

The Physics of Low-Dimensional Structures and Quantum Devices (FFF042)

The course is organised as five weeks of lectures, exercises and laboratory exercises followed by one-two weeks of project work. The examination consists of the laboratory exercises, the project work and a written exam.

Lectures and exercises

The lectures are concentrated to the first five weeks (see schedule) and they will be given by Mats-Erik Pistol and Martin Leijnse. There will be exercises (övningar) every week that complement and illustrate the material covered in the lectures. The first four lectures will be by Mats-Erik followed by about six lectures by Martin and the final lectures by Mats-Erik.

Laboratory exercises

There are two compulsory laboratory exercises (about four hours each) which should result in individually written reports that will be graded. There is also a compulsory computer exercise, Friday 14/11 at 13.15.

Project

The last 1.5 weeks of the course will be devoted to research projects performed within a research group at Solid State Physics. Most projects will involve two days of lab work starting in the beginning of week 49-50. The result of the projects should be presented in written reports as well as at a symposium on Thursday, December 18. The project work will be graded.

Written exam

The written exam will be on Friday, January 16 from 08.00-13.00. The exam will include questions of both descriptive and problem solving character. Allowed tools at the exam are a calculator, the course book (Davies) and the handout on transport through quantum dots.

Grades

The course will be graded with U (fail), 3, 4 and 5. The final grading is a weighted average of the grades of the written exam (50% weight), the laboratory reports (25%) and the project work (25%). To pass the course, all three parts have to have grade 3 or greater.

Literature

John H. Davies, The Physics of Low-dimensional Semiconductors : An Introduction (Cambridge University Press, 1997) ISBN: 052148491X
Complementary material.

Contact

Further information can be found on course webpage at: <http://goo.gl/j1go8> which also contains a link to the schedule.

You should consult the webpage quite regularly since we will often communicate with the students through the webpage.

Course coordinators are Mats-Erik Pistol, room Q144 and Martin Leijnse, room C265
The email addresses are of the form Firstname.Lastname@ftf.lth.se