Stretchable UV sensor arrays of SnO$_2$ Nanowires

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Recently, there has been extensive research on stretchable electronics implantable to human body such as skin and organs. In particular, high performance stretchable devices including UV, gas, and pressure sensors would have potential applications in bio-organs, industries, and under harsh environments. Up to now, silicon and polymer-based materials have been mostly used as active components in flexible/stretchable devices. However, 1D materials including nanowires (NWs) and nanotubes are expected to be advantageous in future stretchable electronics, exhibiting enhanced performance and better integration due to their superior electronic properties and structural flexibility.
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UV sensor arrays with average photosensitivity of $-10^5$ and external quantum efficiency of $-10^6$ under very low UV power intensity of 0.02 - 0.04 mWcm$^{-2}$. The device performance is not deteriorated when the whole devices are radially stretched up to 20%.