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Supporting information

Orientation-controlled crystallization of γ-glycine films with enhanced piezoelectricity

Jiajie Sui,[a] Jun Li,[a] Long Gu,[a] Connor A. Schmidt,[b] Ziyi Zhang,[a] Yan Shao,[a] Ehud Gazit,[c] Pupa U. P. A. Gilbert,[b,d,e,#] Xudong Wang,[a*]

a. Department of Materials Science and Engineering, University of Wisconsin-Madison, Madison, WI 53706, USA;

*Email: xudong.wang@wisc.edu

b. Department of Physics, University of Wisconsin-Madison, Madison, WI 53706, USA;

c. Shmunis School of Biomedicine and Cancer Research, George S. Wise Faculty of Life Sciences, and Department of Materials Science and Engineering, The Iby and Aladar Fleischman Faculty of Engineering, Tel Aviv University, Tel Aviv, Israel.

d. Departments of Chemistry, Materials Science and Engineering, Geoscience, University of Wisconsin, Madison, WI 53706, USA

e. Chemical Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA 94720, USA.

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Table S1. d_{33} and output voltage of glycine-PVA films on different substates.

Substrates	d33(pC/N)	Output voltage (V)
PMMA	3.44±0.93	0.93±0.26
PS	4.24±0.75	1.82±0.27
PDMS	1.56±0.65	0.36±0.08
PS+wall	6.18±1.13	2.91±0.32

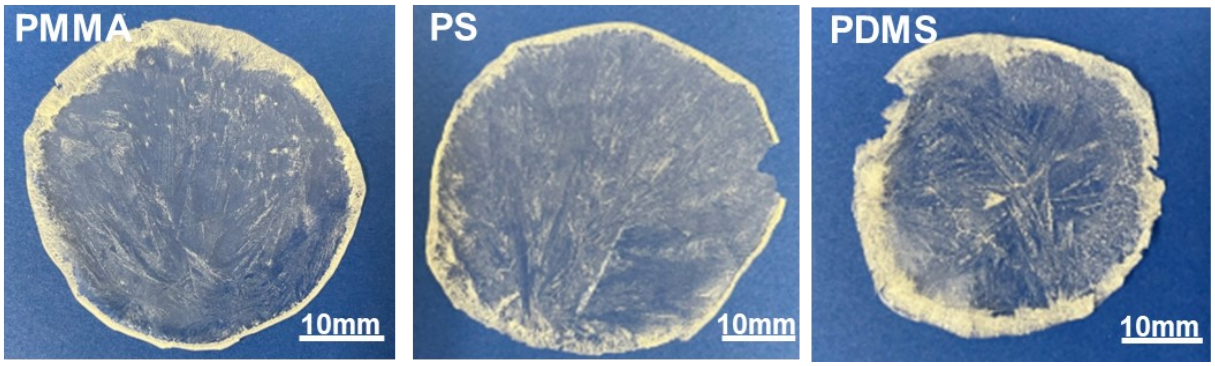

Figure S1. Digital photograph of an as-grown film showing edge-nucleation and wafer scale size on **PMMA, PS** and **PDMS** substrates.

