

Plan d'études

Physique 2024-25

Bloc "Projets et SHS"

Cours			Master 1			Master 2			Session Examen	Examen	Crédits				
Lang.	Code	Sect.	Enseignants	Spécialisation	En	L	T	P	I	C	E	L	T	P	I
	SHS : Projet														
		SHS											Eté		3
	Projet de Physique I														
	PHYS-421	PH	Profs divers					8h					Hiv	Pendant le semestre	8
	Projet de Physique II														
	PHYS-422	PH	Profs divers										8h Eté	Pendant le semestre	8
	SHS : Introduction au projet														
		SHS											Hiv		3

Groupe II

Cours			Master 1			Master 2			Session Examen	Examen	Crédits				
Lang.	Code	Sect.	Enseignants	Spécialisation	En	L	T	P	I	C	E	L	T	P	I
	Travail de spécialisation pour master en physique														
	PHYS-597	PH	Profs divers					680h					680h Eté Hiv	Pendant le semestre	30

Options SPH

Cours			Master 1			Master 2			Session Examen	Examen	Crédits				
Lang.	Code	Sect.	Enseignants	Spécialisation	En	L	T	P	I	C	E	L	T	P	I
	Astrophysics II : interactions radiation-matter														
E	PHYS-472	PH			2h	2h							Hiv	Ecrit	4
	Astrophysics III : galaxy formation and evolution														
E	PHYS-465	PH	Hirschmann		2h	2h							Hiv	Oral	4
	Astrophysics IV : stellar and galactic dynamics														
E	PHYS-401	PH	Revaz					2h	2h				Eté	Oral	4
	Astrophysics V : observational cosmology														
E	PHYS-402	PH	Kneib					2h	2h				Eté	Oral	4
	Attosecond radiation sources														
E	PHYS-761	EDPY	Carbone Invited professor(s) Puppin		2h	2h							Hiv	Oral	4
	Biophysics : physics of biological systems														
E	PHYS-302	PH	Rahi		2h	2h							Hiv	Pendant le semestre	4
	Computational quantum physics														
E	PHYS-463	PH	Carleo					2h	2h				Eté	Oral	4
	Computer simulation of physical systems I														
E	PHYS-403	PH	Pasquarello		2h	2h							Hiv	Oral	4
	Electron microscopy: advanced methods														
E	MSE-450	MX	Alexander					2h	1h				Eté	Oral	3
	Experimental methods in physics														
E	PHYS-405	PH	Cantoni Dwir		2h	1h							Hiv	Oral	3
	Frontiers in nanosciences														
E	PHYS-407	PH	Pivetta Rusponi		2h	1h							Hiv	Oral	3

Fundamentals of biomedical imaging									
E	PHYS-438	PH	Gruetter		2h 2h		Eté	Ecrit	4
Interacting quantum matter									
E	PHYS-502	PH			3h 1h		Hiv	Oral	4
Introduction to astroparticle physics									
E	PHYS-439	PH	Neronov Perrina Savchenko		2h 2h		Eté	Oral	4
Introduction to particle accelerators									
E	PHYS-448	PH	Seidel		2h 2h		Hiv	Ecrit	4
Lasers: theory and modern applications									
E	MICRO-422	MT	Kippenberg Moser		3h 1h		Hiv	Ecrit	4
Machine learning for physicists									
E	PHYS-467	PH	Zdeborová		2h 2h	1h	Hiv	Ecrit	6
Magnetism in materials									
E	PHYS-491	PH	Zivkovic		2h 2h		Eté	Oral	4
Mathematical aspects of quantum physics									
E	PHYS-469	PH	Bossoney		2h 2h		Hiv	Oral	4
Microwave engineering in physics									
E	QUANT-410	SIQ	Manucharyan		2h 1h	1h	Eté	Oral	4
Modeling and design of experiments									
E	PHYS-442	PH	Fuerbringer		2h 1h	1h	Hiv	Oral	4
MRI Practicals on CIBM preclinical imaging systems									
E	PHYS-473	PH	Cudalbu Moldovan Lanz		2h	1h	Hiv	Pendant le 3 semestre	3
Neutron and X-ray Scattering for Quantum Materials									
E	PHYS-640	EDPY	Fogh Rønnow Schmitt		2h 2h		Hiv	Oral	4
Nonlinear dynamics, chaos and complex systems									
E	PHYS-460	PH	Février		3h 2h		Eté	Oral	6
Nonlinear optics for quantum technologies									
E	PHYS-470	PH	Galland		2h 2h		Eté	Ecrit	4
Nuclear fusion and plasma physics									
E	PHYS-445	PH	Fasoli		2h 2h		Hiv	Oral	4
Nuclear interaction : from reactors to stars									
E	PHYS-461	PH	Rochman		2h 2h		Hiv	Ecrit	4
Particle detection									
E	PHYS-440	PH	Haefeli		2h 2h		Hiv	Pendant le 4 semestre	4
Particle physics: the flavour frontiers									
E	PHYS-471	PH	Marchevski		2h 2h		Eté	Oral	4
Particle physics I									
E	PHYS-415	PH	Marchevski		2h 2h		Hiv	Oral	4
Particle physics II									
E	PHYS-416	PH	Shchutska		2h 2h		Eté	Oral	4
Physics of life									
E	PHYS-468	PH	Stahlberg		2h 2h		Eté	Ecrit	4
Physics of materials									
E	PHYS-307	PH	La Grange		2h 2h		Hiv	Oral	4
Physics of photonic semiconductor devices									
E	PHYS-434	PH	Butté		2h 2h		Eté	Ecrit	4
Plasma I									
E	PHYS-423	PH	Theiler		2h 3h		Hiv	Oral	6
Plasma II									
E	PHYS-424	PH	Reimerdes		2h 2h		Eté	Oral	6

