

Luminescence of the zinc oxide nanorods

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The synthesis of the ZnO nanorods was conducted by aqueous thermal decomposition of the Zn^{+2} –amino complex. The zinc oxide nanorods showed vertically and horizontally aligned morphologies in different growth regimes. The aligned nanorods were composed of hexagonal ZnO with good crystallinity. Room-temperature ultraviolet (UV) laser emission of ZnO nanorods is observed. Laser cavities, formed by growing, were found to UV lase at the $1.82 \text{ MW} \cdot \text{cm}^{-2}$ nitrogen laser excitation intensity. The stimulated emission is of an excitonic nature for the 300K temperature of measurements. UV lasing from the self-assembled nano-sized ZnO crystals represents an important step towards the development of nanometer photoelectronics.

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