Supporting Information

A Facile Method for Fabricating Flexible Substrates with Embedded, Printed Silver Lines

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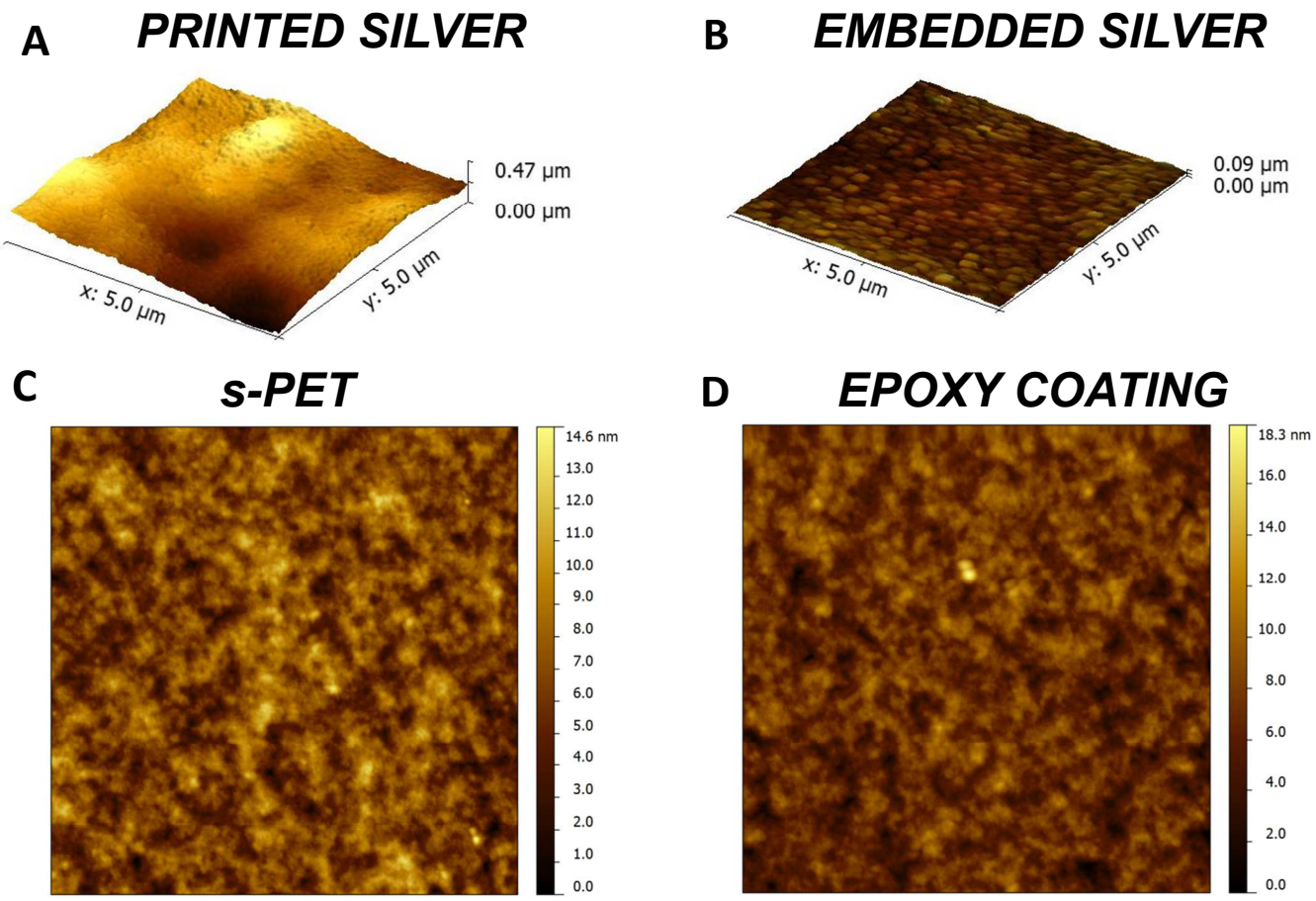

Figure S1. AFM tapping mode height images of a) printed (and sintered) silver (root mean square (rms) roughness 81.8 nm), b) embedded silver (rms roughness 8.3 nm), c) s-PET (rms roughness 1.80 nm) and d) epoxy coating (rms roughness 1.83 nm). Scan areas in both c and d are 25 μm^2.

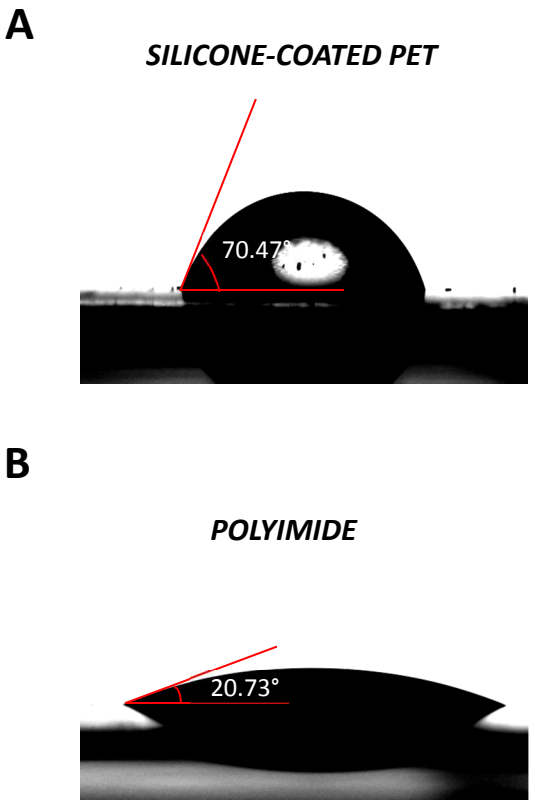

Figure S2. Comparison of contact angle of epoxy pre-polymer mixture on a) silicone-coated PET and b) polyimide substrates, suggesting stronger adhesion of the cured epoxy with the latter.

