DEPARTMENT OF PHYSICS & ASTRONOMY

Opportunity for 4th year MSci students

Academic Session 2017-18

1 SUMMARY & APPLICATION PROCEDURES

Applications are invited for undergraduate students who wish to be considered for an Undergraduate Research Placement on Cosmology. The main goal of the project is to develop and test improved MCMC algorithms for joint cosmological analysis of large-scale structure, CMB and supernovae data. If you wish to apply, please send a CV and cover letter justifying your interest in the position to Dr. Filipe Abdalla (fba@star.ucl.ac.uk).

Applications are welcome, but you cannot be considered for any paid employment within the Department until you have applied and been accepted. Students on Tier 4 visas are able to apply for these roles but need to be aware of the working rights attached to their visa. See http://www.ucl.ac.uk/iss/immigration-visa/tier-4-responsibilities for further information.

2 PERSON SPECIFICATION

Essential
- To have or be in the course of obtaining a 4th year MSci degree in a relevant subject area: cosmology/astrophysics/computer science/statistics.
- Demonstrated skills in scientific software development and design.
- Proficiency with the C++ programming language.
- Basic knowledge of MCMC algorithms.
- Effective written and verbal communication skills.

Desirable
- Previous knowledge of cosmological software such as CAMB/CLASS and data sets such as Planck.
- Proficiency with the Python programming language.
- Ability to analyse and write up data and to present complex information effectively to a range of audiences.
- Experience of working collaboratively in a research environment.

3 PAYMENT

Payment will be received as appropriate on an as and when basis for work carried out during the academic year, which runs from October – September. Enquiries should be directed to Ms Nadia Waller (Postgraduate & Finance Administrator, email: n.waller@ucl.ac.uk).

Starting spine point and salary: Grade 5 point 19, currently £13.97 per hour.

4 JOB DESCRIPTION

The main purpose of this role is to: implement computational improvements to a state-of-the-art MCMC method and apply it to public data sets for cosmological analysis. Implementation of Monte Carlo and Gaussian Process methods, installation and running of cosmological software and analysis of the results of statistical constraints with cosmological data are examples of the foreseen activities.

Work is expected to start at the earliest possible date, starting from February 19th. Initial duration is until the end of June, but an extension is potentially available, conditional on the status of the project at the time. Proposed work hours are 10h/week, depending on availability.