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Synthesis and Characterization of $Cu_{2-x}Te$ Quantum Dot on ZnO Nanoparticles

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It has been shown that semiconducting materials with particle size comparable to exciton Bohr radius, called "quantum dot,"exhibit distinct physical property referring to their bulk. This leads to various applications in computing, biology, solar cell, light emitting, and photodetector. In this work, we synthesized quantum dots of copper telluride on films of zinc oxide using successive ionic layer absorption technique at low temperature. The quantum dots were characterized by transmission electron microscope, scanning electron microscope, x-ray diffractometer, and UV-Vis spectroscope for particle size, morphology, crystal phase, and optical property, respectively. The results showed that the quantum dots were orthorhombic of $Cu_{1.44}Te$ with the average particle size of 5 nm. The growth mechanism of quantum dot will be explained.

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