



Innovative
Training
Network



Basic concepts on imaging tools and data analysis

[Syn2Psy](#) Network School I

Date: Monday, September 30 - Friday, October 4, 2019

Location: CNC-Center for Neuroscience and Cell Biology, University of Coimbra, Portugal

Organizers: Luísa Cortes – CNC, PT; Monika Marx – ZEISS, DE

Aims: This course goals are to expose the students to state-of-the-art techniques in Microscopy (multiphoton imaging, high speed imaging, optical sectioning, live-cell imaging, super-resolution microscopy, electron microscopy). The course combines talks by researchers who are experts in the imaging techniques presented, with hands-on sessions in microscopy and image analysis. The students will learn to integrate the different techniques available with their applications.

Day 1 - Monday, September 30

- 09:30 Welcome
- 10:00 **Fluorescence Microscopy - Basic Concepts**
Luisa Cortes - CNC, University of Coimbra, Portugal
- 11:00 Coffee Break
- 11:30 **Optical Sectioning Microscopy**
Soren Prag - Carl Zeiss Microscopy, Jena, Germany
- 12:30 Lunch
- 14:00 **Live cell Imaging: F-techniques**
José Rino - IMM, Faculty of Medicine, University of Lisbon, Portugal
- 15:00 Coffee Break
- 15:30 **Introduction to Super-resolution Microscopy**
Monika Marx - Carl Zeiss Microscopy, Jena, Germany
- 16:30 Network School Photo
- 17:30 End

Day 2 - Tuesday, October 1

- 09:00 **Multiphoton Microscopy**
Monika Marx
- 10:00 Coffee Break
- 10:30 **MICROSCOPY HANDS-ON**
LSM900
- 12:30 Lunch
- 13:30 **High speed imaging**
Soren Prag
- 14:30 **MICROSCOPY HANDS-ON**
LSM710 NLO
- 16:30 Coffee Break
- 17:00 **MICROSCOPY HANDS-ON**
Cell Observer SD
- 19:00 End

Day 3 - Wednesday, October 2

- 09:00 **Introduction to Image analysis with FIJI**
José Rino & Luisa Cortes
- 10:00 Coffee Break
- 10:30 **MICROSCOPY HANDS- ON**
Imager Z2
- 12:30 Lunch
- 13:30 **Macro Design in FIJI**
Jorge Valero - Achucarro Basque Center for Neuroscience, Leioa, Spain
- 15:00 Coffee Break
- 15:30 **Dendritic Spine Dynamics**
Ana Luisa Carvalho & Ângela Inácio - Department of Life Sciences and CNC,
University of Coimbra, Portugal
- 16:30 **IMAGE ANALYSIS HANDS-ON**
An overview of Fiji software
- 18:30 End

Day 4 - Thursday, October 3

- 09:00 **Deconvolution**
Telmo Pereira - CEDOC, Universidade Nova de Lisboa, Portugal
- 10:00 Coffee Break
- 10:30 **IMAGE ANALYSIS HANDS-ON**
Deconvolution using Huygens Software
- 12:30 Lunch
- 14:00 **IMAGE ANALYSIS HANDS-ON**
FRAP analysis in Fiji
- 16:00 Coffee Break
- 16:30 **IMAGE ANALYSIS HANDS-ON**
Macro design in Fiji
- 18:30 End

Day 5 - Friday, October 4

- 09:30 **How to write a great research paper, and get it accepted by a good journal - tutorial**
Anthony Newman - Life Sciences Department, Elsevier, Amsterdam, Netherlands
- 12:00 Lunch
- 13.30 **CNC Seminar: Receptor dynamics and nano-organization: new facets of NMDAR functions**
Joana Ferreira - IINS, University of Bordeaux, France
- 14.30 **Electron Microscopy in Biomedicine**
Mónica Zuzarte - iCBR, Faculty of Medicine, University of Coimbra, Portugal
- 15:30 **IMAGE ANALYSIS HANDS-ON**
Image analysis with Imaris software
- 17:30 Evaluation
- 18:00 Final remarks

Program Table

	Monday 30/09	Tuesday 01/10	Wednesday 02/10	Thursday 03/10	Friday 04/10
09:00	Welcome	TALK 5	TALK 7	TALK 10	How to write a great research paper - tutorial
10:00	TALK 1	CB	CB	CB	
11:00	CB	MICROSCOPY HANDS-ON	MICROSCOPY HANDS-ON	IMAGE ANALYSIS HANDS-ON	
12:00	TALK 2				Lunch
13:00	Lunch	Lunch	Lunch	Lunch	Lunch
14:00	TALK 3	TALK 6	TALK 8	IMAGE ANALYSIS HANDS-ON	CNC SEMINAR
15:00	CB	MICROSCOPY HANDS-ON	CB		TALK 11
16:00	TALK 4		TALK 9	CB	IMAGE ANALYSIS HANDS-ON
17:00	Network School Photo	CB	IMAGE ANALYSIS HANDS-ON	IMAGE ANALYSIS HANDS-ON	Evaluation
18:00		MICROSCOPY HANDS-ON			Final remarks