

Abstract Submitted
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Metal Sulfide Nanocrystals inside Ferritin with Photovoltaic Applications KAMERON HANSEN, J RYAN PETERSON, CAMERON OLSEN, HEATHER HOGG, JOHN COLTON, RICHARD WATT, Brigham Young Univ - Provo, COLTON TEAM — Ferritin is a spherical protein shell used universally by organisms to store iron. Due to a number of ferritin's properties (a conductive shell, ability to be arranged in ordered arrays, and high stability), recent theoretical work has proposed that non-native semiconductor nanocrystals inside ferritin can be used for high-efficiency solar energy conversion. We present research on the synthesis of a variety of these nanocrystals (PbS, CuS, Mo₂S, ZnS, and PbSe) inside ferritin's hollow interior and band gap energies of the resulting ferritin-nanocrystal constructs. We also report preliminary solar cell results for dye sensitized solar cells with PbS-ferritin as the dye.

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