

## Author's Accepted Manuscript

Completely quenching of the trap states emission of CdSe QDs by CdS/ZnS shell growth using a one pot photochemical approach and application for dye photo-degradation

M. Dargahzadeh, M. Molaei, M. Karimipour



PII: S0022-2313(17)32129-4  
DOI: <https://doi.org/10.1016/j.jlumin.2018.07.026>  
Reference: LUMIN15773

To appear in: *Journal of Luminescence*

Received date: 9 December 2017

Revised date: 7 July 2018

Accepted date: 19 July 2018

Cite this article as: M. Dargahzadeh, M. Molaei and M. Karimipour, Completely quenching of the trap states emission of CdSe QDs by CdS/ZnS shell growth using a one pot photochemical approach and application for dye photo-degradation, *Journal of Luminescence*, <https://doi.org/10.1016/j.jlumin.2018.07.026>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# **Completely quenching of the trap states emission of CdSe QDs by CdS/ZnS shell growth using a one pot photochemical approach and application for dye photo-degradation**

**M. Dargahzadeh, M. Molaei\* and M. Karimipour**

Department of Physics, Faculty of Science, Vali-e-Asr University, Rafsanjan, Iran

\*Corresponding author email: M.molaei@vru.ac.ir

## **Abstract**

In this research CdSe QDs was grown by microwave activated approach. Then using UV-sensitivity of TGA, CdS shell was grown on the CdSe cores and subsequently ZnS was shelled on the CdSe/CdS QDs. Synthesized QDs were characterized by means of XRD, FTIR, EDAX, UV-Vis and PL analysis. CdSe QDs indicated a broad band surface trap states emission between 500 to 800 nm with a peak at about 600 nm. This emission was decreased after CdS shell growth and was completely quenched after ZnS shell growth and a narrow band edge emission confirming successfully growth of the shell. Photocatalyst activity of the synthesized QDs was investigated by using methyl orange (MO) and methylene blue (MB) as pollutant. The CdSe indicated good photocatalyst activity for photo-degradation and it's activity was considerably increased after CdS shell and CdS/ZnS shell growth.

## **Keywords:**

CdSe, CdSe/CdS, CdSe/CdS/ZnS, Photochemical, Photocatalyst

Download English Version:

<https://daneshyari.com/en/article/7839844>

Download Persian Version:

<https://daneshyari.com/article/7839844>

[Daneshyari.com](https://daneshyari.com)