

## Supplementary Information

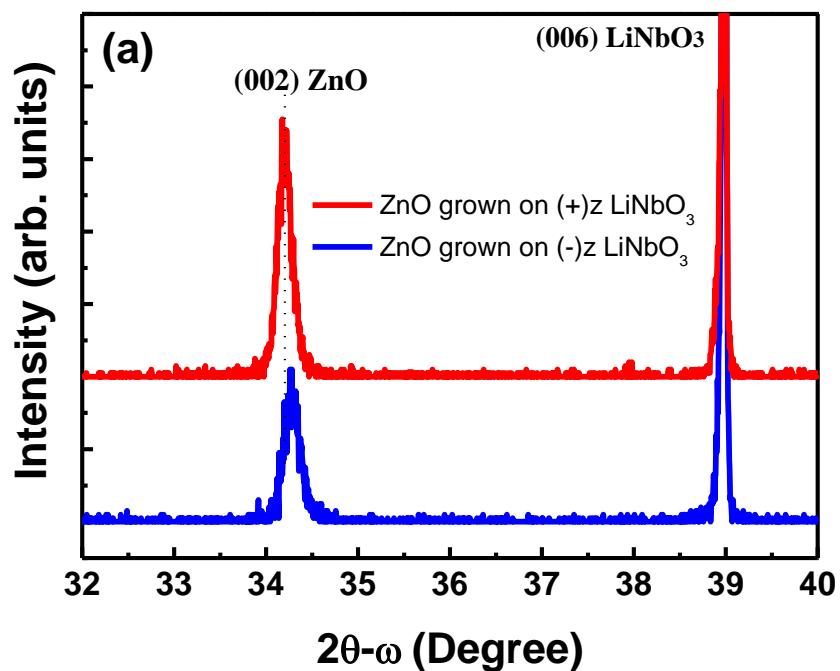
### Polarity control of ZnO films grown on ferroelectric (0001) LiNbO<sub>3</sub> substrates without buffer layers by the pulsed-laser deposition

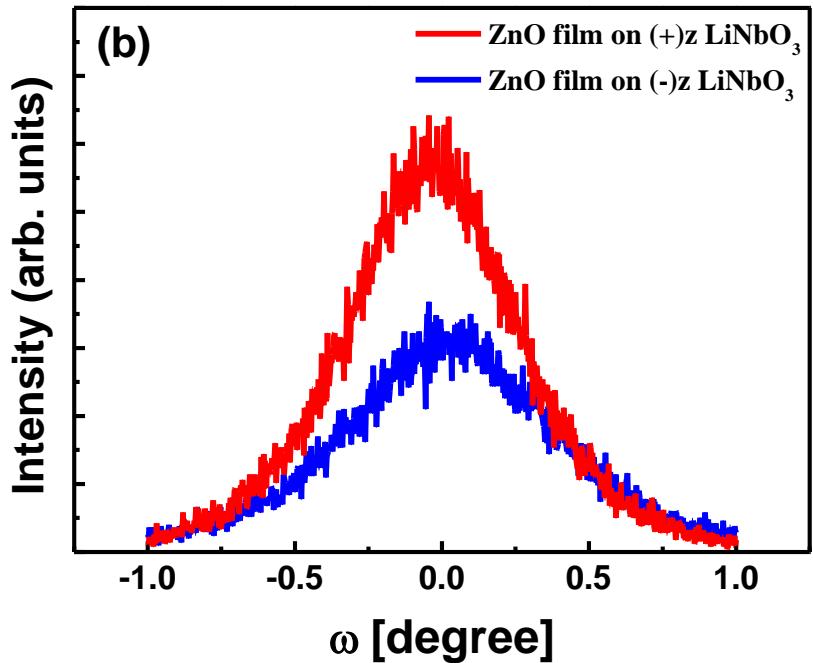
Im Taek Yoon<sup>1</sup>, Juwon Lee<sup>1,\*</sup>, Ngoc Cuong Tran<sup>2</sup> and Woochul Yang<sup>2,\*</sup>

<sup>1</sup> Quantum Functional Semiconductor Research Center (QSRC), Dongguk University, 26 Phildong 3ga, Chung gu, Seoul, 100-715, Republic of Korea

