

6<sup>th</sup> International Conference and Exhibition on

# MATERIALS SCIENCE AND CHEMISTRY

May 17-18, 2018 | Rome, Italy

## Simple green synthesis of amino acid functionalized CdTe/CdSe/ZnSe core-multi shell with improved cell viability for cellular imaging

**Oluwatobi S Oluwafemi**

University of Johannesburg, South Africa

We herein report a simple, economical and green synthesis of highly fluorescent, water soluble and stable arginine functionalized CdTe/CdSe/ZnSe multi core-shell nanoparticles (NPs) with enhanced cell viability for cellular imaging. The synthesis of the CdTe/CdSe/ZnSe NPs was carried out under ambient conditions in the absence of an inert environment. The as-prepared NPs were characterized using UV-Vis absorption and photoluminescence (PL) spectroscopy, energy dispersive spectroscopy (EDS) and high resolution transmission electron microscopy (HRTEM). The optical analyses showed an enhancement in the fluorescent intensity after the functionalization with improved optical properties. The functionalized NPs (F-NPs) displayed higher cell viability compared to the bare NPs when investigated on KM-Luc/GFP cell line at different concentrations. The fluorescent image indicated that the as-synthesized functionalized NPs were taken up by the cells. Recommendations are made for treatment centers to become trauma- informed that would help this recognition.

### Recent Publications

1. Mohan S, Oluwafemi S O, Songca S P, Jayachandran V P, Rouxel D, Joubert O, Kalarikkal N and Thomas S (2016) Synthesis, antibacterial, cytotoxicity and sensing properties of starch -capped silver nanoparticles. *Journal of Molecular Liquids* 213:75-81.
2. Parani S, Bupesh G, Manikandand E, Pandian K and Oluwafemi S O (2016) Facile synthesis of mercaptosuccinic acid-capped CdTe/CdS/ZnS core/double shell quantum dots with improved cell viability on different cancer cells and normal cells. *Journal of Nanoparticle research* 18:347-359.
3. Thankachan R M, Joy N, Abraham J, Kalarikkal N, Thomas S and Oluwafemi O S (2017) Enhanced photocatalytic performance of ZnO nanostructures produced via a quick microwave assisted route for the degradation of rhodamine in aqueous solution. *Materials Research Bulletin* 8:131-139.
4. Ncapayi V, Sundararajana P, Songca S P, Kodama T and Oluwafemi S O (2017) Simple green synthesis of amino acid functionalized CdTe/CdSe/ZnSe core-multi shell with improved cell viability for cellular imaging. *Material letters* 189:168-1715.
5. Abraham A R, Raneesh B, Woldu T, Aškrebic S, Lazovic S, Dohčević Mitrović Z, Oluwafemi S O, Thomas S and Kalarikkal N (2017) Realization of enhanced magnetoelectric coupling and Raman spectroscopic signatures in 0-0 type hybrid multiferroic core-shell geometric nanostructures. *J. Phys. Chem. C*, DOI: 10.1021/acs.jpcc.6b12461.

### Biography

Oluwatobi S Oluwafemi is a National Research Foundation (NRF) South Africa rated Researcher at the Department of Applied Chemistry, University of Johannesburg. His research is in the broad area of nanotechnology and include green synthesis of semiconductor and metal nanomaterials for different applications which include but not limited to biological (imaging, labeling, therapeutic), optical, environmental and water treatment. He has author and co-author many journal publications, book chapter and books. He is a reviewer for many international journals in the field of nanotechnology and has won many accolades both local and international.

oluwafemi.oluwatobi@gmail.com

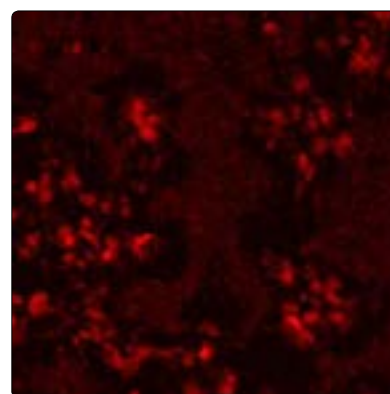
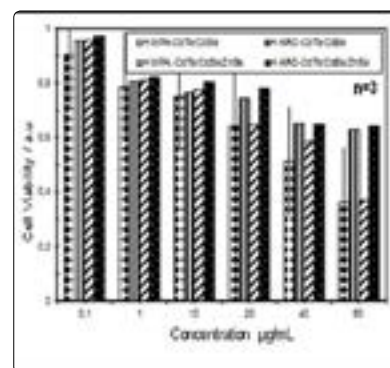


Figure 1: A magnetic nanoparticles and its crucial characteristics.