F3K209: Particles, Strings and Cosmology

Postgraduate Taught MSc 2017

Essentials

UCAS code	
Degree	MSc
Mode of study	Full Time
Duration	1 year
Start Date	02-10-2017
Location	Durham City (www.durham.ac.uk/study/location/durham.city)
Department(s) Website	www.durham.ac.uk/mathematical.sciences
Email	
maths.postgraduate@durham.ac.uk	
Telephone	+44 (0)191 334 3082

Course Summary

Description

This is a one year advanced taught course. The aim of this course is to bring students in 12 months to the frontier of elementary particle theory. This course is intended for students who have already obtained a good first degree in either physics or mathematics, including in the latter case courses in quantum mechanics and relativity.

The course consists of three modules: the first two are the Michaelmas and Epiphany graduate lecture courses, which are assessed by examinations in January and March. The third module is a dissertation on a topic of current research, prepared under the guidance of a supervisor with expertise in the area. We offer a wide variety of possible dissertation topics. The dissertation must be submitted by September 15th, the end of the twelve month course period.

Course Structure

The main group of lectures are given in the first two terms of the academic year (Michaelmas and Epiphany). This part of the lecture course is assessed by examinations. In each term there are two teaching periods of four weeks, with a week's break in the middle of the term in which students will be able to revise the material. Most courses are either eight lectures or 16 lectures in length. There are 14 lectures/week in the Michaelmas term and 14 lectures/week in Epiphany term.

Core Modules

- Introductory Field Theory
- Group Theory
- Standard Model
- General Relativity
- Quantum Electrodynamics
- Quantum Field Theory
- Conformal Field Theory
- Supersymmetry
- Anomalies
- Strong Interaction Physics
- Cosmology
- Superstrings and D-branes
- Non-Perturbative Physics
- Euclidean Field Theory
- Flavour Physics and Effective Field Theory
- Neutrinos and Astroparticle Physics
- 2d Quantum Field Theory.

Optional Modules available in previous years included:

- Differential Geometry for Physicists

- Boundaries and Defects in Integrable Field Theory
- Computing for Physicists.

For further information on this course, please visit the Centre for Particle Theory website.

Course Detail

To find out more about the modules available to students studying at Durham University in 2016 please click here (www.durham.ac.uk/resources/faculty.handbook/degrees/frameworks/f3k209.pdf).

Please note: Current modules are indicative. Information for future academic years may change, for example, due to developments in the relevant academic field, or in light of student feedback.

Admissions Process

Subject requirements, level and grade

A good second class honours degree (2.1 Honours) or international equivalent in either Physics or Mathematics.

English Language requirements

Please check requirements for your subject and level of study (www.durham.ac.uk/learningandteaching.handbook/1/3/3/)
.

How to apply

www.durham.ac.uk/postgraduate/apply

Fees and Funding

Full Time Fees

EU Student	£6,900.00 per year
Home Student	£6,900.00 per year
Island Student	£6,900.00 per year
International non-EU Student	£16,500.00 per year

Note: Fees are subject to review and change in-line with inflation.

Please also check costs for colleges and accommodation (www.durham.ac.uk/postgraduate/accommodation/costs/).

Scholarships and funding

www.durham.ac.uk/postgraduate/finance

Career Opportunities

Department of Mathematical Sciences

For further information on career options and employability, including the results of the Destination of Leavers survey, student and employer testimonials and details of work experience and study abroad opportunities, please visit our employability web pages (www.durham.ac.uk/maths/postgraduate/employability).

Open days and visits

Pre-application open day

www.durham.ac.uk/postgraduate/visit

Overseas Visit Schedule

www.durham.ac.uk/international/office/meetus

Postgraduate Visits

PGVI or
www.durham.ac.uk/postgraduate/visit/

Department Information

Department of Mathematical Sciences

Overview

The Department of Mathematical Sciences is one of the leading research units in the country, with interests in a wide range of areas in pure mathematics, applied mathematics and theoretical physics, as well as statistics and probability. The Department has excellent facilities for postgraduate studies. All research students have their own workspace with a network linked computer. We also offer many research seminar series in which students actively participate. One measure of the vibrancy of our research is the number of postgraduate students we attract.

Each year, several high-level conferences and workshops in Mathematical Sciences are held in Durham, including the London Mathematical Society (LMS) – EPSRC Durham Symposia (a prestigious series of high-quality international research conferences), and students are also given the opportunity to present their research results at conferences elsewhere. The Department is part of MAGIC, a consortium of 16 universities offering distance learning for postgraduate students via interactive access-grid technology. The Department is a member of the Academy for PhD Training in Statistics (APTS), giving postgraduate students access to high-quality training courses covering key areas of statistics and probability.

Ranking

Ranked joint 1st in the UK for Internationally Excellent and World-Leading research impact in *REF 2014*.

Staff

For a current list of staff, please see the Mathematical Sciences department web pages (www.dur.ac.uk/mathematical.sciences/staff/).

Website

www.durham.ac.uk/mathematical.sciences