

## Effects of oxygen plasma treatment on the properties of ZnO nanowires

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Zinc oxide (ZnO) nanowires have attracted considerable research attention on account of their superior properties, such as large piezoelectric constant, wide band gap energy (3.37 eV), large exciton binding energy (60 meV), and high thermal and mechanical stability. There are many reports on various device applications, which include piezoelectric transducers, transparent transistors, optoelectronic devices, chemical and biological sensors. The performance of these devices strongly depends on the surface state of ZnO nanowire. Therefore, it is very important to study the surface state of ZnO nanowire for the improvement of device performance. In this work, we present the effects of oxygen plasma treatment on the properties of ZnO nanowires. The properties of ZnO nanowire was investigated before and after plasma treatment. In addition, simulation and secondary ion mass spectrometry analysis were carried out to elucidate the surface state of the ZnO nanowire under oxygen plasma environments.