Elective Advanced Lectures: Theoretical Physics - physics70c

Module No.	**physics70c**
Category	Elective
Credit Points (CP)	3-7
Semester	1.-2.

Module: Elective Advanced Lectures: Theoretical Physics

Module Elements:

Nr	Course	Course No.	CP	Artkurz	Teaching hours	Semester
1	Transport in mesoscopic systems (T)	physics762	5	Lect. + ex.	2+1	WT/ST
2	Advanced Topics in Field and String Theory (T)	physics764	7	Lect. + ex.	3+2	ST
3	Advanced Topics in Quantum Field Theory (T)	physics765	7	Lect. + ex.	3+2	ST
4	Computational Methods in Condensed Matter Theory (T)	physics767	7	Lect. + ex.	3+2	WT/ST
5	Internships in the Research Groups	physics799	4	internship		WT/ST
6	General Relativity for Experimentalists (T)	physics768	7	Lect. + ex.	3+2	WT/ST
7	Lattice QCD (T)	physics769	7	Lect. + ex.	3+2	ST/WT
8	Ultracold Atomic Gases (E/T)	physics742	6	Lect. + ex.	3+1	WT
9	Advanced Quantum Field Theory (T)	physics7501	7	Lect. + ex.	3+2	WT
10	Random Walks and Diffusion (T)	physics7502	3	Lect. + ex.	1+1	ST
11	Selected Topics in Modern Condensed Matter Theory (T)	physics7503	7	Lect. + ex.	3+2	WT
12	Theory of Superconductivity and Superfluidity (T)	physics7504	5	Lect. + ex.	2+1	WT/ST
13	High performance computing: Modern computer architectures and applications in the physical science (T)	physics7505	3	Lecture	2	WT/ST
14	Quark Distributions Functions (T)	physics7506	3	Lecture	2	WT
15	Selected courses from catalogue type "T" (Theoretical)	see catalogue	5-7	see catalogue		WT/ST
16	Also possible classes from M.Sc. in Astrophysics					
17	Group Theory (T)	physics751	7	Lect. + ex.	3+2	WT
18	Superstring Theory (T)	physics752	7	Lect. + ex.	3+2	WT
19	Theoretical Particle Astrophysics (T)	physics753	7	Lect. + ex.	3+2	ST
20	General Relativity and Cosmology (T)	physics754	7	Lect. + ex.	3+2	ST

Nr	Course	Course No.	CP	Artkurz	Teaching hours	Semester
21	Quantum Field Theory (T)	physics755	7	Lect. + ex.	3+2	ST
22	Critical Phenomena (T)	physics756	7	Lect. + ex.	3+2	ST
23	Effective Field Theory (T)	physics757	7	Lect. + ex.	3+2	WT/ST
24	Quantum Chromodynamics (T)	physics758	7	Lect. + ex.	3+2	WT/ST
25	Quantum Field Theory for Condensed Matter Physics (T)	physics759	5	Lect. + ex.	2+1	WT/ST
26	Computational Physics (T)	physics760	7	Lect. + ex. + proj.	2+2+1	WT/ST
27	Supersymmetry (T)	physics761	6	Lect. + ex.	3+1	WT/ST
28	Advanced Topics in String Theory (T)	physics763	7	Lect. + ex.	3+2	ST
29	Physics of Higgs Bosons (T)	physics766	7	Lect. + ex.	3+2	WT

Requirements for Participation: none

Form of Examination: see with the course

Content: Advanced lectures in theoretical physics

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

Course achievement/Criteria for awarding cp's: see with the course

Length of Module: 1 or 2 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 student must achieve at least 18 CP out of all 4 Elective Advanced Modules