Supplementary Information: Simultaneous acquisition of current and lateral force signals during atomic force microscopy for characterising the piezoelectric and triboelectric effects of ZnO nanorods

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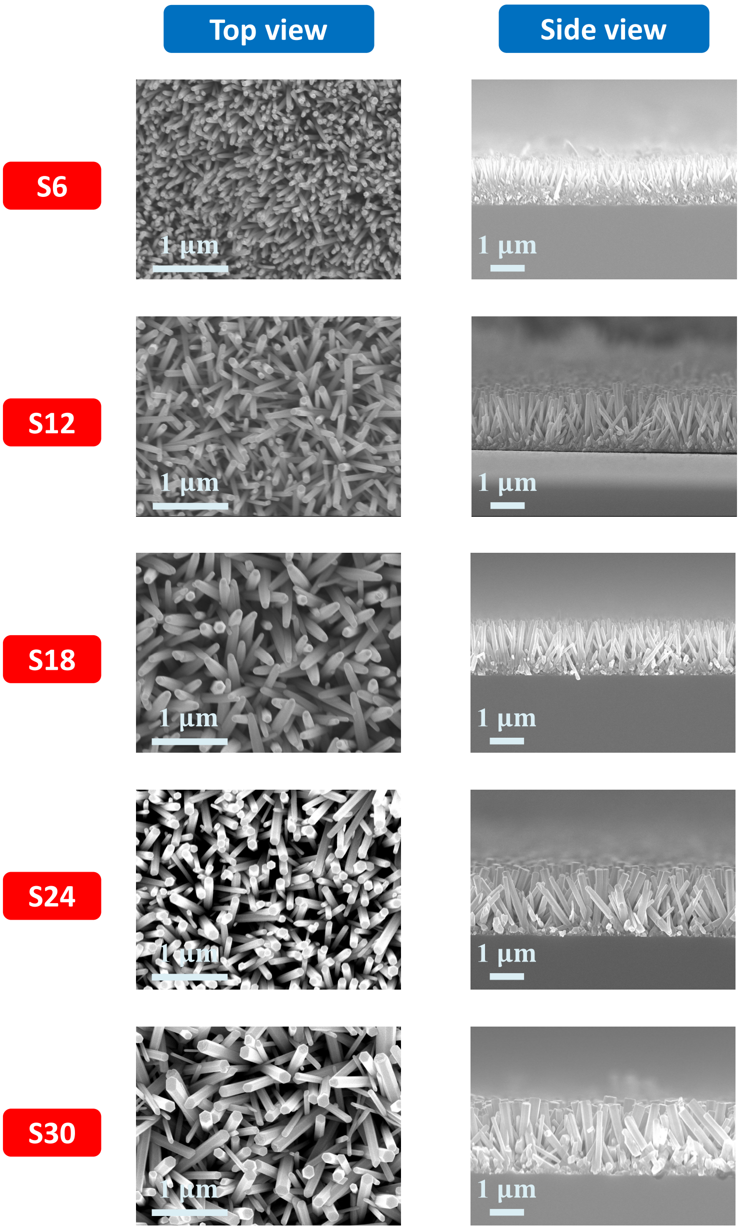
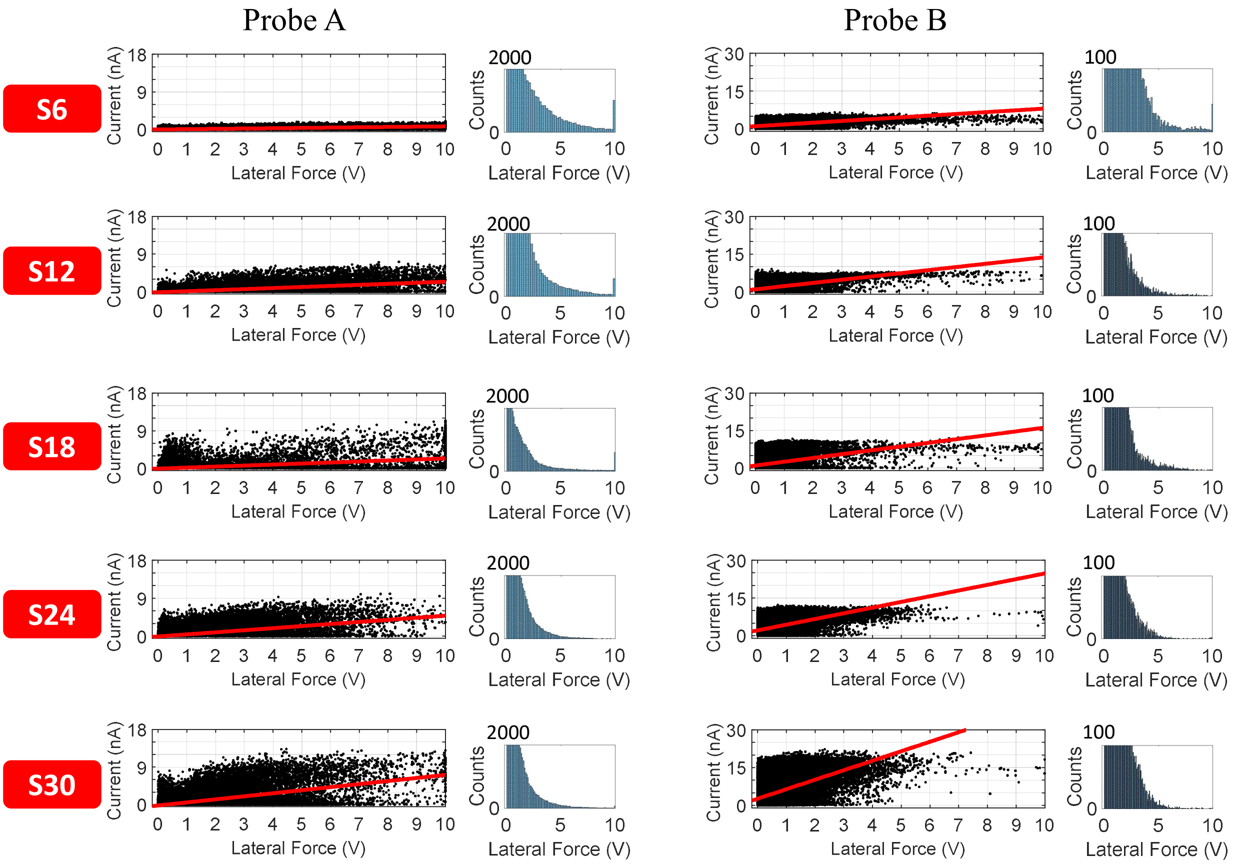
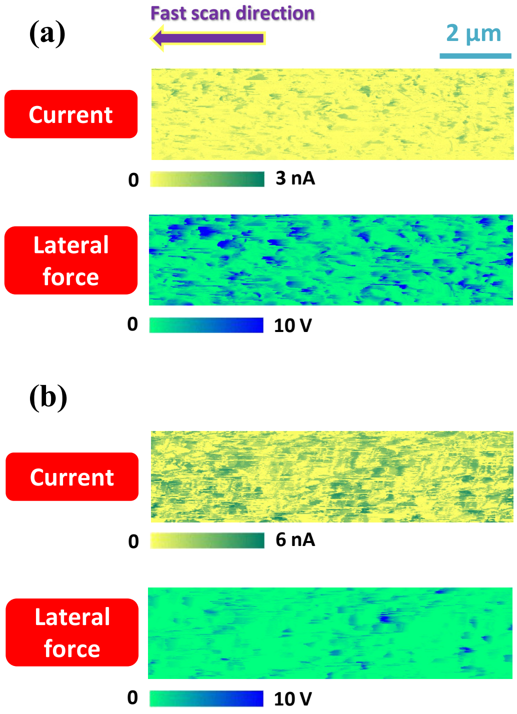


