

BIO-TALK: Investigating cellular logistics with live-cell STED super-resolution microscopy

FRANCESCA BOTTANELLI

July 04, 2023 to July 05, 2023

Mir-Puig Elements (MP202)

Abstract:

This course aims to equip attendees with the necessary skills to successfully conduct **live-cell stimulated emission depletion (STED) microscopy** experiments

It will include a comprehensive lecture that covers essential techniques for sample preparation, along with practical considerations and imaging parameters specifically tailored to live-cell STED imaging. Furthermore, a pipeline for generating CRISPR-Cas9 knock-in cell lines will be discussed, enabling participants to observe nanoscale dynamics at their endogenous expression level

In addition to the informative lectures, participants will have the opportunity to engage in two hands-on practical sessions. These sessions will take place at the SLN facility, where attendees will gain practical experience imaging both overexpressed intracellular markers and knock-in cell lines

Registration:

Participation is open to all ICFOnians

Please note that registration is required due to limited availability. If you are interested in participating, kindly fill out the registration form provided [here](#) by **June 21**

Confirmation emails will be sent to accepted applicants on May 22.

Agenda:

Tuesday, July 4: Lecture + practical session

9.30-11.00 **Live-cell STED** lecture: tips for sample preparation and practical considerations and imaging parameters for live-cell STED imaging

11.00-11.30 coffee

11.30-13.15 practical session (group 1)

13.15-14.30 lunch break

14.30-16.15 practical session (group 2)

16.15-16.45 coffee break

16.45-18.30 practical session (group 3)

Wednesday, July 5: Lecture + practical session

9.30-11.00 **CRISPR-CAS9 Knockin** lecture: pipeline for the generation of CRISPR-Cas9 knock-in cell lines to be able to follow nanoscale dynamics at endogenous expression level [

Solid background in molecular biology required for this session]

11.00-11.30 coffee break

11.30-13.15 practical session (group 1)

13.15-14.30 lunch break

14.30-16.15 practical session (group 2)

16.15-16.45 coffee break

16.45-18.30 practical session (group 3)

About the trainer:

Dr. Francesca Bottanelli is an assistant professor in the Biochemistry department at [Freie Universität](#) in Berlin. She developed a passion for imaging and cell biology during her PhD with Dr. Jürgen Denecke at the University of Leeds (UK). She then moved to the USA to carry out post-doctoral work with Dr. James Rothman and was very excited to be working on the development of super-resolution techniques (STED in particular) and their application to cell biological questions. During her post-doctoral work, she developed novel labeling strategies for multi-color live-cell STED imaging (in collaboration with Dr. Joerg Ewersdorf lab) and applied these tools to better understand how the Golgi -the main sorting station of the cell- works. In her independent position she continues to pursue both her passions (STED and

Golgi). Should you require any additional information regarding the course content, please do not hesitate to contact **Dr. Felix Campelo** (felix.campelo@icfo.eu) from [Single Molecule Biophotonics](#) research group, who is the scientific organizer of the course.

Hosted by: Academic Affairs