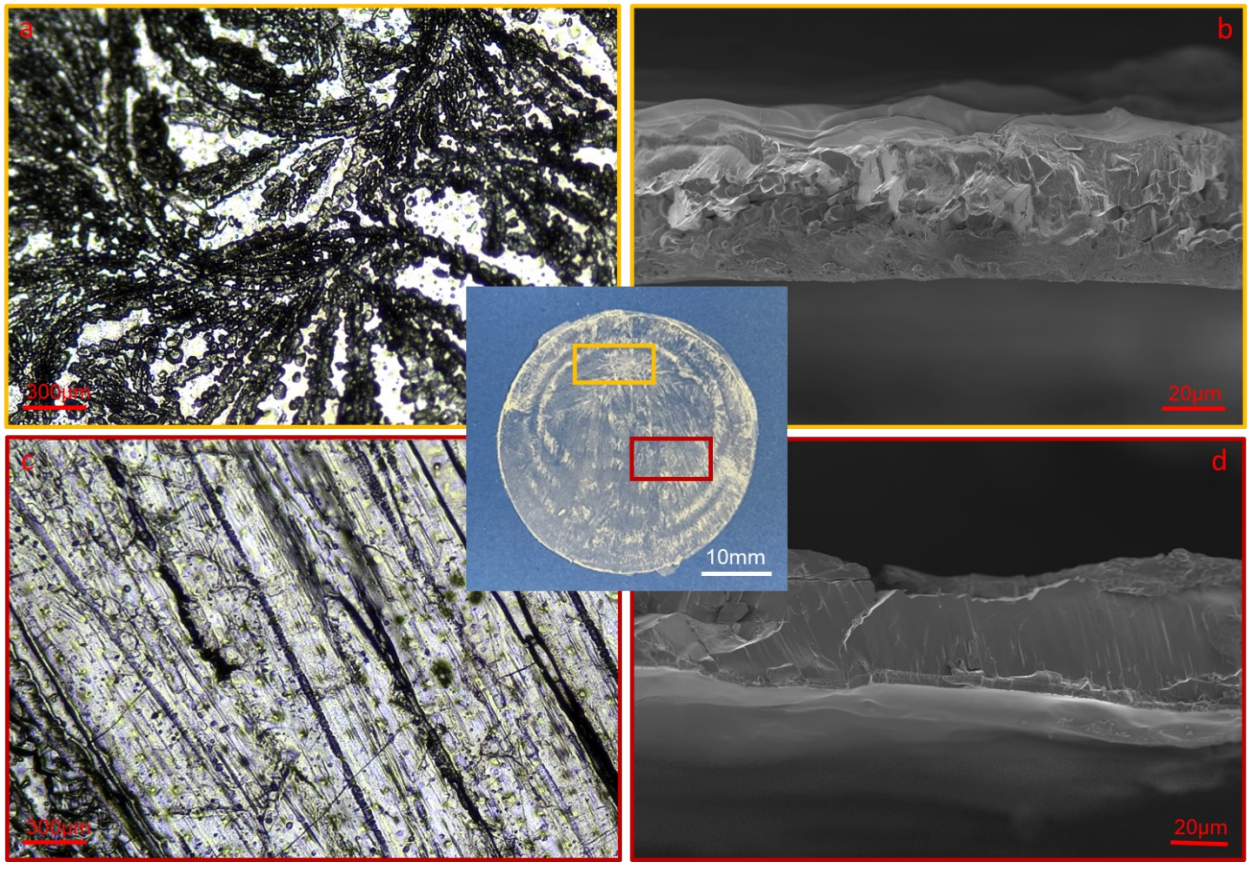

Figure. S2. Top-view optical microscope and cross-sectional SEM images of (a-b) nucleation site (marked with yellow box) and (c-d) growth front (marked with red box).

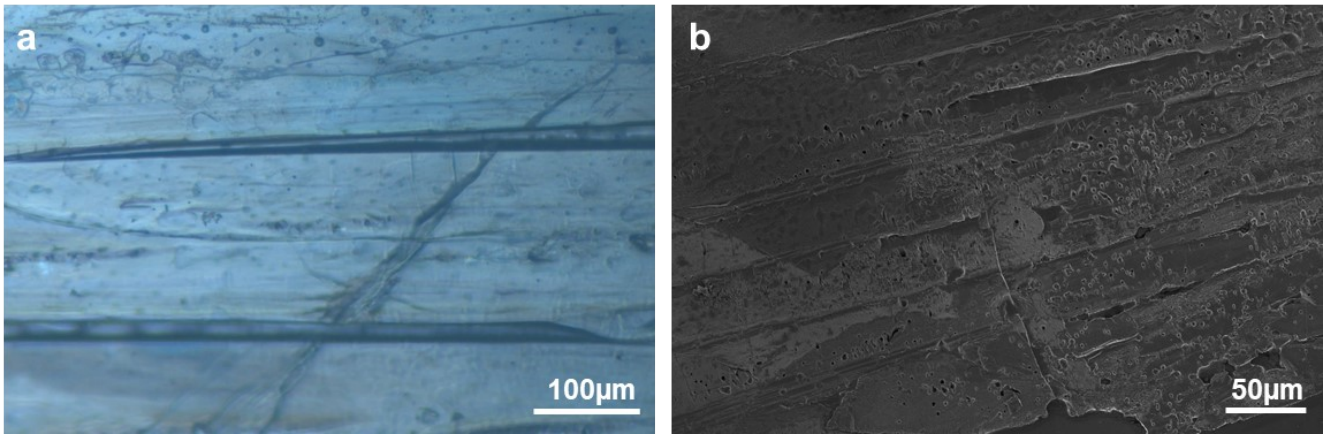

Figure. S3. (a) Polarized light microscopy image of glycine-PVA film and (b) SEM image of middle glycine layer on PS+wall substrate. Both images demonstrate that the elongated glycine crystals are 50-150 μm in width, and 100 μm average width.

