

ZnO RODS SYNTHESIZED BY AQUEOUS CHEMICAL GROWTH

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Zinc oxide rods were synthesized by aqueous chemical growth on different substrates, e.g. plane glass, ITO-coated glass substrates, stainless steel and platinum-coated silicon wafers. The effect of pressure was studied on open and closed reaction vessels at 90°C for six hours on ITO-coated glass substrates. Closed reaction gave rise to conic shaped rods with average diameter of $0.61 \pm 0.21 \mu\text{m}$, while more homogeneous rods of $0.91 \pm 0.17 \mu\text{m}$ were grown at open conditions. Rod length increased from 3.00 ± 0.47 to 3.67 ± 0.92 for close and open conditions respectively. As for the effect of reaction time, a sample was grown for 20 hours at closed conditions. Ave. diameter was not affected significantly, while length increased up to $7.30 \pm 0.85 \mu\text{m}$. Pt-coated silicon and stainless steel substrates promoted the formation of ZnO rods with a flower-like morphology, with similar dimensions than those grown over glass. In all cases, the hexagonal phase was verified by grazing incidence X- ray diffraction.