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## Stretchable Transparent Electrodes Based on Silver Nanowires and Conductive Polymers for Stretchable Electronics

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The development of high-performance transparent electrodes is of great importance for efficient, low-cost organic optoelectronic devices such as organic solar cells and organic light emitting diodes. Silver Nanowires (AgNWs) are regarded as promising alternative transparent electrodes to replace conventional indium tin oxide (ITO) electrode due to their low sheet resistance, high transmittance, and low-cost processing. Here, high performance stretchable transparent electrodes based on AgNWs and conductive polymer poly (3,4 ethylenedioxythiophene):poly (styrenesulfonate) PEDOT: PSS on an elastomeric polydimethylsiloxane (PDMS) has been investigated. The surface modifier introduced in this study significantly improves the hydrophilicity of the PDMS surface. The resulting hybrid transparent electrodes show a low sheet resistance of 25  $\Omega$ /sq and high transmittance of 82%, which are comparable to the performance of indium tin oxide (ITO) reference electrodes. In addition, the hybrid transparent electrodes show a remarkably small resistance change below 10 % up to the strain of 100 %. Furthermore, the hybrid electrodes are employed for stretchable heater device, resulting in good device performance.

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