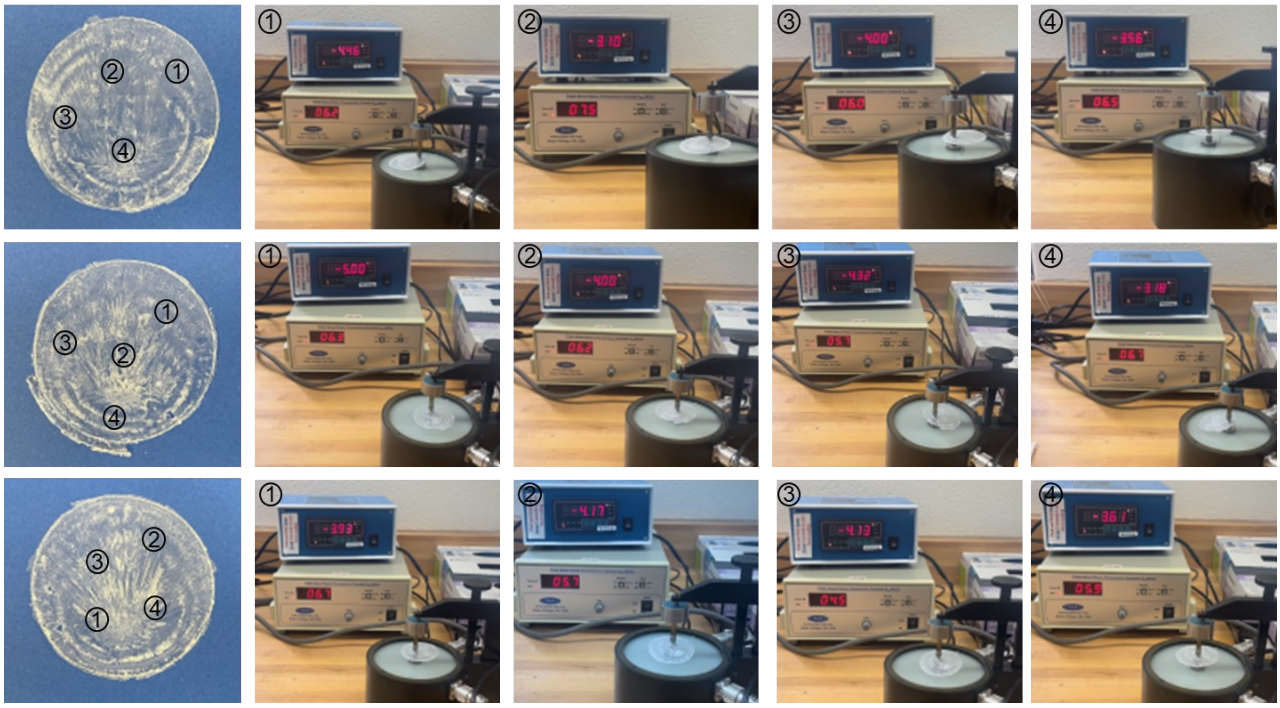

Figure. S4. Multi-site d33 measurements of PS+wall films with different sizes of nucleation aera. The magnitude of number on dynamic force meter(blue) is between 3-5, negative means it is compression force; the d33 me-ter(white) shows the real-time value of measured d33.

