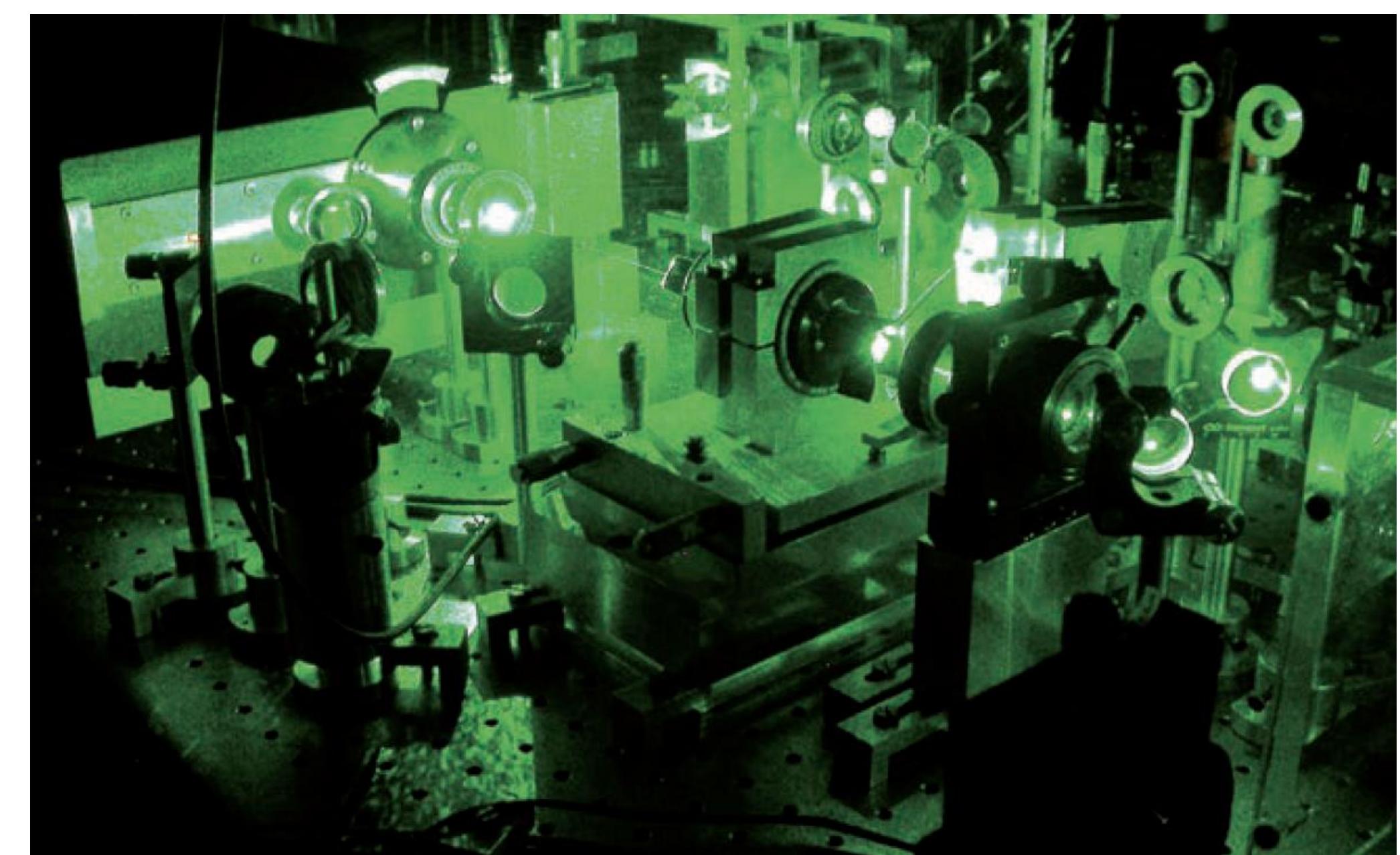


M2 International Concepts Fondamentaux de la Physique

Le programme propose une formation complète et diversifiée en physique fondamentale théorique et expérimentale. Les domaines abordés couvrent un large spectre : physique des hautes énergies, physique statistique, physique atomique, physique de la matière condensée, astrophysique et physique pour la biologie. Quatre parcours sont identifiés : **Physique de la matière condensée**, **Matière molle et biophysique**, **Physique quantique** : de l'atome à l'état solide, **Physique théorique**. Une offre large d'UE optionnelles permet une formation "à la carte". **La langue d'enseignement est l'anglais. Les cours ont lieu à Paris 5^{ème} arrondissement.**



PROGRAMME

Semestre 1				Semestre 2				
Soft matter and biological physics	Condensed matter physics	Quantum physics	Theoretical physics	Soft matter and biological physics	Condensed matter physics	Quantum physics	Theoretical physics	
Advanced Statistical physics								
Soft matter physics	Condensed matter theory				4 UEs à choisir (12 ECTS)			
Advanced Biophysics	Electrons in Solids: Fundamentals and Experiments	Statistical physics : advanced and new applications	Atoms and photons	Quantum field theory	Active matter and collective behaviour	Quantum Physics Out of Equilibrium	Active matter and collective behaviour	
Physics of fluids and non linear physics	Electronic Structure Theory	Atoms and photons	Quantum mechanics	Advanced Biophysics	Circuits and network dynamics in synthetic biology and neuroscience	Electrodynamics in Quantum Materials	Ultra cold Atoms	
Interfaces and morphogenesis		Atoms and photons	Advanced quantum mechanics	Lie groups, lie algebras and representations	Ecology, evolution and epidemiology	Localized spins in solids	Quantum Information Theory	
Advanced methods in biological physics and soft matter		Quantum condensed matter field theory	Electronic Transport and Superconductivity		Numerical methods for fluid dynamics	Quantum Physics out of equilibrium	Advanced Topics in Quantum Field Theory	
Data driven physics		Statistical field advanced and new applications			Physics of 2D Materials	Quantum metrology	Advanced topics in Markov-chain Monte Carlo	
		Light-Matter interaction in Quantum Nanostructures			Reservoir-controlled quantum materials	Waves in disordered media and localization phenomena	Complex systems	
					Topological theory in condensed matter	Quantum machines : quantum physics with electrical circuits and mechanical resonators	Conformal Field Theory	
					Confined flows and transfers in complex fluids	Quantum Optomechanics	Cosmology	
					Soft or Slender : mechanics of Nature-inspired, highly deformable bodies	Ultimate quantum conductors : Novel electronic states and transport phenomena	Differential geometry and gauge theory	
					Turbulence		History of a Dark Universe	
							Quantum field theory II	
							Statistical Physics2	
							Introduction to AdS/CFT	
							String Theory	
							Machine Learning	
General relativity								
Algorithms and Computation								
STAGE (3 mois - 18 ECTS)								

DÉBOUCHÉS

- Préparation d'une thèse de doctorat dans des laboratoires publics ou privés ou dans les grands organismes de recherche (ONERA, CEA, IRSN, etc.)

CONDITIONS D'ACCÈS

- Étudiant(e)s actuellement en Master 1 de Physique ou au niveau équivalent des grandes écoles d'ingénieurs.

PARTENAIRES

CONTACTS

