Abstract Submitted
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Fluorescence Resonance Energy Transfer near Metal Nanoparticle[1] V.N. PUSTOVIT, T.V. SHAHBAZYAN, Jackson State University — We study theoretically fluorescence resonance energy transfer (FRET) between donor and acceptor molecules attached to a metal nanoparticle supporting localized surface plasmon. We obtain a general expression for energy transfer rate that incorporates the effects of plasmon enhancement and quenching by the nanoparticle. Specifically, we find that while the quenching prevails over the enhancement, the distance dependence of FRET has a pronounced maximum when the distance between molecules and nanoparticle surface is about the nanoparticle radius. We also find that FRET depends strongly on the angular positions of donor and acceptor molecules at the nanoparticle surface.

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