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Supporting Information

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Fast and Efficient Fabrication of Intrinsically Stretchable Multilayer Circuit Boards by Wax Pattern Assisted Filtration

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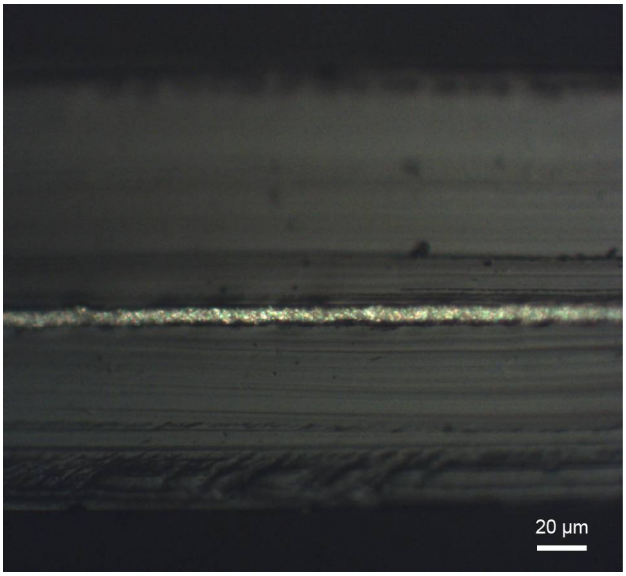

Figure S1. Side view of a cut of an AgNW conductor embedded in PDMS. The AgNW conductor is ~5 µm thick and the PDMS layers are together ~170 µm thick.

