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Supplementary

Piezoelectric Yield of Single Electrospun Poly(acrylonitrile) Ultrafine Fibers Studied by Piezoresponse Force Microscopy and Numerical Simulations

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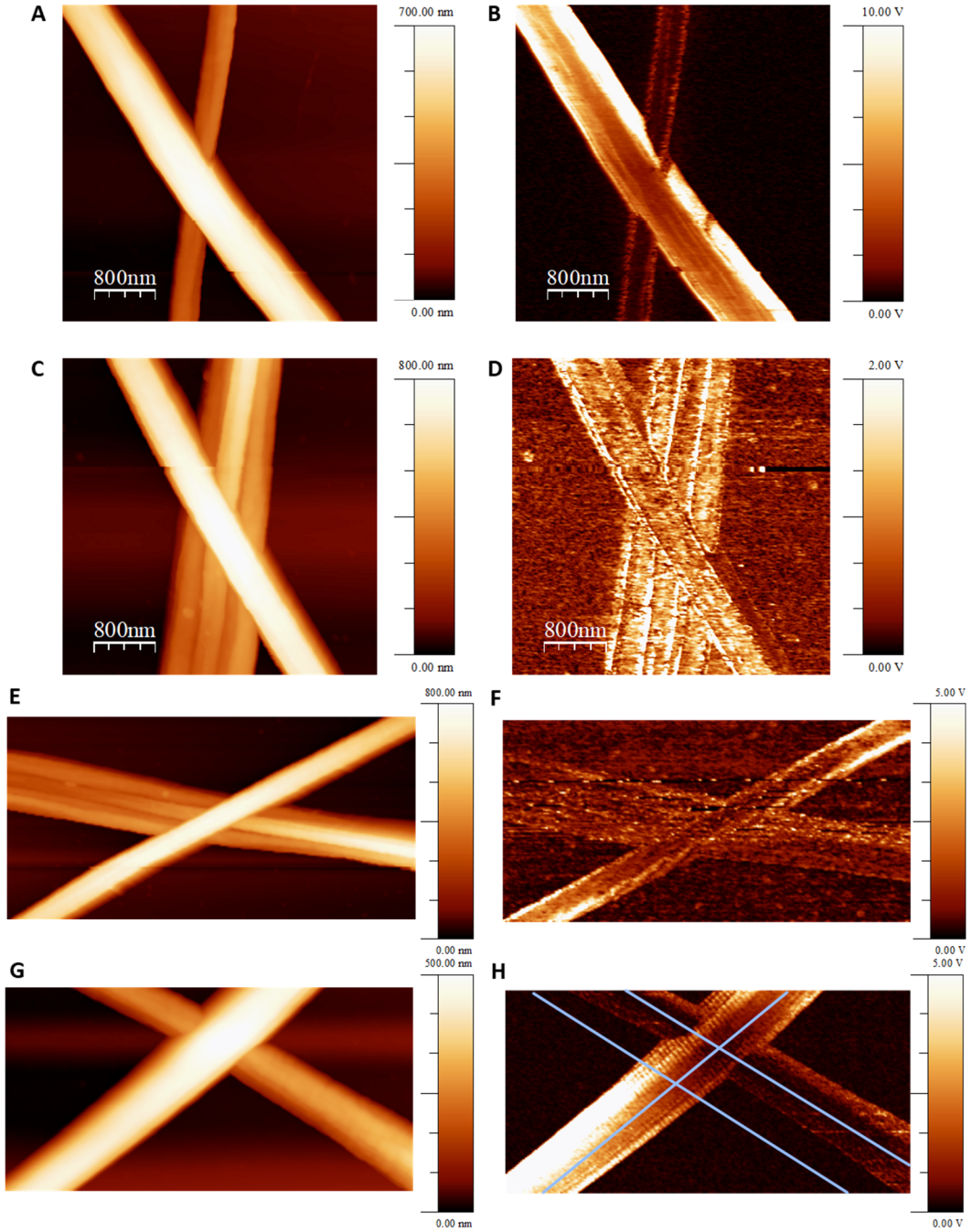

Figure S1. (part A). PFM maps of different PAN and PVDF electrospun fibers. (A) Topography: PVDF fiber, diameter 600 nm; PAN3 fiber, diameter 280 nm; (B) PFM, Scale 1 V = 34.4 pm/V (PVDF), 30.1 pm/V (PAN). (C) Topography: PAN1 fiber, diameter 650 nm; PAN3 (3 fibers), diameter 300-400 nm; (D) PFM, Scale 1 V = 6.6 pm/V. (E) Topography: PAN1 fiber, diameter 650 nm; PAN3 (3 fibers), diameter 300-400 nm; (F) PFM, Scale 1 V = 6.6 pm/V. (G) Topography: PVDF fiber, diameter 400 nm; PAN1 fiber, diameter 250 nm; (H) PFM, Scale 1 V = 11 pm/V.

