Theoretical Physics Group

_string theory_

Prof. D. Waldram (Head of Th. Phys.)
Prof. K. Stelle (QFFF Director)
Prof. J. Gauntlett
Prof. A. Hanany
Prof. C. Hull FRS
Prof. A. Tseytlin
Prof. T. Wiseman
(Prof. M. Duff FRS)

_field theory_

Dr T. Evans
Prof. A. Rajantie
(Dr H. Jones)
(Prof. R. Rivers)

_quantum gravity_

Prof. C. de Rham
Prof. F. Dowker
Prof. J. Halliwell
Dr A. Tolley
(Prof. C. Isham)

_cosmology_

Prof. J. Magueijo
Prof. C. Contaldi
Lecture Courses

**Compulsory**
- Quantum Field Theory
- Quantum Electrodynamics
- Particle Symmetries
- Unification

**Optional**
- Advanced Quantum Field Theory
- Foundations of Q.M.
- Differential Geometry
- Group Theory
- Particle Cosmology
- General Relativity
- Black Holes
- Quantum Theory of Matter
- String Theory
- Quantum Information
- Supersymmetry
- The Standard Model & Beyond

**Undergraduate** (≤ 2only)
- Advanced Quantum Field Theory
- Foundations of Q.M.
- Group Theory
- General Relativity
- Quantum Theory of Matter
- Quantum Information
1st Term

* Particle Symmetries
* QFT
* QED (cont. into 2nd term)
* Unification

New Year’s Tests: Quantum Field Theory & Particle Symmetries / Unification

2nd Term

Advanced Quantum Field Theory
Particle Cosmology
Black Holes
The Standard Model & Beyond

Foundations of Q.M.
Quantum Theory of Matter
Supersymmetry
Strings

3rd Term & Summer

Exams
Special Topics
Dissertation
Course Requirements

- for an overall pass in the MSc - Pass level: 50%
- The course is divided formally into three Elements: Compulsory & Optional courses & the Dissertation. Each Element must be passed in the aggregate at the 50% level.
- 4 Compulsory and 4 Optional course exams are needed: 8 exams in total.
- Individual course exams with marginal fails in the 40%-50% range may be averaged together with other exams in the same Element, provided the overall average for the Element is at least 50%.
- a Pass (min. 50%) is required in the Dissertation.

Recommended: 9 Exams

Decisions on Passing the MSc and the awarding of Distinction and Merit mentions is at the discretion of the final Examiners’ Meeting.
The standard Imperial College London definition of an MSc degree with Distinction sets the required performance level at 70%. The QFFF course reports final marks in this scheme, but in fact obtaining a Distinction in QFFF is intentionally harder. On a straight linear scale, the Distinction level in QFFF is more like 80%, in both written exams and in the Dissertation.

The performance level for an MSc with Merit is 60%.

More details on Distinctions and Merit degrees are given in the QFFF handbook.
After the end of the written examinations in May - June, students begin work on the final element of the QFFF course: the MSc Dissertation.

Selection of a topic and of a Dissertation supervisor is a free choice for students. Supervisors may be members of Staff, postdocs or even people from outside the Theoretical Physics Group. Supervision arrangements with people who are not Theory Group Staff must be confirmed with me.

In QFFF, arrangements for the Dissertation are a responsibility of the individual student. It is recommended to begin planning your Dissertation in advance of the summer period.
Working together

- As you get to know each other, it is natural for groups of students to form their own study associations. Learning how to work together is an important part of the culture of theoretical physics.

- All of our courses will have rapid feedback sessions. Integrating a communal work style together with the rapid feedback sessions is to be encouraged.

- Study areas (not enough, we recognise): H503, when not used for lectures, plus the Physics Common Room on level 8 in Blackett.
Seminars

- There are a large number of seminars, all of which you are welcome to attend. Most relevant, however are the Tuesday general Theory Group Seminars.

Other important points

- Deadline for QFFF registration: 30th October.
- All students must provide us with contact information and be reachable by phone or email. This is especially important for non-EU students on student visas.
- Advisors: will be assigned in the coming weeks.
- QFFF Welcome Party, Friday Oct. 12th at 5:30 PM in the Blackett Level 8 Common Room.
Some actions required

- Safety lecture at 2 PM (LT2), followed by a welcome event at 3 PM (Level 8 Blackett). If you’ve not yet been photographed, please see Graziela.

- Two on-line courses need to be completed by all MSc students, according to College requirements:
  * Safety course
  * Plagiarism course

- Once this year’s MSc class members have become acquainted with each other, we will need to have you elect a class representative. The class representative serves as a conduit between the MSc class and the staff. The representative also is invited to attend the Physics Department’s MSc committee meetings.
GSEPS Courses for Master’s students

There is a range of courses designed specifically to meet the needs of Master’s students. The GSEPS MastersClasses programme is a series of 90 minute lectures including Q&A which takes place on Wednesday lunchtimes during term time.

MastersClasses topics include:

- Note-taking & Reading Effectively
- Research Skills & Reference Management
- Reviewing the Literature
- Stress Management
- Academic Writing
- Poster Presentation Skills
- Developing your Career through Networking
- Interview Skills

As well as two 3-hour workshops:

- Interpersonal Skills
- Negotiation & Influencing Skills

For course bookings, go to: www.imperial.ac.uk/gseps