Transnational Access at LAMBS facility

Claudio Canale[1], Paolo Bianchini[2] and Alberto Diaspro[1,2]

Department of Physics, University of Genova, via Dodecaneso 33, 16146, Genova. Italy

Department of Nanophysics, Istituto Italiano di Tecnologia, via Morego 30, 16163, Genova, Italy

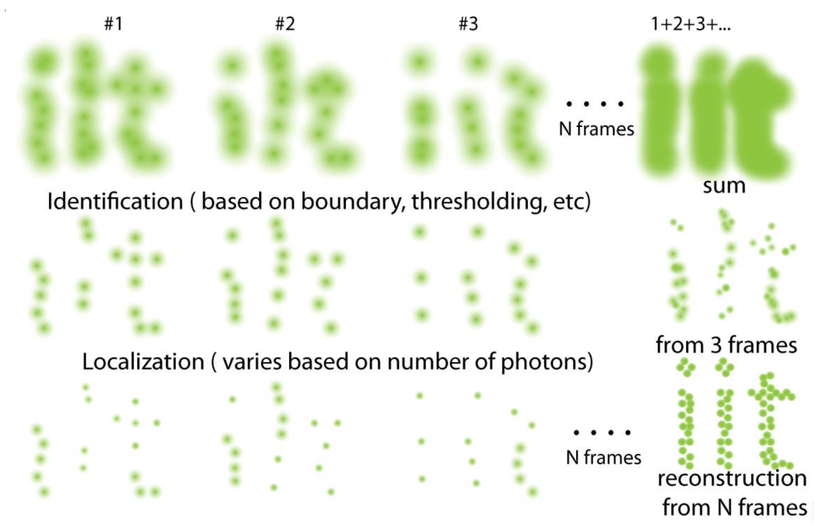
The Laboratory for Advanced Microscopy Bioimaging Spectroscopy (**LAMBS**) is located in **Genoa (Italy)** and is based on the collaboration between two institutions well consolidated in the Genoa Area: the University of Genoa and Istituto Italiano di Tecnologia (IIT).

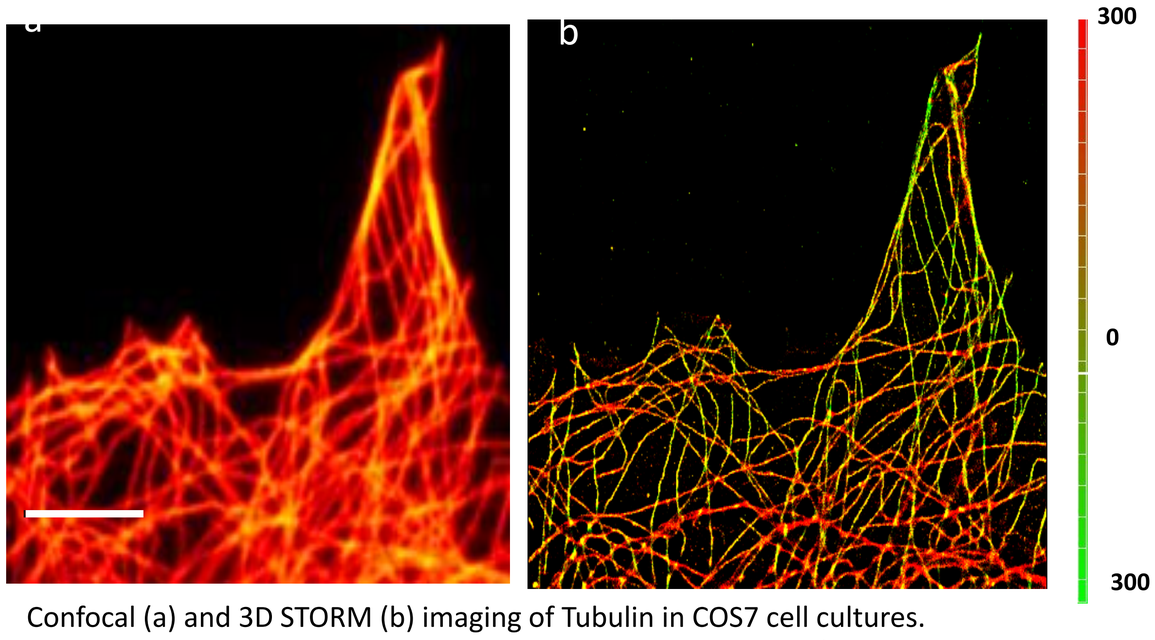
The infrastructure has two different installations: The first, DIFILAB, is a new laboratory at the Physics Department of the University of Genoa, and the second, is the Nanoscopy Lab at IIT.

We offer the opportunity to exploit our technologies and expertise in the frame of MOSBRI Transnational Access (TNA). In particular, advanced optical fluorescence techniques such as **confocal and multiphoton resonant scanner microscopy, N-STORM, N-SIM, and STED super-resolution microscopy, fast-FLIM, and custom-made IML-SPIM**. Furthermore, the LAMBS facility is equipped with advanced integrated systems for the acquisition of correlative **AFM-STED** images, and **AFM-FLIM** images.