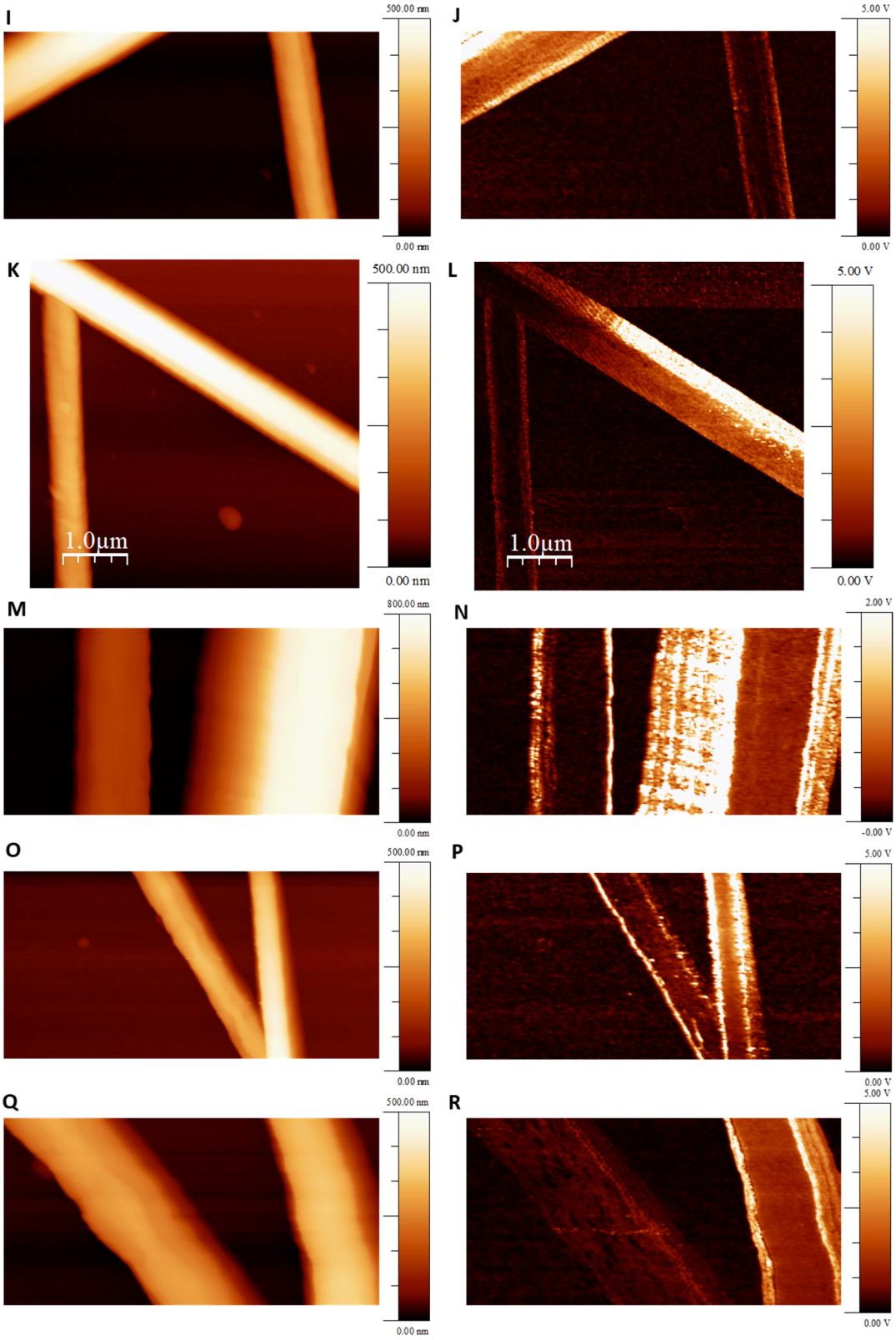

Figure S1. (part B). (I) Topography: PVDF fiber, diameter 400 nm; PAN3 fiber, diameter 300 nm; (J) PFM, Scale 1 V = 11 pm/V. (K) Topography: PAN1 fiber, diameter 450 nm; PAN3 fiber, diameter 300 nm; (L) PFM, Scale 1 V = 11 pm/V. (M) Topography: PVDF fiber, diameter 750 nm; PAN3 fiber, diameter 250 nm; (N) PFM, Scale 1 V = 113 pm/V. (O) Topography: PAN2 fiber, diameter 280 nm; PAN2 fiber, diameter 380 nm; (P) PFM, Scale 1V = 28.6 pm/V. (Q) Topography: PAN2 fiber, diameter 280 nm; PAN2 fiber, diameter 380 nm; PFM, Scale 1 V = 113 pm/V.

