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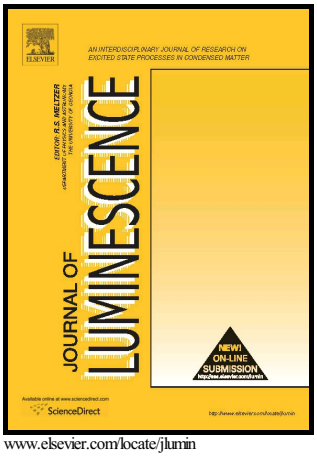
Ehsan Soheyli, Reza Sahraei, Gholamreza Nabiyouni



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PII: S0022-2313(18)30139-X
DOI: https://doi.org/10.1016/j.jlumin.2018.09.060
Reference: LUMIN15943

To appear in: *Journal of Luminescence*

Received date: 25 January 2018
Revised date: 22 September 2018
Accepted date: 25 September 2018

Cite this article as: Ehsan Soheyli, Reza Sahraei and Gholamreza Nabiyouni, Facile and versatile preparation of full-color emissive Fe-doped ZnCdSe/ZnS core/shell quantum dots by a novel aqueous-based colloidal approach, *Journal of Luminescence,* https://doi.org/10.1016/j.jlumin.2018.09.060

Facile and versatile preparation of full-color emissive Fe-doped ZnCdSe/ZnS core/shell quantum dots by a novel aqueous-based colloidal approach

Ehsan Soheyli[1,2,3], Reza Sahraei[3*], Gholamreza Nabiyouni[1,2*]

[1]Department of Physics, Faculty of Science, Arak University, Arak 3815688394, Iran

[2]Institute of Nanoscience and Nanotechnology, Arak University, Arak, Iran

[3]Department of Chemistry, Faculty of Science, Ilam University, 65315-516, Ilam, Iran

r.sahraei@ilam.ac.ir

g-nabiyouni@araku.ac.ir

[*]Corresponding authors.

Abstract

A novel/general method, based on a combination of co-nucleation and growth doping strategies in aqueous media is suggested to synthesize tunable-luminescent Fe-doped ZnCdSe/ZnS core/shell quantum dots (QDs). The effective doping of Fe impurity and enhancing the emission intensity along with localization of Cd^{2+} ions within the core lattice structure are all the advantages for utilizing a larger bandgap ZnS shell. The emission tunability of the doped QDs (d-dots) over the visible range was also achieved by controlling the Zn:Cd feeding ratio in ZnCdSe host matrix,