

MIAP Workshop Series 2019



abbelight
Now, we see.

3D Single-Molecule Imaging Workshop

Objectives:

- Gain insight into theoretical and practical aspects of 3D Nanoscopy: Single Molecule Localization Microscopy (SMLM)
- Learn how to prepare a sample for successful SMLM
- Acquisition of super-resolved images
- Analysis of super-resolved images

Lighthouse Core Facility

Zentrum für Translationale Zellforschung (ZTZ)

Breisacher Straße 115, 79106 Freiburg im Breisgau

May 21st - 23rd 2019

For more information and registration:

<https://miap.eu> - info@miap.eu

Breaking the resolution limit of conventional microscopy opened the way to investigate cellular structures at the nanoscale, from individual proteins to entire organelles. Different approaches have been proposed from structured illumination microscopy (SIM) to stimulated emission depletion (STED) and single molecule localization microscopy approaches (SMLM). SMLM, such as fluorescence photoactivated localization microscopy (PALM) and stochastic optical reconstruction microscopy (STORM), can provide lateral localization precision down to 10 nm.

However, 3D multicolor nanoscopy is still a challenge and a lot of effort has been made by the nano-community to develop quantitative and reproducible 3D super-localization methods. In this context, abbelight developed a new nanoscope allowing precise isotropic 3D localization precision (15x15x15nm). Two different methods are used to obtain axial information: the supercritical angle fluorescence (SAF) and a strong astigmatism-based PSF measurement. These approaches give rise not only to images resolved at the nanoscale level in 3D, but also to the 3D coordinates of single molecules, opening up new avenues for spatial and temporal quantitative analysis.

Information: During this workshop, you will have the opportunity to:

- * attend a seminar to discover all theoretical aspects of single-molecule nanoscopy
- * bring your own samples and directly test the technology