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Quantum Dot Band Gap Measurements[1] J. RYAN PETERSON, Brigham Young University — Quantum dot solar cells have become one of the fastest emerging solar cell technologies to date. In order to raise their efficiency, a combination of materials with varying band gaps can be used to capture more energy from each photon. Our group has synthesized lead sulfide quantum dots with varying band gaps with and without the help of the protein ferritin. The use of ferritin provides a structural template, in addition to protecting against photodegredation. The radius and therefore band gap of the quantum dots were controlled by varying reactant concentration in solution. The resulting quantum dots had band gaps ranging from 1.33 eV to below 1.0 eV.

[1]Brigham Young University, National Science Foundation

J. Ryan Peterson
Brigham Young University

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