

Laser Spectroscopy - physics635

Degree - M.Sc. in Physics (PO von 2006)

<i>Module</i>	Specialization II
<i>Module No.</i>	physics630

<i>Course</i>	Laser Spectroscopy
<i>Course No.</i>	physics635

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	3+1	6	ST

Requirements:

Preparation:

Form of Testing and Examination: Requirements for the examination (written): successful work with the exercises

Length of Course: 1 semester

Aims of the Course: Make the students understand the principles of spectroscopy and enable them to practically apply their knowledge in research and development.

Contents of the Course:

Spectroscopy phenomena - time and frequency domain;

high resolution spectroscopy;

pulsed spectroscopy; frequency combs;

coherent spectroscopy; nonlinear spectroscopy: Saturation, Raman spectroscopy, Ramsey spectroscopy.

Single molecule spectroscopy; spectroscopy at interfaces & surfaces

Advanced optical imaging;

spectroscopy of cold atoms;

atomic clocks; atom interferometry

Recommended Literature:

W. Demtröder; Laser spectroscopy (Springer 2002)

S. Svanberg; Atomic and molecular spectroscopy basic aspects and practical applications (Springer 2001)

A. Corney; Atomic and laser spectroscopy (Clarendon Press 1988)

N. B. Colthup, L. H. Daly, S. E. Wiberley; Introduction to infrared and Raman spectroscopy (Academic Press 1990)

P. Hannaford; Femtosecond laser spectroscopy (Springer New York 2005)

C. Rulliere; Femtosecond laser pulses: principles and experiments (Springer Berlin 1998)

