

Programme

Tuesday 24th of November

Morning Lectures (AREA Science Park, Auditorium)

8:00	*Bus departure from the city center*
8:30	Registration
9:00-9:15	Welcome and Intro to the Course (**Luca Braga,** ICGEB, Italy)
9:15-9:55	Basic Principle of Fluorescence Microscopy (**Gabriele Baj**, UniTs, Italy)
9:55-10:30	Multiplexing in Fluorescent Microscopy (**Andrea Colliva**, ICGEB, Italy)
10.30-11.00	*Coffee Break*
11:00-11:35	Basics of Sample Preparation (**Tea Carletti**, ICGEB, Italy)
11:35-12:10	Confocal Laser Scanning Microscopy and Advanced 3D Techniques (**Alessandro Cometta**, Zeiss)
12:10-12:45	Light Sheet Microscopy (**Juergen Mayer**, Bruker)
12:45-13:00	Wrap-up

13:00-14:00 Lunch Break (AREA Cafeteria)

Practical Session Station #1: Confocal Microscopy

14:00-15:50 Group A
16:00-17:50 Group B

Practical Session Station #2: High-Throughput Screening

14:00-15:50 Group C
16:00-17:50 Group D

Practical Session Station #3: Light Sheet Microscopy

14:00-15:50 Group D
16:00-17:50 Group C

Practical Session Station #4: Live Cell Imaging

14:00-15:50 Group B
16:00-17:50 Group A

18:00 Bus departure to the city center

Wednesday 25th of November

Morning Lectures (Seminar Room 'W' building)

8:30	*Bus departure from the city center*
9:00-9:35	Magnification and Order of Magnitude in HCS: When Less is More (**Laurianne Davignon,** Revvity)
9:35-10:10	Breaking the Spectral Ceiling: Expanding New Dimensions in Spatial Biology Through Highly Multiplexed Fluorescence Imaging (**Sarit Agasti,** JNCASR, India)
10:10-10:45	Fluorescence Imaging to Study Innate Immunity and Mtb Biology (**Dhiraj Kumar,** ICGEB, India)
10.45-11.15	*Coffee Break*
11:15-11:50	Multiscale Imaging of Viral Infection: Correlative and Advanced Microscopy at the Virus–Host Interface (**Mirko Cortese,** TIGEM, Italy)
11:50-12:25	Intravital Microscopy of Peritoneal Macrophages in Live Mice (**Tea Kocijan,** ETH, Switzerland)
12:25-13:00	Optical and Computational Challenges in Large-Scale, High-Resolution Light-Sheet Microscopy (**Ludovico Silvestri,** LENS, UniFi, Italy)

13:00 Group Photo

13:00-14:00 Lunch Break (AREA Cafeteria)

Practical Session Station #1: Confocal Microscopy

14:00-15:50 Group C
16:00-17:50 Group D

Practical Session Station #2: High-Throughput Screening

14:00-15:50 Group A
16:00-17:50 Group B

Practical Session Station #3: Light Sheet Microscopy

14:00-15:50 Group B
16:00-17:50 Group A

Practical Session Station #4: Live Cell Imaging

14:00-15:50 Group D
16:00-17:50 Group C

18:00 Bus departure to the city center

19.00 Get-together at Caffè San Marco

Thursday 26th of November

Morning Lectures (Seminar Room 'W' building)

8:30	*Bus departure from the city center*
9:00-9:30	Single Molecule Imaging and Single Molecule Tracking (**Davide Mazza,** UniSR, Italy)
9:30-10:00	Nuclear Fluorescence Exclusion Microscopy (**Paolo Maiuri,** UniNa, Italy)
10:00-10:35	Life Beyond the Pixels: Single-Cell Analysis Using Deep Learning and Image Analysis Methods (**Peter Horvath,** Biological Research Centre, Hungary)
10.35-11.00	*Coffee Break*
11:00-11:40	AI-Image Segmentation with Ilastik (**Dominik Kutra,** EMBL, Germany)
11:40-12:15	Illuminating a Cure: Phenotypic High-Content Imaging and Drug/siRNA screening to Tackle Batten Disease (**Diego Medina,** TIGEM, Italy)
12:15-12:50	High Multiplexed- Cell Painting for HCS Applications (**Luca Braga,** ICGEB, Italy)
12:50-13:00	Final Wrap-Up

13:00-14:00 Lunch Break and bus transportation to UniTs - CIMA

Practical Session Station #5: CIMA 1 Elyra7

14:00-15:00 Group A
15:00-16:00 Group B
16:00-17:00 Group C
17:00-18:00 Group D

Practical Session Station #6: CIMA 2 Multifoton

14:00-15:00 Group B
15:00-16:00 Group A
16:00-17:00 Group D
17:00-18:00 Group C

Practical Session Station #7: Image Analysis

14:00-16:00 Group D + Group C
16:00-18:00 Group A + Group B

18:20 Bus departure to the city center

Practical sessions

Participants will be divided in groups of maximum 10 members who will rotate between the practical stations.

Station #1 (ICGEB – Room T44, Basement, 'W' building):

Confocal Microscopy – Zeiss LSM880 with Airyscan module
Alessandro Cometta *(Zeiss)*

Station #2 (ICGEB – Seminar Room, Ground Floor, 'W' building):

High-Throughput Screening – PerkinElmer Operetta high-content screening
Laurenne Davignon *(Revvity) and* ***Luca Braga*** *(ICGEB, Italy)*

Station #3 (ICGEB – Foyer, Ground Floor, 'W' building):

Light-Sheet Microscopy - LCS SPIM
Juergen Mayer *(Bruker)*

Station #4 (ICGEB - Room T45, Basement, 'W' building):

Live Cell Imaging – Nikon Eclipse Ti Inverted Microscope with Okolab stage incubator
Nezka Kavcic *and* ***Andrea Colliva*** *(ICGEB, Italy)*

Station #5 (CIMA, UniTS):

CIMA1 – Super Resolution Microscope SIM ELYRA 7 Zeiss
Gabriele Baj *(UniTs, Italy)*

Station #6 (CIMA, UniTS):

CIMA2– Multifoton Microscope A1R+ MP Nikon
Andrea Colliva *(ICGEB, Italy)*

Station #7 (CIMA, UniTS):

Image Analysis
Davide Mazza *(UniSR, Italy),* ***Paolo Maiuri*** *(UniNa, Italy) and* ***Dominik Kutra*** *(EMBL, Germany)*

In collaboration with: