



# Σ Ε Μ Ι Ν Α Ρ Ι Ο

## Super-resolution optical microscopy: unraveling the ultra-structure and dynamics of molecular assemblies in cells

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**Abstract**

Light microscopy has played a key role in cell biology. However, much of the fundamental biology of the cell occurs at the size range of tens to few hundreds of nanometers, which is beyond the reach of conventional light microscopy, due to the optical resolution limit.

Recently new technologies have been developed that bypass this limit. They are either based on tailored illumination, nonlinear fluorophore responses or the precise localization of single molecules. The importance of these techniques for unraveling unreached up-to-now details in biology is reflected with the Chemistry Nobel price of 2014 to their inventors.

We are going to present the basic theoretical notions of these techniques, and show their wide range of applications in investigating the structure and function of cells.