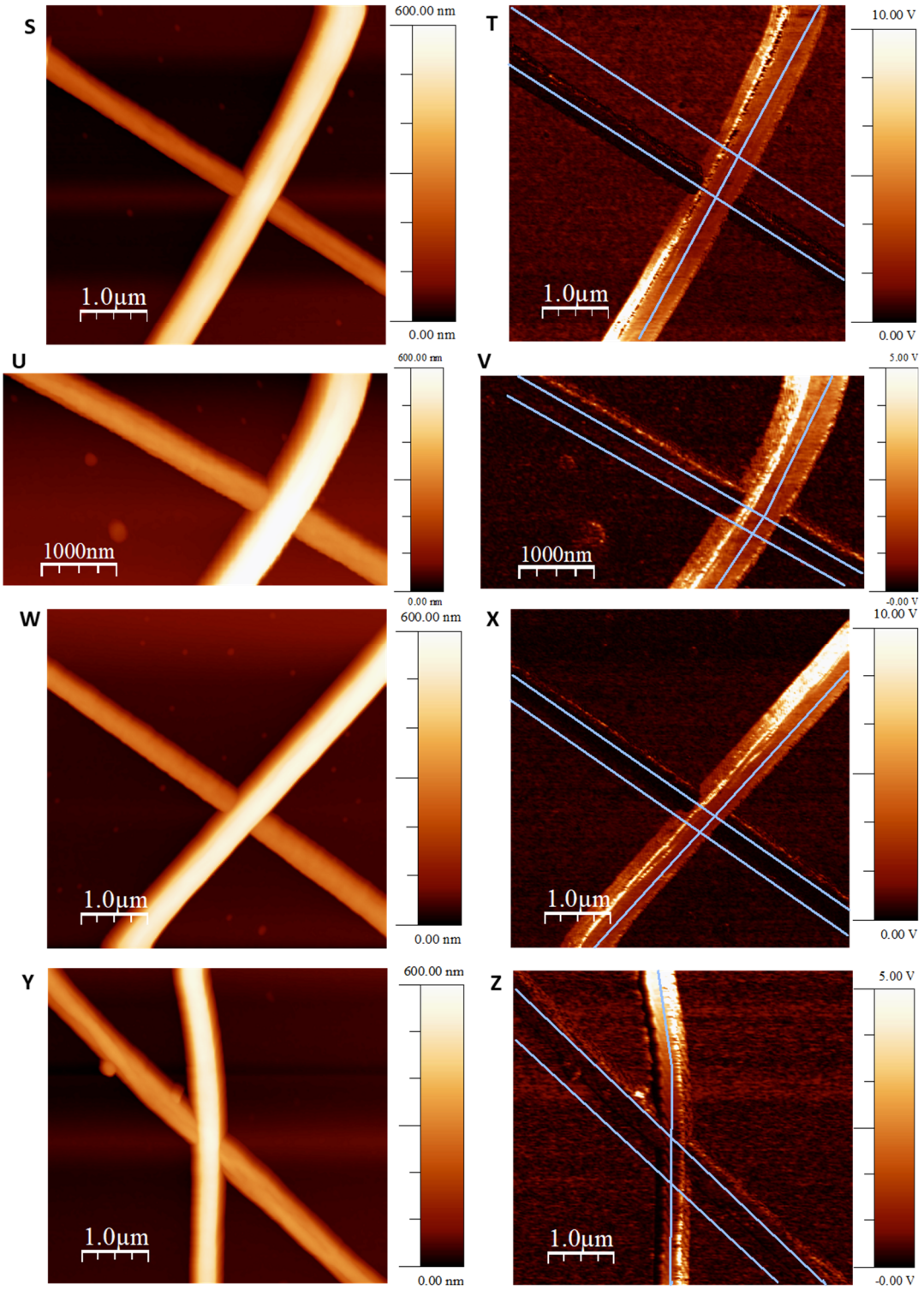

Figure S1. (part C). (S) Topography: PVDF fiber, diameter 500 nm; PAN1 fiber, diameter 230 nm; (T) PFM, Scale 1 V = 29.3 pm/V. (U) Topography: PVDF fiber, diameter 550 nm; PAN1 fiber, diameter 270 nm; (V) PFM, Scale 1 V = 29.3 pm/V. (W) Topography: PVDF fiber, diameter 500 nm; PAN1 fiber, diameter 250 nm; (X) PFM, Scale 1 V = 29.3 pm/V. (Y) Topography: PAN1 fiber, diameter 500nm; PAN1 fiber, diameter 300 nm; (Z) PFM, Scale 1 V = 29.3 pm/V.