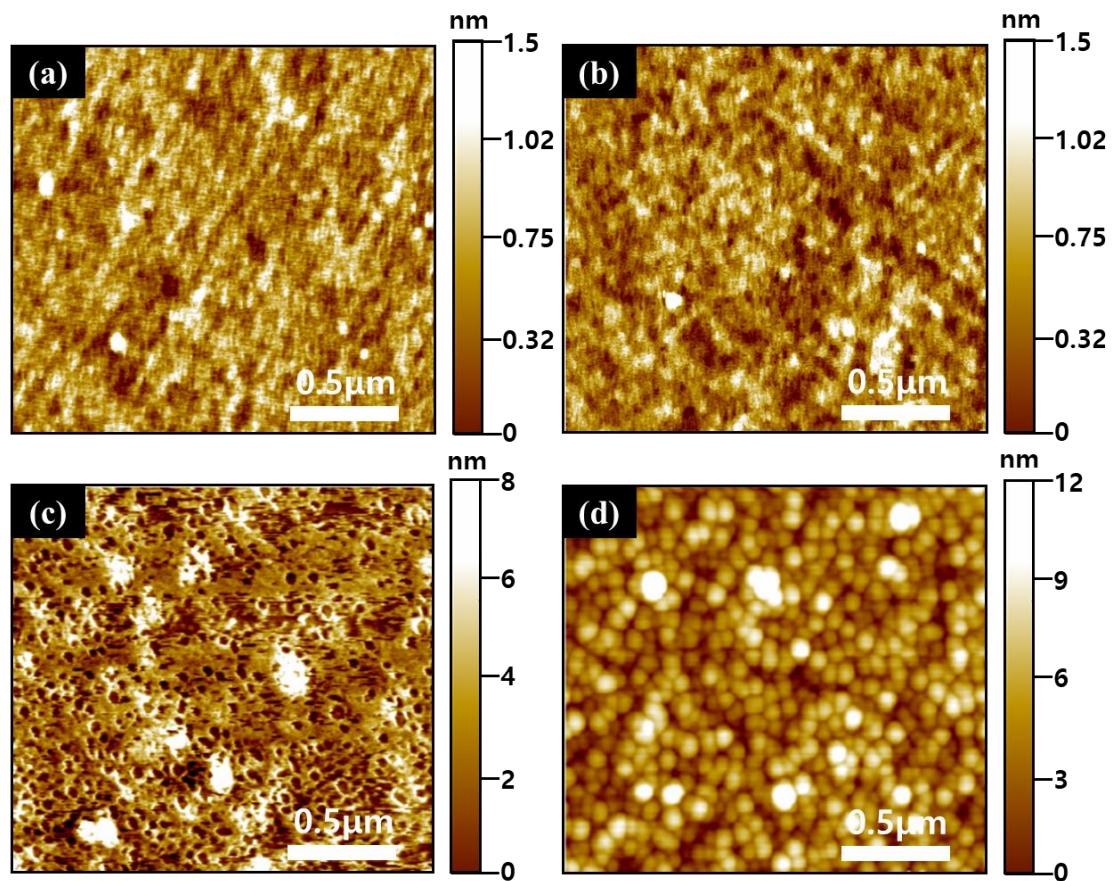
<sup>2</sup> Department of Physics, Dongguk University, 26 Phildong 3ga, Chung gu, Seoul, 100-715, Republic of Korea

\*Corresponding author: E-mail: [wyang@dongguk.edu](mailto:wyang@dongguk.edu), [juji99@dongguk.edu](mailto:juji99@dongguk.edu)





**Figure S1** (a) The  $2\theta$ - $\omega$  scan of the XRD spectra of the ZnO/(+z) LiNbO<sub>3</sub> and ZnO/(-z) LiNbO<sub>3</sub> thin films. (b) The  $\omega$ -rocking curves of the ZnO/(+z) LiNbO<sub>3</sub> and ZnO/(-z) LiNbO<sub>3</sub> thin films.



**Figure S2** AFM images of the Zn-polar and the O-polar in the bulk-ZnO samples. (a) Zn-polar of the ZnO bulk before the etching. (b) O-polar of the ZnO bulk before the etching. (c) Zn-polar of the ZnO bulk after the etching. (d) O-polar of the ZnO bulk after the etching.