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Nanoscale Building Blocks for Biosensor Development

AMANDA J. HAES, Department of Chemistry, University of Iowa

The development of new technologies based on nano- and microscale phenomenon is important and significant for many reasons. One of the most prominent of these is biological sensors for the diagnosis of diseases, detection of environmental toxins, and drug discovery. Research in our group focuses on the microscopic and spectroscopic analysis of the optical properties of nanostructures and their integration with microfluidic devices with applications in biological sciences. In this talk, we will show results for an optical sensor based on localized surface plasmon resonance spectroscopy. It will be demonstrated that this nanoparticle based sensor can be used to detect a variety of ligands, including a biomarker for Alzheimer's disease.