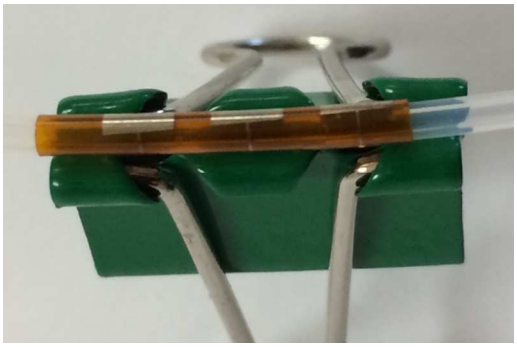

Figure S3. Optical micrograph of embedded silver lines and contact pads wrapped around 1 mm radius polyethylene tubing.

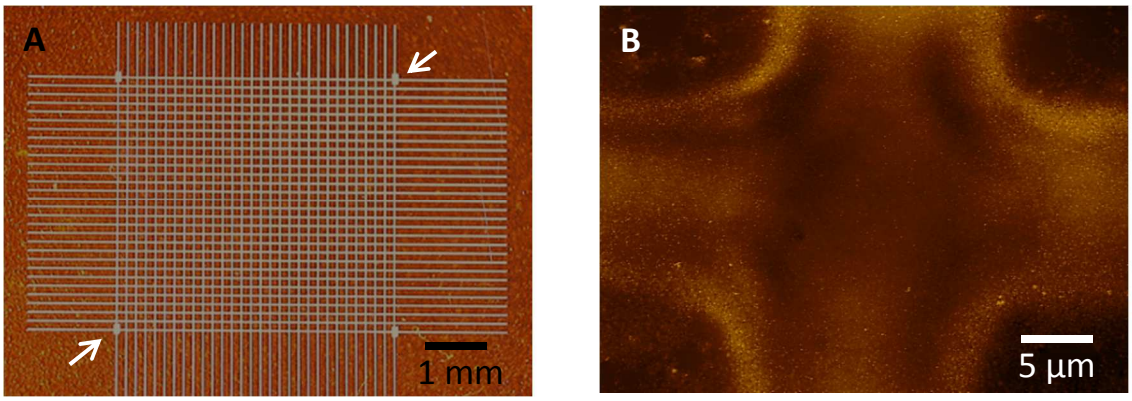

Figure S4. a) Optical microscope image of an embedded square grid of silver lines (width: 20 µm, line spacing: 160 µm) comprising of 900 cross-overs. The measured electrical resistance between the highlighted points of the grid was 30.01Ω, close to its as-printed value. b) AFM tapping mode height image revealing a buried cross-over in the above grid. Image height range is 100 nm.

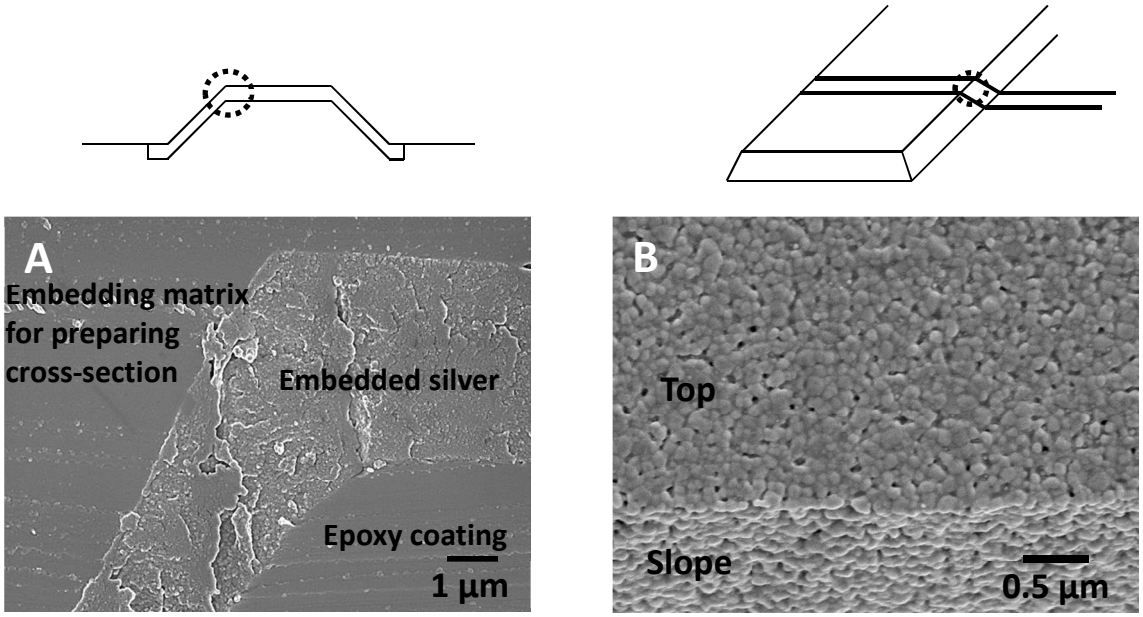

Figure S5. ICD on non-planar surfaces. a) Cross sectional SEM image displaying an embedded silver line over a sloped step. b) Top view SEM image showing the transition of the embedded silver line near the edge, free from cracks or other discontinuities.