E	Quantum computing									
	PHYS-541	PH	Savona	3h 2h		Hiv	Oral	6		
E	Quantum electrodynamics and quantum optics									
	PHYS-453	PH	Kippenberg	2h 2h		Hiv	Ecrit	6		
E	Quantum field theory I									
	PHYS-431	PH	Rattazzi	3h 2h		Hiv	Ecrit	6		
E	Quantum field theory II									
	PHYS-432	PH	Rattazzi	3h 2h		Eté	Oral	6		
E	Quantum information theory									
	PHYS-550	PH	Holmes	2h 2h		Eté	Ecrit	4		
E	Quantum optics and quantum information									
	PHYS-454	PH	Brantut	2h 2h		Eté	Ecrit	6		
E	Quantum physics III									
	PHYS-425	PH	Yazyev	2h 3h		Hiv	Oral	6		
E	Quantum physics IV									
	PHYS-426	PH	Carleo Rossi	2h 2h		Eté	Ecrit	6		
E	Quantum transport in mesoscopic systems									
	PHYS-462	PH	Banerjee	2h 2h		Eté	Oral	4		
E	Radiation biology, protection and applications									
	PHYS-450	PH	Damet Grilj Pakari	2h 1h		Hiv	Ecrit	4		
E	Radiation detection									
	PHYS-452	PH	Lamirand	2h 1h		Hiv	Oral	4		
E	Relativity and cosmology I									
	PHYS-427	PH	Penedones	3h 2h		Hiv	Ecrit	6		
E	Relativity and cosmology II									
	PHYS-428	PH	Gorbenko	2h 2h		Eté	Ecrit	6		
E	Selected topics in nuclear and particle physics									
	PHYS-400	PH	Blanc	2h 2h		Eté	Oral	4		
E	Semiconductor physics and light-matter interaction									
	PHYS-433	PH	Butté	2h 2h		Hiv	Ecrit	4		
E	Solid state physics III									
	PHYS-419	PH	Läuchli Herzig	3h 2h		Hiv	Oral	6		
E	Solid state physics IV									
	PHYS-420	PH	Carbone Dil	2h 2h		Eté	Oral	4		
E	Solid state systems for quantum information									
	PHYS-464	PH	Scarlino	2h 2h		Eté	Oral	4		
E	Spintronics : basics and applications									
	PHYS-510	PH	Pivetta Rusponi	2h 2h		Eté	Oral	4		
E	Statistical physics III									
	PHYS-435	PH		2h 2h		Hiv	Ecrit	6		
E	Statistical physics IV									
	PHYS-436	PH	Kippenberg	2h 2h		Eté	Ecrit	6		
E	Statistical physics of biomacromolecules									
	PHYS-441	PH		2h 2h		Hiv	Oral	4		
E	Statistical physics of computation									
	PHYS-512	PH	Erba	2h 2h		Hiv	Ecrit	4		
E	Topics in biophysics and physical biology									
	PHYS-466	PH	Manley	2h 1h		Eté	Pendant le 3 semestre			

Projet de Master

Cours	PDM Automne		PDM Printemps		Session Examen	Examen	Crédits
Lang. Code	Sect.	Enseign.	Spécialis.	En L T P I	C E L T P I		
	Projet de master en physique						
	PHYS-599(b)	PH	Profs divers		900h	Eté Hiv	Oral 30