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(57) Abstract :

METHOD FOR THE SYNTHESIS OF QUANTUM DOTS WITH TUNABLE OPTICAL PROPERTIES FOR USE IN PHOTOVOLTAIC DEVICES ABSTRACT The present invention discloses a method for the synthesis of quantum dots with tunable optical properties for use in photovoltaic devices. The method involves the controlled growth of quantum dots by manipulating reaction conditions and adjusting parameters to achieve desired sizes, compositions, and optical characteristics. The synthesized quantum dots offer tunability in terms of bandgap, absorption, and emission wavelengths, making them suitable for efficient light absorption and power conversion in photovoltaic devices. The method begins by providing a precursor solution containing semiconductor materials and capping ligands. The reaction conditions, including temperature, pressure, and reaction time, are carefully controlled to promote the growth of quantum dots with specific properties. The size of the quantum dots is controlled by adjusting the concentration of the precursor solution and the reaction time, while the composition is manipulated by varying the stoichiometry of the semiconductor materials.

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