Study on Self-Assembly of CdTe Nanoparticles into Nanowires based on dose of Stabilizer

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It is found that the morphology of CdTe nanowires can be changed depending on dose of stabilizer when nanoparticles self-organize into nanowires. While each nanoparticle aggregates without any stabilizer, nanoparticles with small amount of stabilizer can form nanowires via self-assembly. The rate of nanowire formation strongly depends on the ratio of the stabilizer and Cd ions. Controlling the amount of stabilizer could result in different shapes and sizes of Nanowires. In this study, we fixed the ratios of Cd to TGA ion as 1.0:1.0 and 1.0:1.3. When nanoparticles with the ratios1:1.0 and 1:1.3 was exposed to light, nanoparticles with 1.0:1.0 were self-organized more condense into nanowires compare to nanoparticles with ratio 1.0:1.3. Which means nanoparticles with the ratio of 1.0:1.0 are in the shapes of flower, while the nanoparticles with ratio 1.0:1.3 will look like an uneven broom.