Aqueous Synthesis of CdSe Quantum Dots Suman Parajuli and Mario A. Alpuche-Aviles* Department of Chemistry, University of Nevada, Reno Reno, Nevada 89557, USA

Cadmium selenide quantum dots (CdSe QDs) have achieved many applications ranging from optics to medicine because of their size dependent properties. Majority of the synthetic routes involve the use of high boiling point organic solvents and are synthesized at high temperatures. We have developed a new and simple route for the synthesis of monodispersed luminescent CdSe QDs in aqueous medium. This synthesis utilizes cadmium acetate and selenium as precursors. Stable CdSe QDs with average particle size of 5 nm were obtained without the use of capping agent at relatively low temperature. The CdSe QDs were characterized by x-ray powder diffraction (XRD), transmission electron microscopy (TEM), UV-Vis spectroscopy and fluorescence spectroscopy. We have investigated preliminary photoelectrochemical property of these QDs and the results will be presented.