

Abstract Submitted
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Colorimetric Flocculation and SERS of Molecule-Linked Gold Nanoparticles¹ ANDERSON HAYES, QUINTON RICE, BAGHER TABIBI, JAETAEE SEO, Hampton University, HU TEAM — The colorimetric flocculation and surface-enhanced Raman scattering (SERS) of molecule-linked plasmonic nanoparticles have recently brought great attentions in the biomedical application. In biomedical application, the early detection of diseases or unhealthy cells through molecule identification with significant low limit-of-detection is considered as an essential component of successful medical treatment. The common optical techniques for biomedical applications include the fluorescence with single- or two-photon excitation, and Raman scattering. The molecule fluorescence with either single photon or two photon excitation has been widely used for biomedical sensing and molecule identification because of the large fluorescence cross-section of molecules. The Raman scattering provides the molecule finger-prints that allow to identifying the molecules related to the diseases and unhealthy cells. This presentation will include: the colorimetric flocculation of synthetic urine-linked plasmonic nanoparticles; the vibration frequency shift of molecule, and the selective enhancement or quenching of Raman scattering under the localized-plasmonic field; and the coherency between plasmonic mode and vibration mode of the molecule-linked colloidal nanoparticles.

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