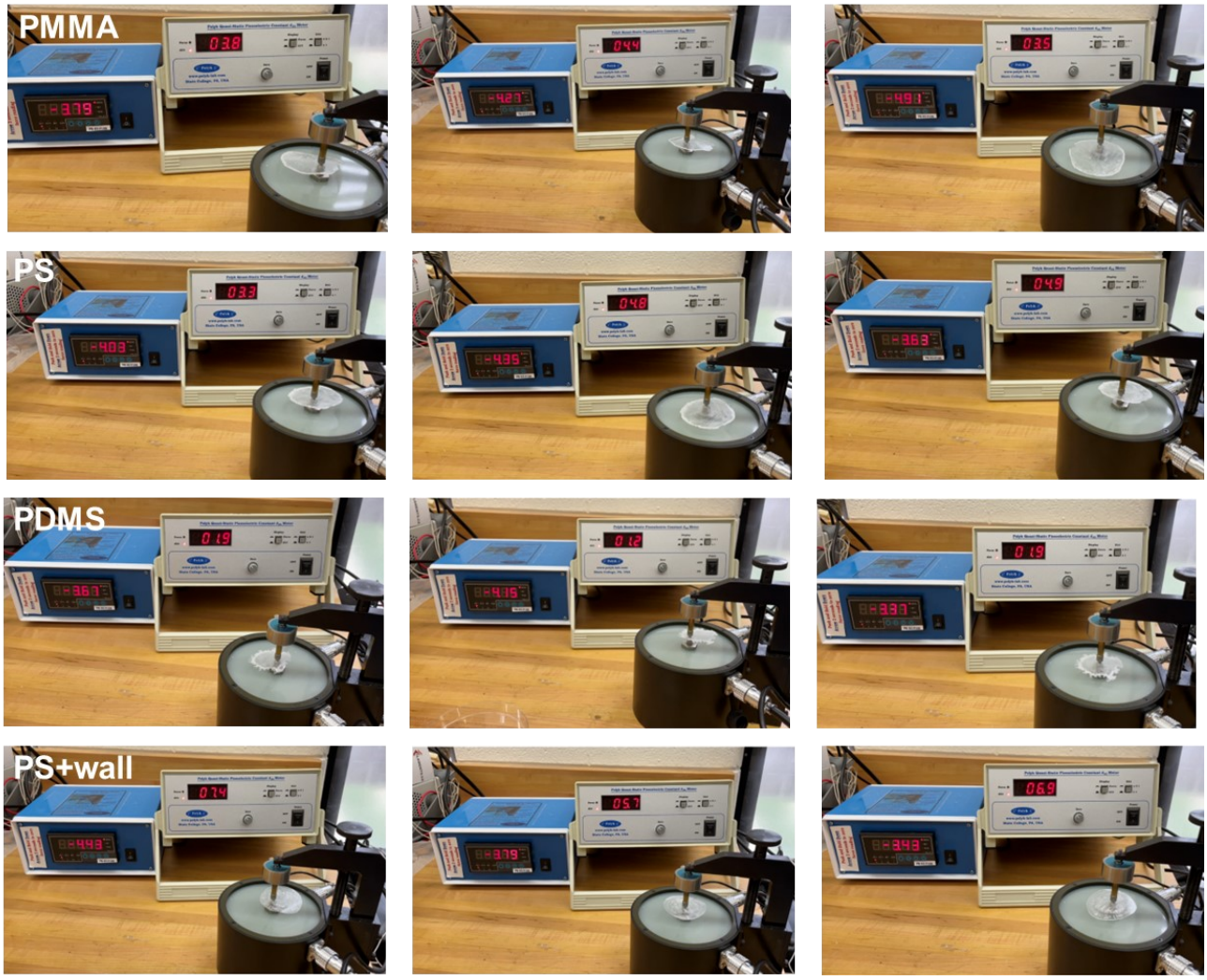

Figure. S5. Images of d33 results under force of 3-5 pC/N for PVA-glycine-PVA films grown on **PMMA, PS, PDMS** and **PS+wall** substrates. Measurements were taken at different spot of a single film grown on different substrates.

