

## Nanocomposites and nanomaterials

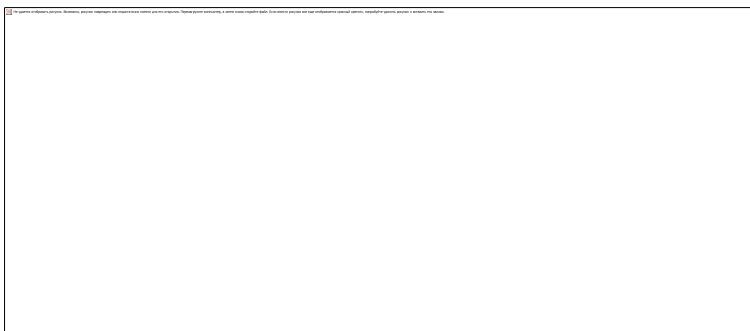
### Hybrid Fluorescent Dye-Silica Nanoparticles: toward a Possible Molecular Control of the Photophysical Properties

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This work was addressed to the elucidation of molecular parameters that rule the distribution of organic fluorophores throughout the nascent inorganic network during the synthesis of hybrid dye-silica nanoparticles by the reverse microemulsion method, that involves the partition of reactants among bulk oil phase, surfactant palisade and inner water core. The evolution of the photophysical properties (absorption, steady state and time-resolved photoluminescence) of three cyanine dyes, differing for the number of sulfonic substituents, from the starting microemulsion to the final nanoparticles provided evidence of the key role of the hydrophilicity of the fluorophores in ruling the dispersion within the nascent SiO<sub>2</sub> matrix [1].



[1] Alberto G., Caputo G., Viscardi G., Coluccia S., Martra G. Molecular engineering of hybrid dye-silica fluorescent nanoparticles: influence of the dye structure on the distribution of fluorophores and consequent photoemission brightness// Chem. Mater.-2012.-**24**.-P. 2792-2801.