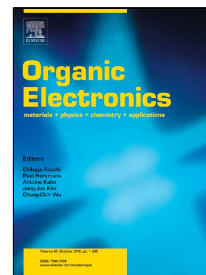


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# High Resolution Patterning of Ag Nanowire Flexible Transparent Electrode via Electrohydrodynamic Jet Printing of Acrylic Polymer–Silicate Nanoparticle Composite Overcoating Layer

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## Abstract

In this study, 5- $\mu\text{m}$  scale patterns of silver nanowires (AgNWs) flexible transparent electrode was successfully demonstrated by using a high resolution electrohydrodynamic (EHD) jet printing process. By optimizing the EHD jet printing parameters such as working distance and applied voltage, a mechanically flexible and robust acrylic polymer–silicate nanoparticle composite resin (iGloss®, in short IG) was printed on the AgNWs electrodes via EHD jet printing with a 5- $\mu\text{m}$ -line-width, which, in turn, allowed us to fabricate the finely patterned AgNWs electrodes by removing the AgNWs under the un-covered region by IG. The EHD jet-printed AgNWs/IG electrodes showed the excellent optoelectronic properties, showing the optical transmittance of ~90% and electrical conductivity of ~45 ohms/sq. Furthermore, the IG- resin coated AgNWs electrode exhibited superior mechanical and chemical properties

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