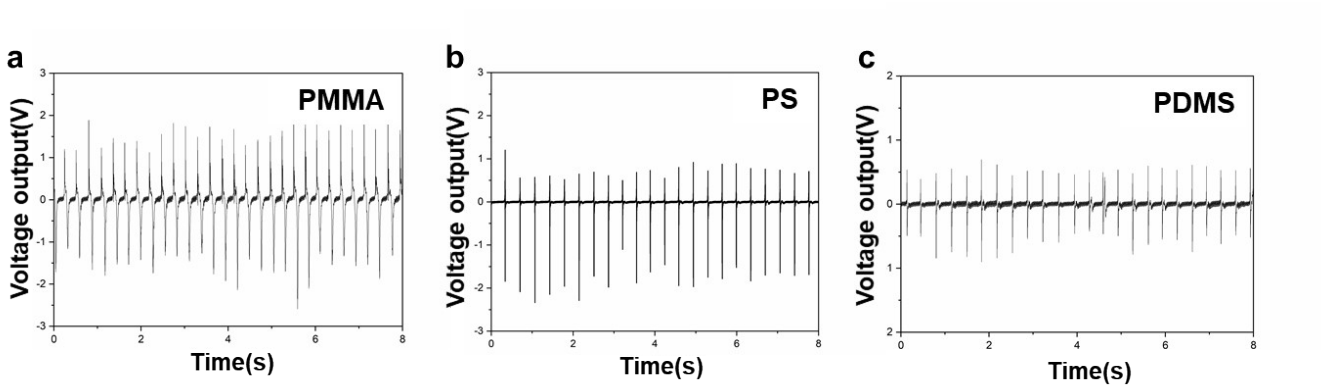

Figure. S6. Voltage output of glycine-PVA films on **PMMA, PS** and **PDMS** substrates under 30-N force.

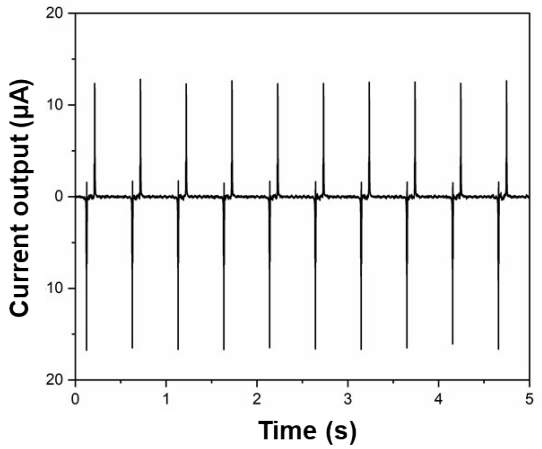

Figure. S7. Current output of glycine-PVA films on PS+wall substrates.

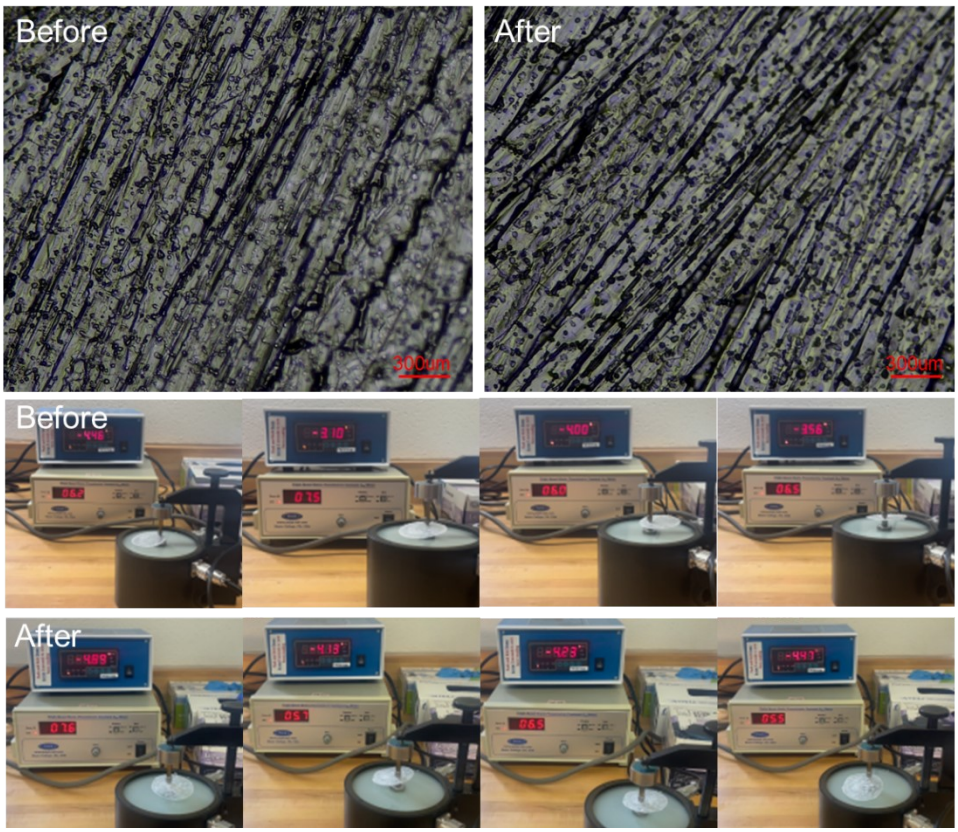

Figure. S8. Optical microscope images and d33 measurements of PS+wall films before and after exposing in humid air (room temperature, 80-90% humidity).