

Module: Base Module Laboratory Course

Module No.: physics600

Course:  universität**bonn**

Advanced Laboratory Course

Course No.: physics601

| Category | Type | Language | Teaching hours | CP | Semester |
|----------|------------|----------|----------------|----|----------|
| Required | Laboratory | English | 3+2 | 7 | WT |

Requirements:

Requirement for experiment 12 is astro800 Introduction to Astrophysics or an equivalent basic knowledge in astrophysics.

Preparation:

Recommended for experiments 13/14 is lecture astro841 Radio Astronomy: Tools, Applications, Impacts

Form of Testing and Examination:

Experiments are selected from the catalogue of laboratory set-ups offered. 10 cumulative lab-units (LU) are required. One of the experiments 1-3 is compulsory for physics students. The experiments 12-14 are compulsory for astrophysics students. Requirements for the module examination (written report for every laboratory): successful completion of the experiment and initial oral questioning

Length of Course:

1 semester

Aims of the Course:

The student shall gain insight in the intricate workings of physics in relevant advanced experiments. The student gains experience in the setting up of a proper experimental environment and experiences the intricacies of forefront experimental research

Contents of the Course:

Advanced experiments are carried out. Experimenting time in units of 8 hrs, preparation time and report writing each ~15 hrs. Further details are listed in the catalogue of laboratories. The experiments are chosen among those being offered and after consultation with the head of the course.

Recommended Literature:

Hand outs and literature will be distributed with the registration for an experiment

Catalogue of laboratories related to physics601: (The catalogue of experiments is subject to change)

1. Properties of Elementary Particles (Bubble Chamber events): 3 LU
2. Analysis of Decays of Heavy Vector Boson Z0: 3 LU
3. Atlas: 3 LU
4. Holography: 2 LU
5. Photovoltaic and Fuel Cell: 2 LU
6. Optical frequency doubling: 2 LU
7. Laser Spectroscopy: 2 LU
8. Photonic Crystals: 2 LU
9. Mößbauer-Effect: 1 LU
10. Nuclear Gamma-Gamma Angular Correlations: 1 LU
11. Beta+-Annihilation: 1 LU
12. Optical Astronomy: 3 LU
13. Wave propagation on coaxial cables and waveguides / Setup of a radio-astronomical receiver: 2 LU
14. Radioastronomical interferometry: 1 LU