

5th World Congress on

Materials Science & Engineering

June 13-15, 2016 Alicante, Spain

Synthesis and characterization of nanoparticles III-V semiconductor core/shell (InP/ZnS)

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Controlled synthesis of nanoparticles of InP/ZnS type with core/shell structure is reported using the colloid chemistry method called "one-step injection precursors without hot" at different temperatures. Varying the conditions of reaction temperature (100-320°C), it was possible to control the formation of the shell and average particle sizes (2-10 nm). Color changes were clearly observed in the colloidal dispersions according to the reaction temperature. The obtained semiconductor nanoparticles presented crystalline structure core/shell, uniformity in size and exhibit a dependence of emission in the range of 450-650 nm. The formation, size, structure, composition and optical properties of the samples were characterized using techniques transmittance, HRTEM, XRD, EDS. UV-Vis spectroscopy and room-temperature photoluminescence.

Biography

J Díaz-Reyes obtained his PhD at the Center for Research and Advanced Studies of the National Polytechnic Institute, sited at Mexico City, and Post-doctoral studies from Polytechnic University of Madrid, Spain. He is a Researcher at the Center for Applied Research in Biotechnology of the National Polytechnic Institute, sited at Tepetitla, Tlaxcala, Mexico. He has published more than 65 papers in reputed journals.

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