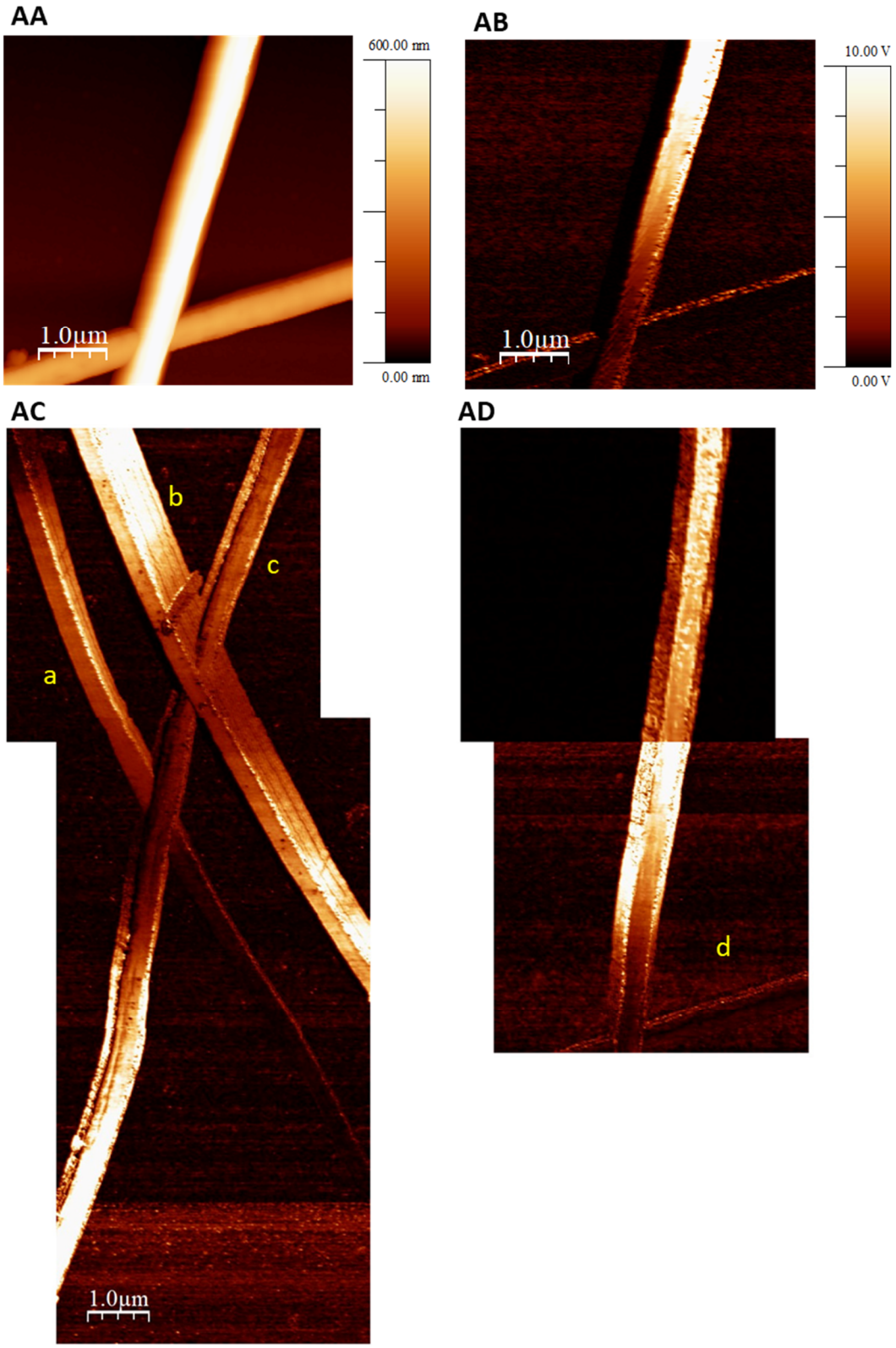

Figure S1 (part D). (AA) Topography: PAN1 fiber, diameter 550 nm; PAN1 fiber, diameter 320 nm; (AB) PFM, Scale 1 V = 22 pm/V. (AC-AD) Stitched PFM images: (AC) Topography: PAN1 (a) fiber, diameter 460 nm; PAN1 (b) fiber, diameter 680 nm; PAN1 (c) fiber, diameter 550 nm; (AD) Topography: PAN1 (d) fiber, diameter 320 nm.

