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Combinatorial Approach to Studying Metal Enhanced Fluorescence from Quantum Dots NGUYET LE, TIMOTHY CORRIGAN, Concord University, MICHAEL NORTON, DAVID NEFF, Marshall University — Fluorescence is extensively used in biochemistry for determining the concentration or purity of molecules in a biological environment. In metal-enhanced fluorescence (MEF), the fluorescence molecules separated from a metal surface by several nanometers can be enhanced. The fluorescent enhancement is dependent on the size and spacing of the nanoparticles, as has been shown previously for a number of fluorophore molecules. Fluorescence from quantum dots is of particular interest because the quantum dots do not lose fluorescence ability when exposed to light and they have higher intensity of fluorescence. The purpose of this study is to determine the effect of size and spacing on fluorescence intensity when coupling gold nano-particles with quantum dots. We employ a combinatorial approach, depositing gold particles ranging in diameter from 30 nm to 130 nm with varied spacings onto the substrate, followed by a protein spacer-layer and quantum dots. The fluorescence signal from the metal enhanced quantum dots were determined by confocal microscopy.

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