

Preparation of Amorphous Conjugated Polymer Nanowires with Alkylbenzoic Acid for Organic Thin Film Transistor

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Organic Thin Film Transistor (OTFT) that applies organic materials into semiconducting layers has advantages in device fabrications because resulting device can be flexible and easily manufactured. However, semiconductor property such as carrier mobility of organic materials is not good enough to that of inorganic materials. Many researches have attempted to improve the property by morphology change like preparing nanowires. Nanowires can provide not only morphological connection between electrodes but also significant increase in the packing density of conjugated polymers. However, most methods to prepare nanowires have focused on crystalline polymers, which indicates some limits in polymer structures that we can use. In this study, we suggest a method for preparing amorphous conjugated polymer nanowires. We demonstrate a nanowire fabrication process that utilizes alkylbenzoic acid and analyze the increase in the packing density. (This work was funded by NRF-2013R1A1A2058816 and NRF-2014M2B2A4031389.)