

SWCNT/SnO₂ nanowire p-n hetero-junction arrays on flexible polyimide substrate

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Nanowire hetero-junction arrays are attractive due to their high potential as active devices via engineering of bandgaps. These hetero-junctions can be applied to the various devices such as laser, solar cells, and sensors. In this work, we report on the fabrication of SWCNTs/SnO₂ nanowires p-n hetero-junction arrays on flexible polyimide substrates. The variation of the density of SWCNT and the doping of SnO₂ nanowires were done to enhance the p- and n-channel characteristics, respectively. Each SWCNT and SnO₂ nanowire field effect transistor showed p- and n-type transfer properties with high on/off current ratios, respectively. We will discuss the electrical device performance of such formed nanowire hetero-junction arrays.