

Plan d'études - Master en physique

AN = annuel / annual, A = automne / autumn, P = printemps / spring
C = cours / course, E = exercices / exercises, L = laboratoire / laboratory, S = séminaire / seminar

MASTER Cosmologie et physique des astroparticules - Cours obligatoires MASTER Cosmology and Astroparticle Physics - Mandatory courses
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Code	COURS / COURSE	SEM	CRED
14P027 CE	CHAMPS ET PARTICULES I QUANTUM FIELD THEORY I	A	8
14P013 CE	COSMOLOGIE COSMOLOGY	P	8
14P951 L	LABORATOIRE IV AUTOMNE PHYSICS LABORATORY IV FALL	A	7.5
13P026 CE	PHYSIQUE DES ASTROPARTICULES ASTROPARTICLE PHYSICS	P	5
14P003 CE	RELATIVITE GENERALE GENERAL RELATIVITY	A	8

MASTER Physique des particules – Cours obligatoires MASTER Particle Physics - Mandatory courses
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Code	COURS / COURSE	SEM	CRED
14P027 CE	CHAMPS ET PARTICULES I QUANTUM FIELD THEORY I	A	8
14P031 C	DETECTEURS ET ACCELERATEURS DETECTORS AND ACCELERATORS	A	3.5
14P950 L	LABORATOIRE IV PHYSICS LABORATORY IV	AN	15
14P058 CE	METHODES STATISTIQUES ET NUMERIQUES STATISTICS AND NUMERICAL METHODS	A	5
14P016 CE	PHYSIQUE DES PARTICULES AVANCEE ADVANCED PARTICLE PHYSICS	P	5
14P705 S	SEMINAIRE DE PHYSIQUE DES PARTICULES PARTICLE PHYSICS SEMINAR	A P	2

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MASTER Physique des systèmes complexes – Cours obligatoires MASTER Physics of Complex Systems - Mandatory courses

Code	COURS / COURSE	SEM	CRED
14P034 CE	INTRODUCTION A LA PHYSIQUE DE LA BIOLOGIE INTRODUCTION TO THE PHYSICS OF BIOLOGY	P	5
14P950 L	LABORATOIRE IV PHYSICS LABORATORY IV	AN	15
14P063 CE	PRINCIPES DE FORMATIONS DE STRUCTURES PRINCIPLES OF PATTERN FORMATION	A	5
13P060 CE	SYSTÈMES NON-LINEAIRES NONLINEAR SYSTEMS	P	5
14P023 CE	TRANSITIONS DE PHASE PHASE TRANSITIONS	A	5

MASTER Physique théorique – Cours obligatoires MASTER Theoretical Physics - Mandatory courses

Code	COURS / COURSE	SEM	CRED
14P027 CE	CHAMPS ET PARTICULES I QUANTUM FIELD THEORY I	A	8
14P024 CE	LUMIERE ET MATIERE QUANTIQUE QUANTUM LIGHT AND MATTER	A	7
14P952 L	MODULES THEORIQUES THEORY MODULES	P	10
14P003 CE	RELATIVITE GENERALE GENERAL RELATIVITY	A	8
14P023 CE	TRANSITIONS DE PHASE PHASE TRANSITIONS	A	5

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MASTER Sciences et information quantiques – Cours obligatoires Matériaux quantiques MASTER Quantum Science and Information – Mandatory courses Quantum Matter
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Code	COURS / COURSE	SEM	CRED
14P704 S	CHAPITRES CHOISIS DE LA RECHERCHE EN SCIENCES QUANTIQUES CURRENT TOPICS IN QUANTUM SCIENCE RESEARCH	P	2
14P950 L	LABORATOIRE IV PHYSICS LABORATORY IV	AN	15
14P024 CE	LUMIERE ET MATIERE QUANTIQUE QUANTUM LIGHT AND MATTER	A	7
14P041 CE	MATERIAUX QUANTIQUES I QUANTUM MATERIALS I	A	5
14P042 CE	MATERIAUX QUANTIQUES II QUANTUM MATERIALS II	P	5
14P023 CE	TRANSITIONS DE PHASE PHASE TRANSITIONS	A	5

MASTER Sciences et information quantiques – Cours obligatoires Optique quantique MASTER Quantum Science and Information – Mandatory courses Quantum Optics

Code	COURS / COURSE	SEM	CRED
14P704 S	CHAPITRES CHOISIS DE LA RECHERCHE EN SCIENCES QUANTIQUES CURRENT TOPICS IN QUANTUM SCIENCE RESEARCH	P	2
14P018 CE	INTERACTIONS LASER-MATIERE LASER-MATTER INTERACTIONS	A	5
14P950 L	LABORATOIRE IV PHYSICS LABORATORY IV	AN	15
14P032 CE	OPTIQUE ET COMMUNICATIONS QUANTIQUES OPTICS AND QUANTUM COMMUNICATION	P	5
14P020 CE	OPTIQUE QUANTIQUE QUANTUM OPTICS	A	6
14P030 CE	THEORIE DE L'INFORMATION QUANTIQUE QUANTUM INFORMATION THEORY	A	6