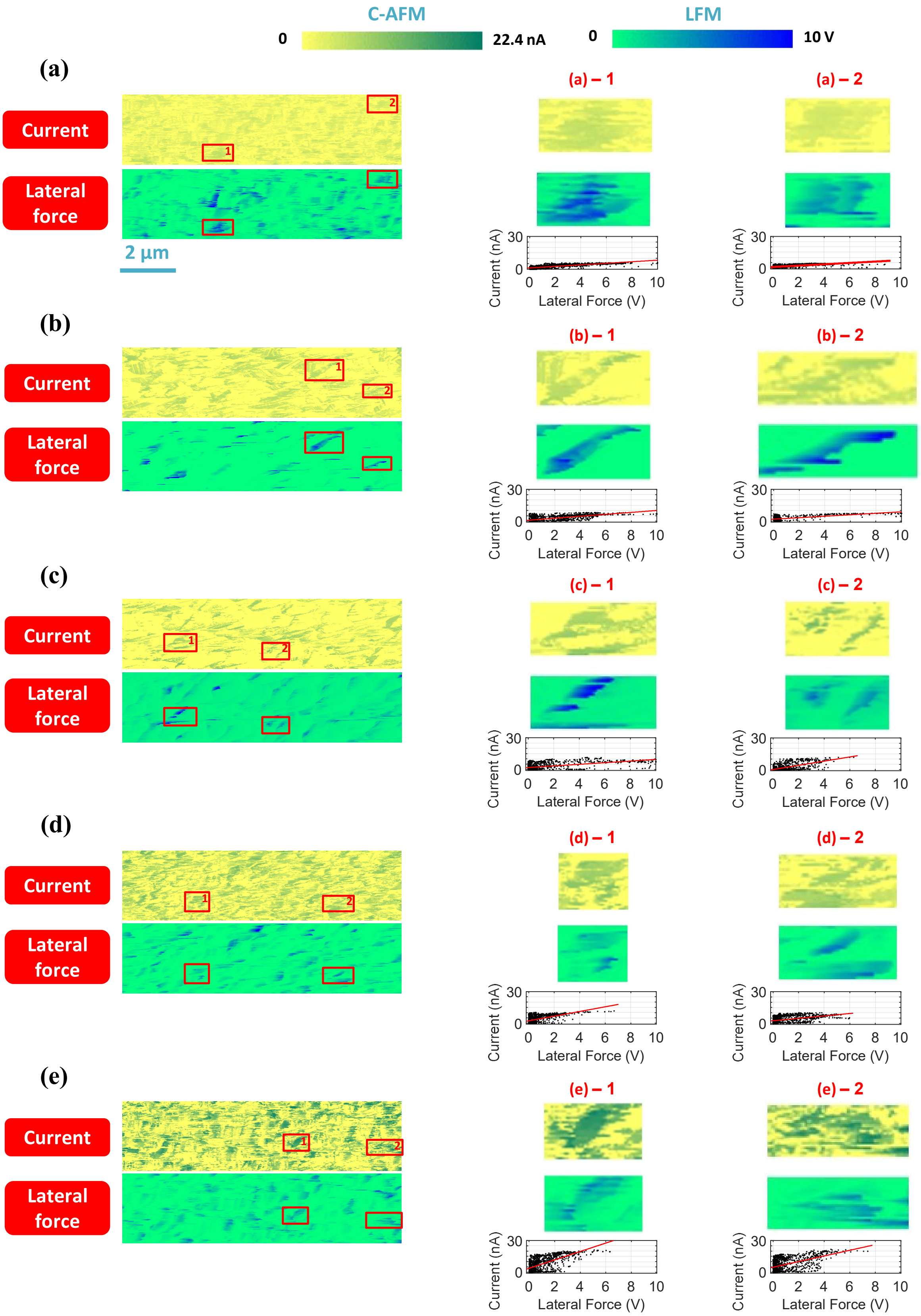
Supplementary Figure S1. Observation of the five ZnO nanorod samples. The top and side views of vertically grown ZnO nanorods. The images were taken by a scanning electron microscope.



