NUMERICAL SIMULATIONS OF THE ELECTROMAGNETIC FIELDS' DISTRIBUTION IN DIELECTRIC MICROSPHERES WITH HIGH SIZE PARAMETER

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Abstract:
By using dielectric microspheres, it is possible to concentrate light in small volumes, often beyond the standard far-field diffraction limit.
In this seminar, the theoretical aspects of optical microscopy assisted with microsphere are investigated to determine the electromagnetic field distribution in dielectric microspheres with particular attention to the near field.
The theory of light scattering from spherical particles has been developed by Mie (1908) and recently has found a resurgent interest due to recent advances in microsphere-assisted microscopy.
Using Mie theory the near-field scattering distribution from dielectric microsphere with dimensions much larger than the wavelength (high size parameter) will be discussed from three points of views: intensity, phase and vectorial fields analysis, to give the full picture of the light behavior inside and outside the microsphere. The interesting phenomenon of the photonic nanojets will be discussed. Such study will be helpful for microsphere enhanced spectroscopy.

Webinar

Mercoledì 17 febbraio 2021, ore 17.15

Fai clic qui per partecipare alla riunione su Microsoft Teams

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