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MASTER - Cours à option MASTER - Optional courses
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Code	COURS / COURSE	SEM	CRED
14P053 CE	APPLICATIONS PHYSIQUES DE L'INTELLIGENCE ARTIFICIELLE PHYSICS APPLICATIONS OF ARTIFICIAL INTELLIGENCE	P	5
14P017 CE	BIOPHOTONIQUE BIOPHOTONICS	P	5
14P008 CE	CALCUL SCIENTIFIQUE ET CONCEPTION DE LOGICIELS POUR LA PHYSIQUE SCIENTIFIC COMPUTING AND SOFTWARE DESIGN FOR PHYSICS	P	5
14P027 CE	CHAMPS ET PARTICULES I QUANTUM FIELD THEORY I	A	8
14P028 CE	CHAMPS ET PARTICULES II QUANTUM FIELD THEORY II	P	5
14E150 C	CHANGEMENT CLIMATIQUE FND CLIMATIC CHANGE	A	3.5
14P022 CE	CHAPITRES CHOISIS DE L'INFORMATION QUANTIQUE SELECTED TOPICS IN QUANTUM INFORMATION	P	5
14P029 C	CHAPITRES CHOISIS DE PHYSIQUE DES PARTICULES SELECTED TOPICS ON PARTICLE PHYSICS	P	5
14P013 CE	COSMOLOGIE COSMOLOGY	P	8
13P040 C	CRISTALLOGRAPHIE ET DIFFRACTION CRYSTALLOGRAPHY AND DIFFRACTION	A	3.5
14P031 C	DETECTEURS ET ACCELERATEURS DETECTORS AND ACCELERATORS	A	3.5
14A032 C	ETOILES ET PLANETES - UNE INTRODUCTION STAR AND PLANETS - AN INTRODUCTION	A	3.5
14A033 C	GALAXIES ET COSMOLOGIE - UNE INTRODUCTION GALAXIES AND COSMOLOGY - AN INTRODUCTION	A	3.5
14P001 CE	GRAVITE QUANTIQUE ET AdS/CFT TOPICS IN GRAVITY	P	5

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14P018 CE	INTERACTIONS LASER-MATIERE LASER-MATTER INTERACTIONS	A	5
13P007 CE	INTRODUCTION A LA NANO ELECTRONIQUE INTRODUCTION TO NANOELECTRONICS	A	5
14P034 CE	INTRODUCTION A LA PHYSIQUE DE LA BIOLOGIE INTRODUCTION TO THE PHYSICS OF BIOLOGY	P	5
13P037 CE	INTRODUCTION A LA PHYSIQUE DES MATERIAUX INTRODUCTION TO THE PHYSICS OF MATERIALS	P	5
14P006 CE	INTRODUCTION A LA PHYSIQUE STATISTIQUE HORS EQUILIBRE NON-EQUILIBRIUM STATISTICAL PHYSICS	P	8
13P065 CL	INTRODUCTION A L'ELECTRONIQUE INTRODUCTION TO ELECTRONICS	P	7
13P084 CE	LA SUPRACONDUCTIVITE ET SES APPLICATIONS SUPERCONDUCTIVITY AND ITS APPLICATIONS	A	5
14P024 CE	LUMIERE ET MATIERE QUANTIQUE QUANTUM LIGHT AND MATTER	A	7
14P041 CE	MATERIAUX QUANTIQUES I QUANTUM MATERIALS I	A	5
14P042 CE	MATERIAUX QUANTIQUES II QUANTUM MATERIALS II	P	5
14P058 CE	METHODES STATISTIQUES ET NUMERIQUES STATISTICS AND NUMERICAL METHODS	A	5
14P036 C	MISSIONS SPATIALES D'ASTROPARTICULES ASTROPARTICLE SPACE MISSIONS	A	3.5
14E082 CE	MODELISATION CLIMATIQUE AVANCEE ADVANCED CLIMATE MODELING	A	3
14X015 CE	MODELISATION ET SIMULATION DE PHENOMENES NATURELS MODELING AND SIMULATION OF NATURAL PHENOMENA	P	6
14P952 L	MODULES THEORIQUES THEORY MODULES	P	10
14P032 CE	OPTIQUE ET COMMUNICATIONS QUANTIQUES OPTICS AND QUANTUM COMMUNICATION	P	5

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14P021 CE	OPTIQUE ET LASERS OPTICS AND LASERS	A	5
14P020 CE	OPTIQUE QUANTIQUE QUANTUM OPTICS	A	6
14P035 C	OPTIQUE QUANTIQUE APPLIQUEE APPLIED QUANTUM OPTICS	AN	10
13P026 CE	PHYSIQUE DES ASTROPARTICULES ASTROPARTICLE PHYSICS	P	5
14P016 CE	PHYSIQUE DES PARTICULES AVANCEE ADVANCED PARTICLE PHYSICS	P	5
14P063 CE	PRINCIPES DE FORMATIONS DE STRUCTURES PRINCIPLES OF PATTERN FORMATION	A	5
14A030 C	PROCESSUS PHYSIQUES EN ASTROPHYSIQUE PHYSICAL PROCESSES IN ASTROPHYSICS	A	3.5
14P003 CE	RELATIVITE GENERALE GENERAL RELATIVITY	A	8
14P014 CE	RELATIVITE GENERALE AVANCEE ADVANCED GENERAL RELATIVITY	P	5
14E139 C	SCIENCES DE L'ATMOSPHERE ATMOSPHERIC SCIENCE	A	3.5
13P060 CE	SYSTÈMES NON-LINEAIRES NONLINEAR SYSTEMS	P	5
14P030 CE	THEORIE DE L'INFORMATION QUANTIQUE QUANTUM INFORMATION THEORY	A	6
14P011 CE	THEORIE DES GROUPES POUR LA PHYSIQUE GROUP THEORY FOR PHYSICS	P	7
14P023 CE	TRANSITIONS DE PHASE PHASE TRANSITIONS	A	5
14P043 CE	TRANSPORT QUANTIQUE ET ISOLANTS TOPOLOGIQUES QUANTUM TRANSPORT AND TOPOLOGICAL INSULATORS	P	7