

Quantum dot band gap tuning with amino acids (Technion)

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For many applications in electronics, photonics, acoustics and sensing, tuning of the quantum dot band gap is crucial to receive the required absorption wavelength values. The most common methods today include doping by transition metals, strain via epitaxial growth and quantum confinement. These methods all have limiting disadvantages such as high reaction temperatures, complex and time consuming preparation, and a limited range of materials and films that are capable of enduring the rigorous procedures. An advantageous method to the above involves the incorporation of different amino acids to the crystalline solution of a chosen quantum dot for band gap tuning. This simple method of preparation offers low synthesis temperature and high accuracy of tuning (both up and down).

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