Laboratory of Electron Microscopy
University of Turku, Finland

Faculty of Medicine Postgraduate Education Unit (PGE)

University of Turku, Turku, Finland

A POSTGRADUATE COURSE, Autumn 2017:

PRINCIPLES AND USE OF LIGHT MICROSCOPES

ORGANIZER AND LECTURER: Professor Lauri J. Pelliniemi, Laboratory of Electron Microscopy, lauri.pelliniemi@utu.fi, tel. 045-2302245

DATE AND TIME: September-December

REGISTRATION: Required; Participants are accepted in the order of registration before the 22nd of September 2017 to Anne Johansson (phone 8421), Lääketieteellinen tiedekunta, Medisiina, Kiinamyllynkatu 10, 20520 Turku. E-mail: amjohan@utu.fi

LANGUAGE: English

PLACE: Entrance: Medisiina, B127 1st floor, Kiinamyllynkatu 10, 20520 Turku

TARGET GROUPS:
- Graduate students
- Postdoctoral fellows
- Other interested persons

COURSE CONTENT: The aim is to give you the knowledge and skills required for proper use of light microscopes for research. You will learn relevant basics of optics and to use and adjust the microscope for visual observation and photography in ordinary, dark field, phase contrast, differential interference contrast, and fluorescence microscopies. Introduction is given to confocal, two photon, STED, STORM, PALM, CARS, and SSIM techniques. Other advanced light, scanning probe or electron microscopy techniques are included on demand basis.

BACKGROUND: http://www.light2015.org/Home/ScienceStories/Discoverers-of-Light--.html

VOLUME: 16 hours lectures and practicals

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PLACE: Kiinamyllynkatu 10, 20520 Turku

TIME: Tuesdays at 10.15---11.45

Program

26.09.2017	1. Introduction to the program and the laboratory, tailoring of the program
03.10.2017	2. Basic Concepts in Light Microscopy
17.10.2017	3. Optimal adjustment of light path: Köhler illumination (includes hands-on practice)
24.10.2017	4. Darkfield Microscopy Phase Contrast Microscopy Differential Interference Contrast Microscopy Fluorescence Microscopy
31.10.2017	5. Laser Scanning Confocal Microscopy Two photon Excitation Laser Scanning Microscopy Second Harmonic Microscopy Stimulated emission depletion microscopy (STED) Stochastic optical reconstruction microscopy (STORM) Photoactivated localization microscopy (PALM) Coherent anti-Stokes Raman scattering (CARS) microscopy Saturated structured illumination microscopy (SSIM)
07.11.2017	6. Image recording and processing. - Image recording and publication
14.11.2017	7. Correlation of light microscopy with electron microscopy
21.11..2017	8. Interpretation of image and occupational safety in microscopies. Tour in the microscopy facilities in the Laboratory of Electron Microscopy
28.11.2017	Optional day