

Influence of Synthesis Temperature on Highly Aligned ZnO Nanorods Grown by Wet Chemical Process

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Highly aligned ZnO nanorods were successfully fabricated over the large area of substrates by using $\text{Zn}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ and $(\text{CH}_2)_6\text{N}_4$ through a simple solution process at low temperature. We researched that synthesis temperature has prominent effects on the length and diameter of ZnO nanorods with respect to its alignment. It was observed that with increasing the synthesis temperature, the lengths and diameters of the grown nanorods increased significantly. These experimental results demonstrated that by controlling the synthesis temperature, length and diameters of the ZnO nanorods can be controlled. Our approach to grow desirable length good-quality ZnO nanorods put a further step to use as-grown ZnO nanorods for various highly efficient ZnO-based nanodevices.