

Large scale synthesis of Zinc oxide nanoparticle in aqueous phase

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Zinc oxide is a promising material that has many attractive chemical and physical properties. ZnO is a direct-bandgap semiconductor with a large bandgap of 3.37 eV and a large excitation binding energy of 60 meV. This strong exciton binding energy, which is much larger than the thermal energy at room temperature (26 meV), can ensure an efficient UV-blue emission at room temperature. For this reason, it has been widely used to UV lasers, light-emitting diodes, solar cells, and sensors. Due to the enlargement of usage, large-scale synthesis of ZnO nanoparticles in an aqueous-phase is important. Here, we demonstrate a facile aqueous-phase route to the ZnO nanoparticles using the reaction Zn salt with amine functional group of stabilizer.