

Part 1: Special Lecture Series

From single-molecule fluorescence spectroscopy to (fast) super-resolution microscopy

Super-resolution (SR) microscopy has revolutionized far-field fluorescence imaging by overcoming the diffraction limit of light. The technique relies fundamentally on the ability to detect single fluorescent molecules, and the first part will focus on achieving this, which requires carefully optimized technical and photophysical needs, including the manipulation of fluorophore behavior through photoinduced redox reactions.

The second part will focus on a novel approach using DNA origami nanoantennas to dramatically enhance fluorescence signals in single-molecule experiments. Such nanoantennas can increase the fluorescence of single molecules by an order of magnitude, which increases the time resolution and facilitates the observation of ultrafast processes such as the diffusive barrier crossing events between two potential energy minima in disordered proteins.



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Coffee break