

Li-Doped CuO Quantum-dots Synthesized by Solution Processed For Ink-printed Photonic Devices

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Recently, CuO has been a promising material in the development of exciton-based optoelectronic devices such as light-emitting diode (LEDs) and photovoltaic. Moreover, quantum dots have potential in next-generation electronic and optoelectronic devices because of their unique physical properties, which arise due to the quantum confinement effect. In this regards, Li-doped CuO QDs with size < 8 nm were synthesized by a simple solution process. The as-synthesized QDs showed a highly crystalline monoclinic phase of CuO with a bandgap of 1.4 eV. Furthermore, as-synthesized QDs were formulated as inks using mixed solvents of water, 2-methoxyethanol and diethylene glycol. Optical and electrical properties of as-deposited thin-film were characterized by photoluminescence (PL) measurement and hall-measurement, respectively.