Advanced optical techniques are available in TNA Access

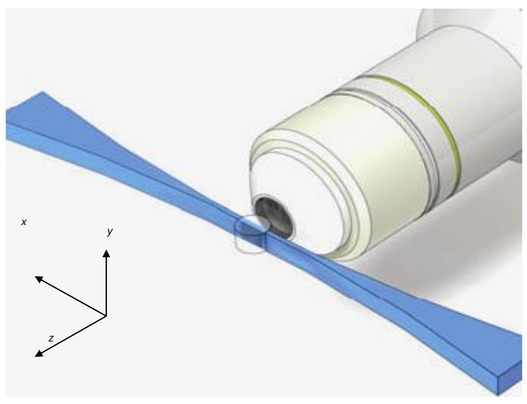
Stochastic Optical Reconstruction Microscopy (STORM)





Confocal (a) and 3D STORM (b) imaging of Tubulin in COS7 cell cultures.
α Tubulin immunostained with Alexa 647. Exposure time 10ms/frame. 15.000 frames. Scale bar 10µm.

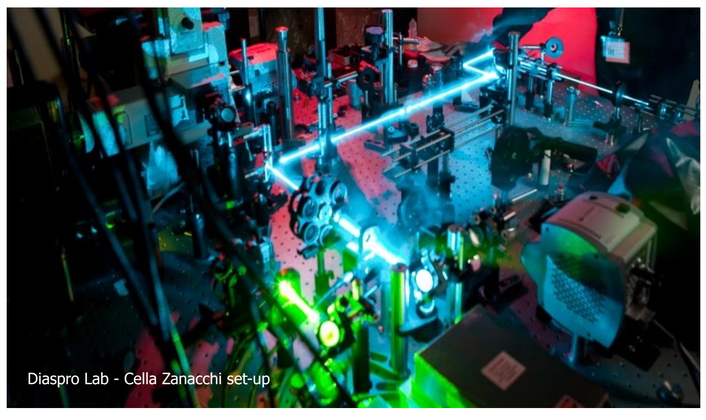
Chacko, J. V., Zanacchi, F. C. and Diaspro, A., Probing Cytoskeletal Structures by Coupling Optical Superresolution and AFM Techniques for a Correlative Approach Cytoskeleton 2013



J. Huisken, J. Swoger, F. Del Bene, J. Wittbrodt and E.H.K. Stelzer, Science 305, 1007 -1009 (2004)

Selective Plane Illumination Microscopy (SPIM)

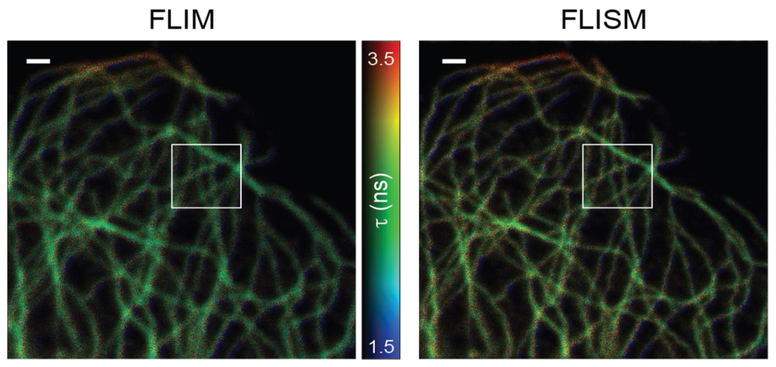
- Optical sectioning capability
- Increased depth of field
- Fast imaging speed
- High signal to noise ratio
- Low photodamage

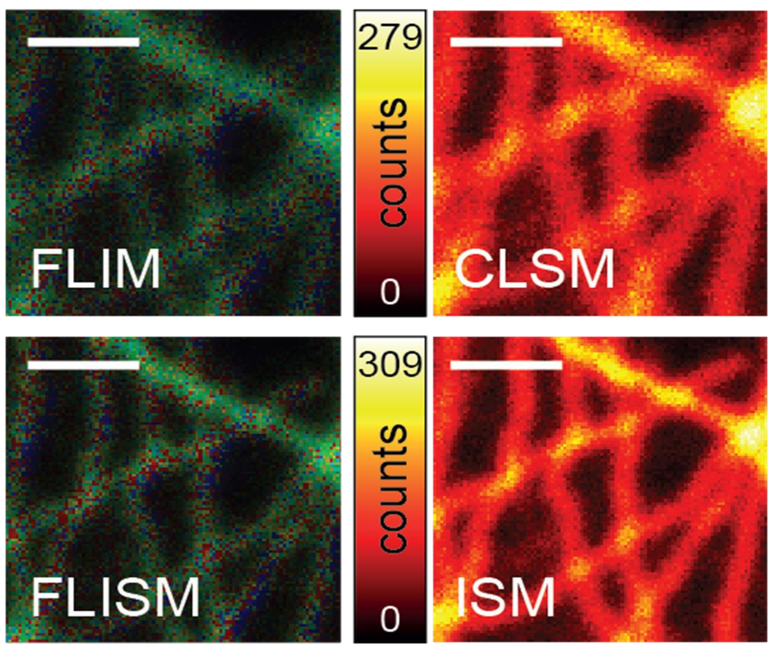


Diaspro Lab - Cella Zanacchi set-up

Lifetime analysis and ISM

the first detector array specifically designed for microscopy





Tubulin labelled with Abberior STAR red. Pixel dwell time: 100 µs. Pixel size: 30 nm. Image format 500x500 pixels. Excitation power Pexc= 500 nW. Scale bar: 1 µm

Castello, M.*, Tortarolo, G.*, . and Vicidomini, G, "A robust and versatile platform for image scanning microscopy enabling super-resolution FLIM". Nat. Methods (2019)

Visit the website www.mosbri.eu for further details.

Contacts:

claudio.canale@fisica.unige.it
paolo.bianchini@iit.it

UNIVERSITÀ DEGLI STUDI DI GENOVA

ISTITUTO ITALIANO DI TECNOLOGIA