

Effect of buffer-layer on the growth and properties of ZnO nanorods grown by solution process

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The effect of ZnO buffer-layer on the growth and properties of ZnO nanorods, grown by simple solution process by using zinc nitrate and hexamethylenetetramine have been investigated in this paper. The nanorods are grown in a high-density over the large area of the substrates. The detailed structural observations confirmed that the grown nanorods are single-crystalline with the wurtzite hexagonal phase. It was observed that the buffer-layer thickness can affect the growth density of ZnO nanorods. By increasing the thickness of buffer-layer, the grain size of the ZnO buffer increases, which affect the growth of ZnO nanorods. Moreover, to control the grain size of the buffer-layer, plasma treatments were done prior to the growth of the nanorods. It was also researched that the diameters of the grown nanorods can be controlled by the grain size of the buffer layer.