

# SYNTHESIS METHODS OF II-VI QUANTUM DOTS

BY

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**Abstract.** Research on semiconductor nanocrystals (NCs), also known as quantum dots (QDs), has increased rapidly in the past few decades. Extensive studies have been performed on the influence of quantum confinement on the electronic and optical properties of nanocrystalline semiconductors. The size dependence of their electronic and optical properties is one of the unique features of semiconductor NCs, turning them into promising materials for a wide range of applications in optoelectronics and medical imaging techniques. Recent advances in synthesis methods of quantum dots with very high quantum yields could stand at the basis of large scale production of high quality QD for the mentioned applications.

The present review is focused on the preparation of II–VI semiconductor NCs due to their various applications in optoelectronics, especially for solid state lightning which is one of the most promising solutions for environmentally-friendly energy saving lightning devices. Some of the reviewed synthesis methods may not be scalable at mass production due to the using of expensive or health hazardous reactants but remain of great interest for laboratory scale synthesis. Some practical laboratory scale synthesis and separation and purification methods are also included.