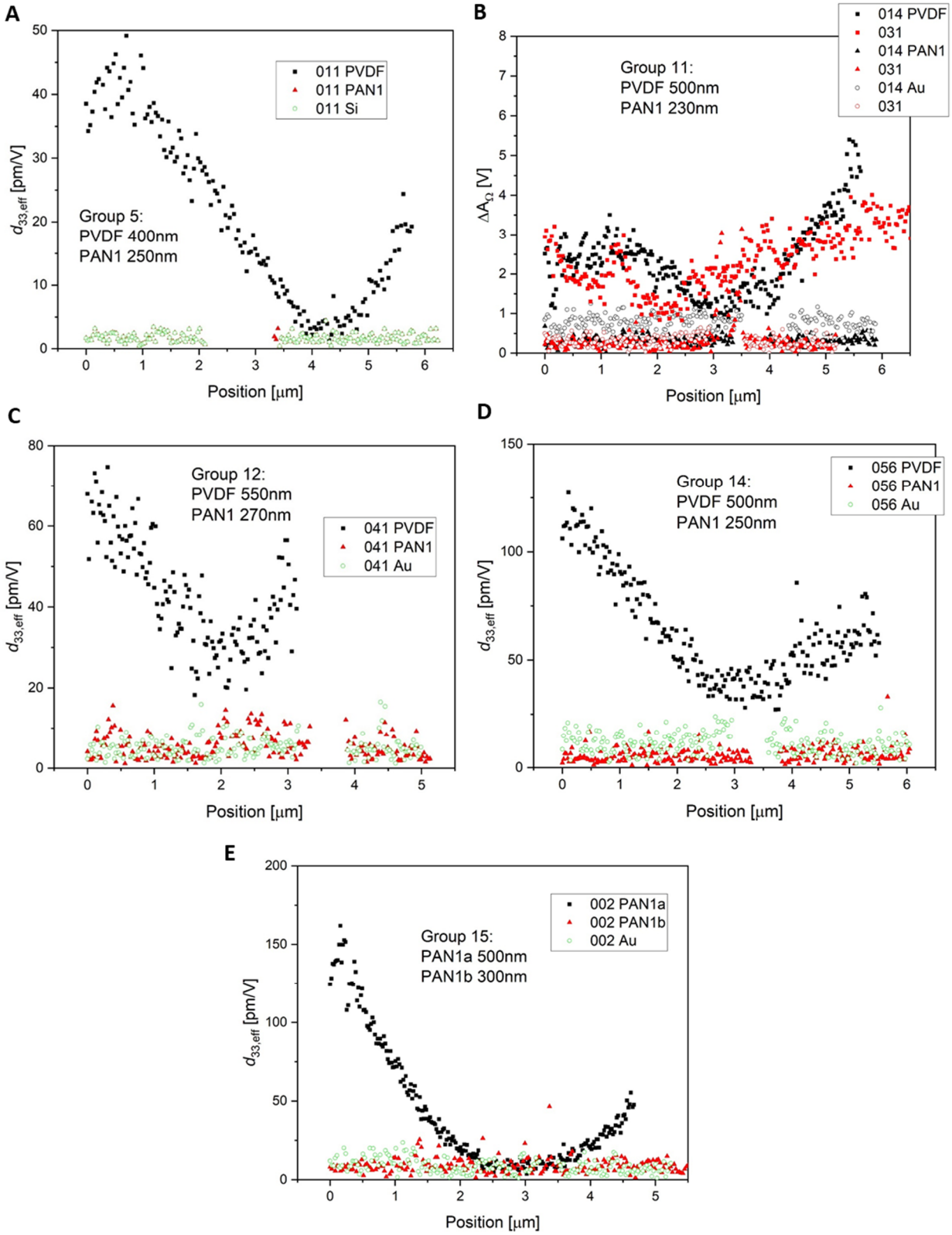

Figure S2. Line profiles of PFM signals along some of the fibers in Figure S1, namely: (A) Figure S1 (part A, H); (B) Figure S1 (part C, T), PFM, Scale 1 V = 29.3 pm/V; (C) Figure S1 (part C, V); (D) Figure S1 (part C, X); (E) Figure S1 (part C, Z). .