

## Synthesis of Water-Soluble Iron Pyrite Nanocrystals by Amphiphilic Polymer Coating

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Iron pyrite (FeS<sub>2</sub>) is known as a promising semiconductor material due to its abundance. Because of its unique band gap energy, it has been widely studied in photovoltaic devices such as solar cell and LED. Furthermore, it can be also used in bio applications due to its nontoxicity and optical properties. In this regard, we have investigated the water solubilization methods of iron pyrite nanocrystals. First, we synthesized iron pyrite nanocrystals via hot injection method in organic solvent. Next, to disperse iron pyrite nanocrystals in aqueous solvent, we used two different coating methods. One is capping with amphiphilic polymer and the other is ligand exchange method. Using these treatments, we obtained water-soluble iron pyrite nanocrystals and characterized each property.

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