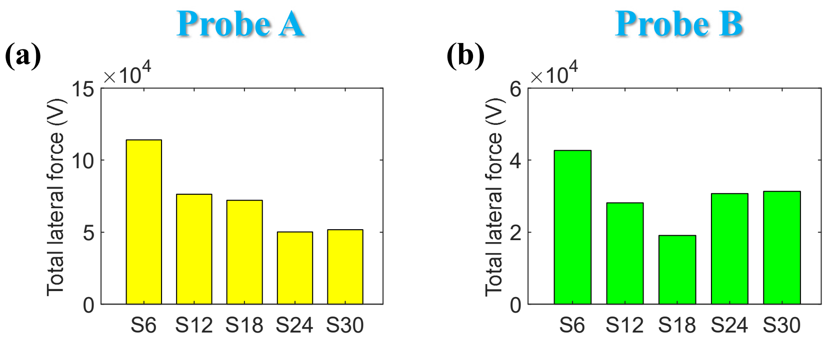
Supplementary Figure S2. Scatter plots of current versus lateral force for the five samples measured by Probes A and B during retrace scans by simultaneous acquisition of the current and lateral force signals.



Supplementary Figure S3. Pairs of current and lateral force images obtained by (a) Probe A, and (b) Probe B during retrace scans. (a) and (b) were taken from the same areas in Figs. 6(a) and 6(b), respectively.



Supplementary Figure S4. Variations of current and lateral force signals with ZnO nanorod size. Pairs of current and lateral force images for (a) S6, (b) S12, (c) S18, (d) S24, and (e) S30, as measured by Probe B. In each image, small areas are marked by boxes, and their enlarged images and scatter plots are shown on the right side. All these images were taken during trace scans.



Supplementary Figure S5. Sum of lateral force signals for samples S6–S30 acquired by Probes A and B. The computation was conducted using the data in Fig. 5. For each sample, the total lateral force was computed using $\sum_{i=1,j=1}^{i=128,j=512}\left|lfm_{i,j}\right|$.