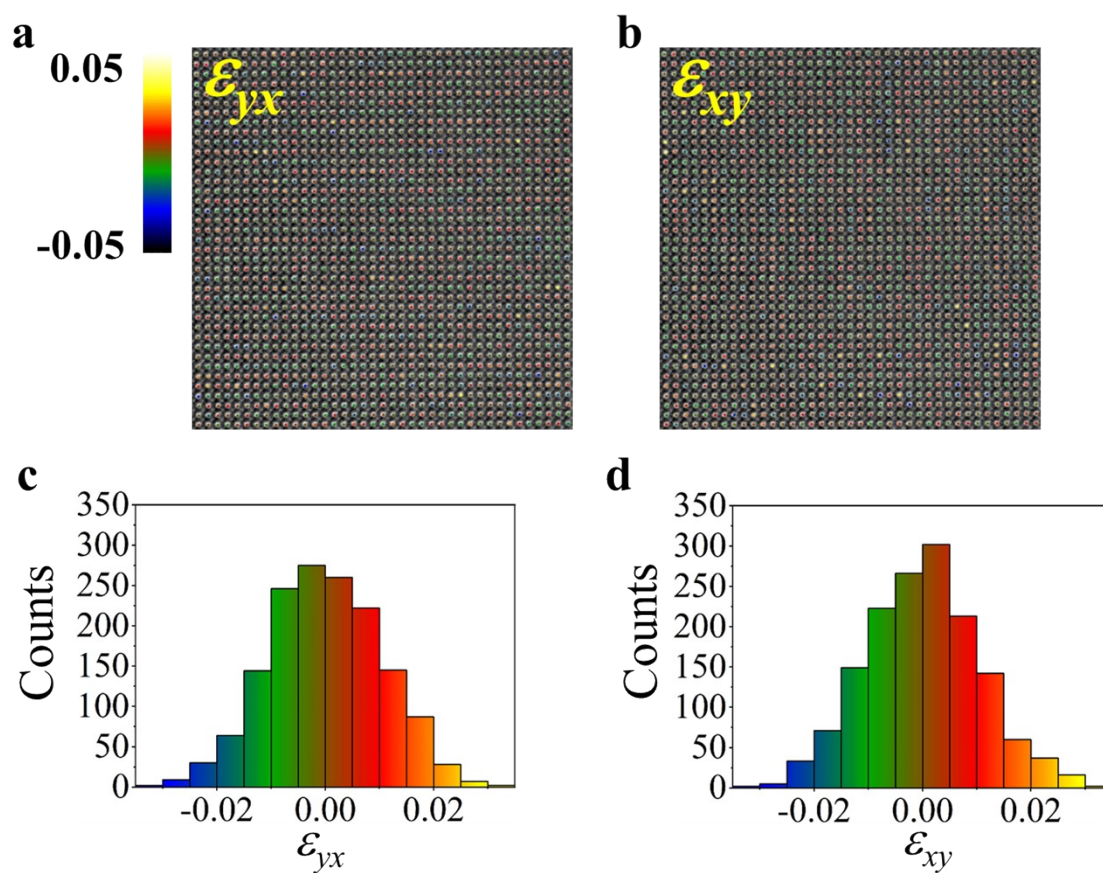


Figure S4. Strain maps analyzed with PPA. (a) ϵ_{yx} . (b) ϵ_{xy} . Colorful spots indicate the magnitude of strain in related unit-cell, while blue and yellow indicate large strains ($>|\pm 2\%$). Strain maps show distinct strain fluctuations. (c, d) Statistics of strains for unit-cells.