Experimental Physics - physics710

Module No.	physics710
Category	Elective
Credit Points (CP)	
Semester	8.

Module: Experimental Physics

Module Elements:

Nr	Course	Course No.	CP	Artkurz	Teaching hours	Semester
1	Groundbreaking experiments in nuclear physics (E)	ExpNuclPhys	3	Lecture	2	ST
2	Particle physics (E)	Particles	4	Lecture	3	ST
3	Physics of Detectors (E/A)	Detectors	4	Lecture	3	ST
4	Nuclear physics II (E)	Nucl. physics II	5	Lecture	3	WT
5	Optical Spectroscopy (E/A)	Optical Spectr.	3	Lecture	2	WT/ST
6	Introduction to neutron scattering (E/A)	Neutron Scatt.	3	Lecture	2	ST
7	Physics of Surfaces and Nanostructures (E/A)	Surfaces	3	Lecture	2	WT
8	Experimental methods in condensed matter physics (E/A)	Meth CondMatt	3	Lecture	2	WT
9	Magnetism (E/A)	Magnetism	3	Lecture	2	WT
10	Superconductivity (E/A)	Supercond	3	Lecture	2	ST
11	Semiconductor Physics and Nanoscience (E/A)	Semicond. Phys.	3	Lecture	2	ST
12	Condensed Matter Physics II (E)	CondMatter II	4	Lecture	3	ST
13	Fundamentals of Molecular Symmetry (E/A/T)	FundMolSym	4	Lecture	2	ST
14	Astrochemistry (E/A)	Astrochemistry	4	Lecture	2	ST
15	Selected 700-courses from catalogue type "E" (Experimental) or "E/A" (E/Applied)	see catalogue	3-6	see catalogue		ST/WT
16	Modern Spectroscopy (E/A)	physics741	4		2+1	WT/ST
17	Ultracold Atomic Gases (E/T)	physics742	6	Lect. + ex.	3+1	WT
18	Advanced Gaseous Detectors - Theory and Practice (E)	physics722	6		3+1	ST
19	Also possible classes from M.Sc. in Astrophysics					
20	Particle Astrophysics and Cosmology (E)	physics711	6	Lect. + ex.	3+1	WT
21	Advanced Electronics and Signal Processing (E/A)	physics712	6	Lect. + ex.	3+1	ST
22	Particle Detectors and Instrumentation (E/A)	physics713	6	Lect. + lab.	3+1	ST
23	Advanced Accelerator Physics (E/A)	physics714	6	Lect. + ex.	3+1	ST/WT

Nr	Course	Course No.	CP	Artkurz	Teaching hours	Semester
24	Experiments on the Structure of Hadrons (E)	physics715	4	Lect. + ex.	2+1	WT
25	Statistical Methods of Data Analysis (E)	physics716	4	Lect. + ex.	2+1	ST
26	High Energy Physics Lab (E)	physics717	4	Laboratory		WT/ST
27	Programming in Physics and Astronomy with C++ or Python (E/A)	physics718	4	Lect. + ex.	2+1	ST
28	Intensive Week: Advanced Topics in High Energy Physics (E)	physics719	4		3	WT/ST
29	Physics with Antiprotons (E)	physics720	3	Lecture	2	WT
30	Intensive Week: Advanced Topics in Hadron Physics (E)	physics721	4		3	WT/ST
31	Low Temperature Physics (E/A)	physics731	6	Lect. + ex.	3+1	WT/ST
32	Optics Lab (E/A)	physics732	4	Laboratory		WT/ST
33	Holography (E/A)	physics734	3	Lecture	2	ST
34	Laser Cooling and Matter Waves (E)	physics735	3	Lecture	2	WT/ST
35	Crystal Optics (E/A)	physics736	6	Lect. + ex.	3+1	WT
36	Intensive Week: Advanced Topics in Photonics and Quantum Optics (E)	physics737	4	Lect. + lab. + sem.	3	WT/ST
37	Lecture on Advanced Topics in Quantum Optics (E)	physics738	4	Lect. + ex.	2+1	WT/ST
38	Lecture on Advanced Topics in Photonics (E/A)	physics739	4		2+1	WT/ST
39	Hands-on Seminar: Experimental Optics and Atomic Physics (E/A)	physics740	3		2	WT/ST
40	Electronics for Physicists (E/A)	physics774	6	Lect. + ex.	3+1	ST

Requirements:

Preparation:

Content: Advanced lectures in experimental physics from the catalogue of selected courses

Aims/Skills: Preparation for Master's Thesis work; broadening of scientific knowledge

Form of Testing and Examination: If the lecture is offered with exercises: requirements for the sub-module examination (written or oral examination): successful work with exercises

Length of Module: 1 semester

Maximum Number of Participants: ca. 100

Registration Procedure: s. https://basis.uni-bonn.de u. http://bamawww.physik.uni-bonn.de

Note: Note: The students must obtain 18 CP in all out of the modules physics700, -710, -720, -730.