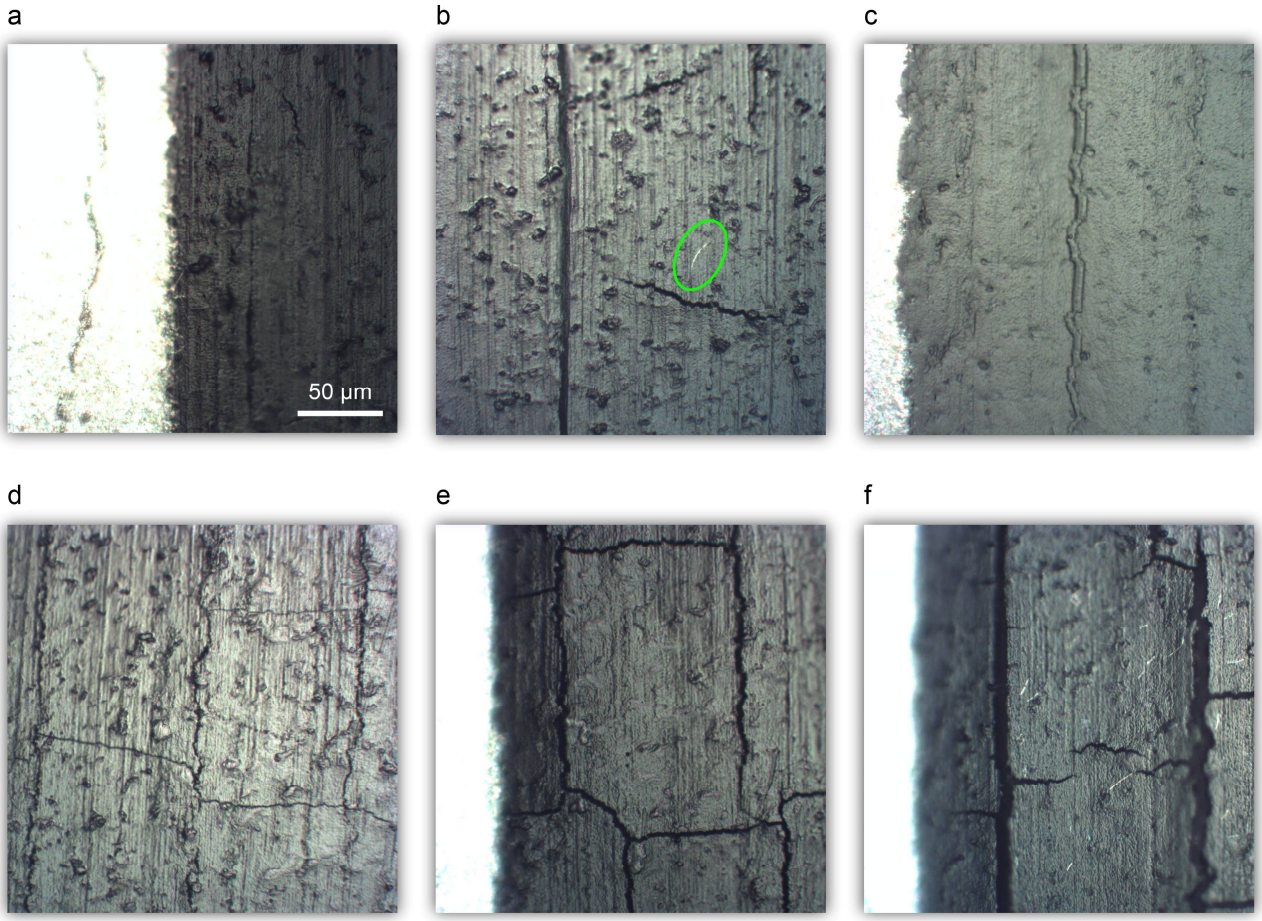

Figure S2. Reflection mode micrographs of wax patterned membranes. **a)** The filtered AgNW line to the left is well defined with no AgNWs on the wax covered part. **b)** A single AgNW is visible on another area of the wax covered membrane. **c)** The transferred AgNW line on PDMS is well defined and no AgNW residues are visible. **d)** Some additional cracks appear when a wax patterned membrane is bent to a radius of 2.5 mm in both directions. **e)** The resulting cracks from the bending do not result in AgNW residues outside the pattern when an AgNW dispersion is filtered through it. **f)** When a membrane is reused after a transfer, the cracks widens and more AgNW residues are present at the surface. The residues still comprises single NWs and no big defects are formed.

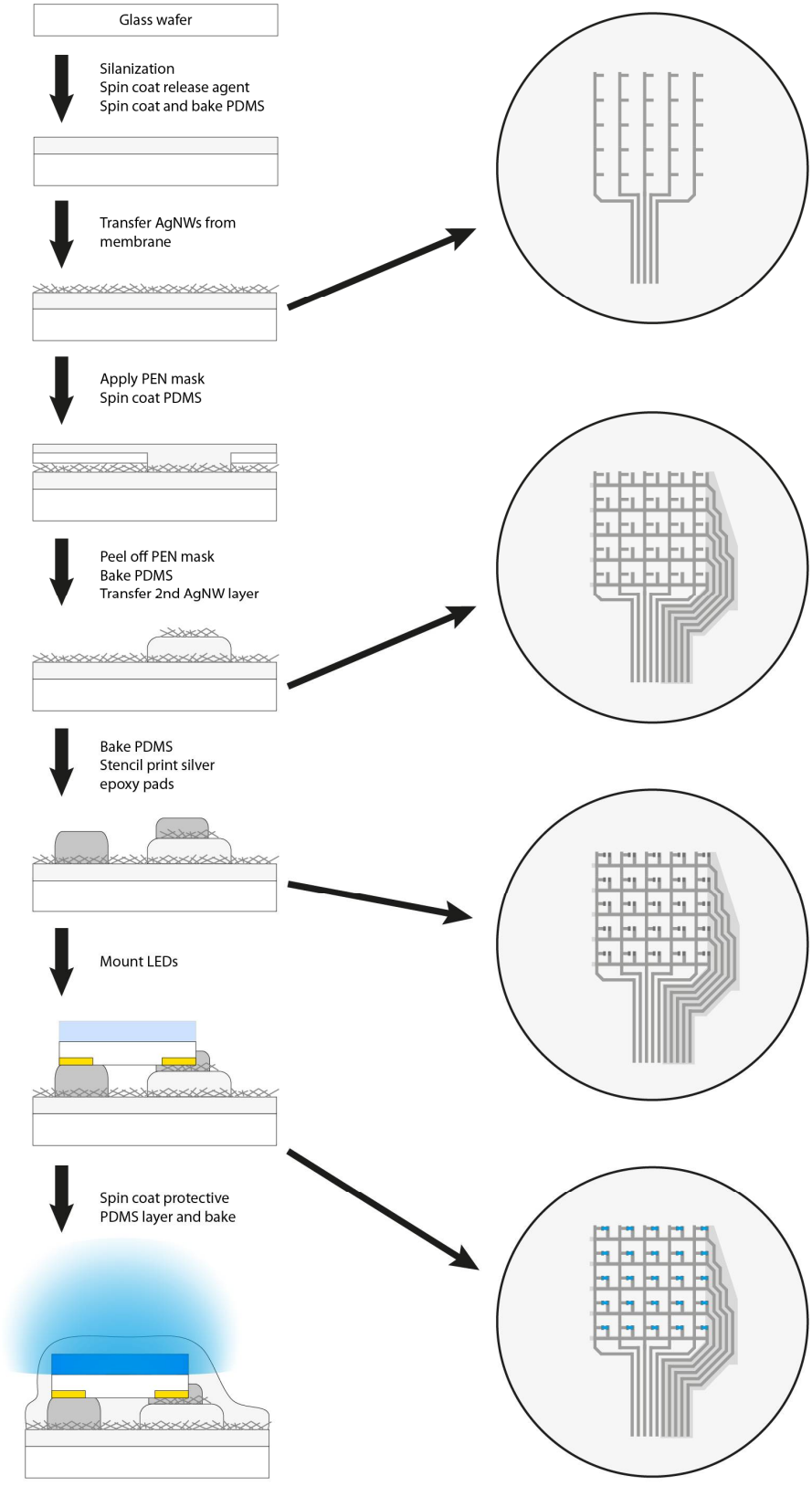

Figure S3. Process description for the fabrication of stretchable LED matrix displays. To the left, the side view of the device during buildup is shown. To the right, the horizontal layout is shown for a few points along the process.