LIGHT MICROSCOPY
Winter Semester 2018/19

October 15, 2018

Lectures

Monday, 08:15-9:45:30, SR 2, ACP

Lecturer
Prof. Dr. Rainer Heintzmann
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Seminars

Monday, 10:00-11:30, every 2 weeks, SR 2, ACP
bi-weekly

Teacher
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Preparation

1. Seminar exercises sheets are distributed every odd Monday after the lecture.
2. Just the solutions handled on Monday will be considered.
3. The solutions must be unique for each student. If two or more solutions are the same this will be considered as plagiarism. All students involved in the situation will fail the entire exercise of this week.

Presentation

1. The solutions must be returned every even Monday before the lecture starts.
2. Each student should be able to explain their proposed solution and encouraged to present it in the blackboard during the seminars.

Qualification and quantification

1. The points correspondent to each question will be assigned by the following rule:

   $\ominus$, if the student does not full fill the presentation requirements.

   $\odot$, if the student partially full fills the presentation requirements.

   $\oplus$, if the student completely full fills the presentation requirements.

2. The exercise sheet final mark is the summation of all the acquired points.
3. A minimum number of five $\oplus$ must be accumulated during all seminars in order to be admitted for the final exam. Notice that each $\ominus$ cancels a $\oplus$.

Schedule

Date	Lecture	Seminar
15.10.2018	1. Introduction- Understanding the Nature of a light-wave.	No seminar
22.10.2018	2. Short Introduction to Fourier Optics	Homework 1 assignment: Fourier Transform
29.10.2018	3. Light in free space and at an interface.	Seminar 1 (Rainer).
05.11.2018	4. Lenses	Homework 2 assignment: Lens as a Fourier Transformer, Abbe Sine and Herschel conditions and Aberrations.
12.11.2018	5. Scattering	Seminar 2
19.11.2018	5. Scattering	Homework 3 assignment: Abbe Limit and Born's approximation.
26.11.2018	6. Sampling	Seminar 3.
03.12.2018	7. Coherent imaging	Homework 4 assignment: Sampling and Coherent imaging.
10.12.2018	7. Coherent imaging	Seminar 4
17.12.2018	8. Truly incoherent linear imaging	Homework 5 assignment: Transfer functions of Fluorescent microscopes and Wide Field paraxial OTF.
24.12.2018	Lecture-free period	
31.12.2018	Lecture-free period	
07.01.2018	Continuation of 8. Truly incoherent linear imaging	Seminar 5.
14.01.2018	9. Advanced imaging techniques.	Homework 6 assignment (Re-capitulation).
21.01.2018	10. Recapitulation	Seminar 6
28.01.2018	EXAM?	
04.02.2018	EXAM?	

All lecture scripts and additional material will be posted at:
https://nanoimaging.de/teaching/current-semester/