

Nanooptics and photonics

Transformation of optical properties of CdSe quantum dots at liposomal encapsulation

J. Douda¹, L.G. Miranda Calderon¹, R. Jiménez Rodríguez¹, T. Kryshab²

¹ UPIITA – Instituto Politécnico Nacional, Othón Mendizábal S/N, La Escalera, 07320, Ciudad de México, México.

E-mail: jdouda@ipn.mx; jannaduda@hotmail.com

² ESFM – Instituto Politécnico Nacional, U.P.A.L.M., Av. IPN S/N, Edif. 9, C.P. 07738, Cd. Mx., México

The surface of an inorganic nanocrystal plays an important role in determining its structural, thermodynamic, optical, and transport properties [1]. The liposome encapsulation of semiconductor quantum dots (QDs) presents an alternative method for quantum dots intracellular delivery and for a different biomedical and bio photonic applications of them.

The semiconductor CdSe quantum dots (QDs) with emission spectra of different wavelengths were synthesized and encapsulated on liposomes. The liposomes were prepared from various phospholipid compositions. The obtained hybrids were characterized by photoluminescence (PL) and X-ray diffraction (XRD) before and after quantum dots encapsulation. The crystal structure and size of QD were determined by XRD. The change of PL spectra of QDs at liposome encapsulation was effectively reflected, and may be promising in biophotonic and biosensor applications [2, 3].

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