Theoretical Physics - physics730

Module No.	**physics730**
Category	Elective
Credit Points (CP)	
Semester	8.

Module: 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	Relativity and Cosmology I (T)	GR I	8	Lect. + ex.	4+2	WT
3	Relativity and Cosmology II (T)	GR II	8	Lect. + ex.	4+2	ST
4	Topology for Physicists (T)	Topology	6	Lect. + ex.	3+1	ST
5	Geometry in Physics (T)	GiP	8	Lect. + ex.	4+2	ST
6	Quantum Field Theory II (T)	QFT II	8	Lect. + ex.	4+2	ST
7	Quantum Field Theory I (T)	QFT I	8	Lect. + ex.	4+2	ST
8	Fundamentals of Molecular Symmetry (E/A/T)	FundMolSym	4	Lecture	2	ST
9	Probability theory and stochastic processes for physicists (T)	Probability	4	Lecture	3	WT
10	Nonequilibrium physics with interdisciplinary applications (T)	Nonequilibrium	4	Lect. + ex.	2+1	ST
11	Disordered systems (T)	Disorder	8	Lect. + ex.	4+2	ST
12	Statistical physics far from equilibrium (T)	StatPhysNE	8	Lect. + ex.	4+2	ST
13	Statistical physics of soft matter and biomolecules (T/A)	SoftMatter	8	Lect. + ex.	4+2	ST
14	Physical biology (T/A)	PhysBio	8	Lect. + ex.	4+2	ST
15	Selected 700-courses from catalogue type "T" (Theoretical)	see catalogue	3-7	see catalogue		ST/WT
16	Advanced Topics in Field and String Theory (T)	physics764	7	Lect. + ex.	3+2	ST
17	Advanced Topics in Quantum Field Theory (T)	physics765	7	Lect. + ex.	3+2	ST
18	Computational Methods in Condensed Matter Theory (T)	physics767	7	Lect. + ex.	3+2	WT/ST
19	General Relativity for Experimentalists (T)	physics768	7	Lect. + ex.	3+2	WT/ST
20	Lattice QCD (T)	physics769	7	Lect. + ex.	3+2	ST/WT
21	Ultracold Atomic Gases (E/T)	physics742	6	Lect. + ex.	3+1	WT
22	Random Walks and Diffusion (T)	physics7502	3	Lect. + ex.	1+1	ST

Nr	Course	Course No.	CP	Artkurz	Teaching hours	Semester
23	Selected Topics in Modern Condensed Matter Theory (T)	physics7503	7	Lect. + ex.	3+2	WT
24	Theory of Superconductivity and Superfluidity (T)	physics7504	5	Lect. + ex.	2+1	WT/ST
25	Also possible classes from M.Sc. in Astrophysics					
26	Group Theory (T)	physics751	7	Lect. + ex.	3+2	WT
27	Superstring Theory (T)	physics752	7	Lect. + ex.	3+2	WT
28	Theoretical Particle Astrophysics (T)	physics753	7	Lect. + ex.	3+2	ST
29	General Relativity and Cosmology (T)	physics754	7	Lect. + ex.	3+2	ST
30	Quantum Field Theory (T)	physics755	7	Lect. + ex.	3+2	ST
31	Critical Phenomena (T)	physics756	7	Lect. + ex.	3+2	ST
32	Effective Field Theory (T)	physics757	7	Lect. + ex.	3+2	WT/ST
33	Quantum Chromodynamics (T)	physics758	7	Lect. + ex.	3+2	WT/ST
34	Quantum Field Theory for Condensed Matter Physics (T)	physics759	5	Lect. + ex.	2+1	WT/ST
35	Computational Physics (T)	physics760	7	Lect. + ex. + proj.	2+2+1	WT/ST
36	Supersymmetry (T)	physics761	6	Lect. + ex.	3+1	WT/ST
37	Advanced Topics in String Theory (T)	physics763	7	Lect. + ex.	3+2	ST
38	Physics of Higgs Bosons (T)	physics766	7	Lect. + ex.	3+2	WT

Requirements:

Preparation:

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

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

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