

NANOINNOVATION 2019

Session: *Biosafety of nanomaterials (13-June-19, 16:00- 17:30)*

Nanoparticles tracking and correlation for in vitro and in vivo systems

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The detection of nanoparticles and their distribution in cells and small organism is of paramount importance for their possible use as theranostic agents and contrast tools.

Here I will illustrate the development of methods for detecting the nanoparticles distribution and motion by fluorescence correlation spectroscopy. The internalization of gold nanostars is followed in Hela cells: it is possible to distinguish between passive and active transport, detect the characteristic time of diffusion processes together with the switching constant from one regime to the other. Similar results are also obtained by nanoparticles tracking analysis.

Nanoparticles can be used as contrast agents in order to measure the hemodynamics in complex vascular structures during in vivo measurements. Also in this case, fluorescence correlation methods that can give quantitative estimates of the fluxes are discussed.