PDMS-silver Nanocomposite for Flexible Conductive Stripes and Flexible Organic Solar Cells

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In this work, we demonstrate a facile, simple, and low-cost fabrication of PDMS-silver nanocomposite. Columnar silver acetate (AgOAc) microstructures were embedded into a polydimethylsiloxane (PDMS) matrix and were consequently transformed to silver nanostructures with three-dimensional pore structures by thermal decomposition. Silver nanostructures strongly adhered onto a polydimethylsiloxane (PDMS) matrix and exhibited excellent mechanical properties and high conductivity under a static mechanical strain. We also demonstrate a possibility to use the fabricated conductive stripes for application as flexible circuit, electronic devices and the flexible organic solar cells[1,2].

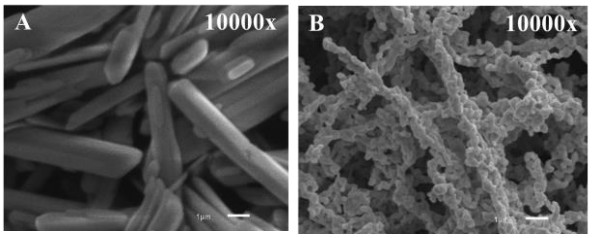

Fig.1 SEM image of (A) columnar silver acetate microstructures (B) PDMS-silver nanocomposite.

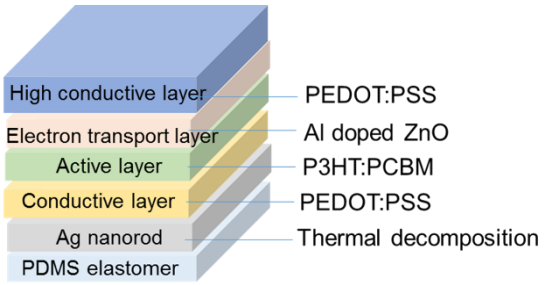

Fig.2 Schematic of fabricated flexible organic solar cells

References:

1. Larmagnac, A.; Eggenberger, S.; Janossy, H.; Voros, J., Stretchable electronics based on Ag-PDMS composites. Scientific reports **2014**, 4, 7254.
2. Hu, Y.; Zhao, T.; Zhu, P.; Zhu, Y.; Shuai, X.; Liang, X.; Sun, R.; Lu, D. D.; Wong, C.-P., Low cost and highly conductive elastic composites for flexible and printable electronics. Journal of materials chemistry **2016**, 4 (24), 5839-5848.