Influence of polarization and wavelength on two-photon excited luminescence of single gold nanospheres

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Résumé en anglais	The Brownian rotation of a nearly spherical gold particle capped with ligands can be observed in the correlation profile of the intensity of the two-photon excited luminescence. Here we report on a multi-parameter study of the luminescence properties, including spectral and polarization analysis of the signal at the single particle level. First, the data confirm the role of the radiative de-excitation of the surface plasmons in the luminescence process. Secondly, the results obtained at low power indicate that the capped particle in water can be approximatively described as a spherical rotor acting in the far-field as a point-like absorption and emission dipole of fixed directions. In addition, we show that the dynamics of the ligands, induced by the heat transfer from the particle to its environment, can be partly controlled by the choice of excitation wavelength.
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[3] http://okina.univ-angers.fr/publications?f[author]=23504

[4] http://okina.univ-angers.fr/publications?f[author]=18709
[5] http://okina.univ-angers.fr/publications/ua13641
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