

Linear Collider Flavour Identification (LCFI) Research Studentship

Based:	Didcot	Salary:	£21,160 pro rata depending on length of internship
Start date:	March 2008	Duration:	50 weeks

The Linear Collider Flavour Identification (LCFI) Collaboration, which consists of seven European institutions, is internationally regarded as one of the leading groups in the ILC vertex community. We are conducting a comprehensive programme of research and development towards building a vertex detector at the International Linear Collider (ILC). The detector will consist of approximately 109 small (20 μm by 20 μm) pixels arranged in ultra-low mass layers and is expected to start operating in or around 2019.

LCFI is actively developing silicon pixel detectors and the associated readout electronics that meet the challenging requirements of the ILC in terms of speed, power consumption and robustness. This work has focused on column-parallel CCD technology but is now expanding to include Imaging Sensor with In-situ Storage (ISIS) designs, incorporating both CMOS and CCD concepts. These sensors must operate at speeds of up to 40 MPixels per millisecond, orders of magnitude faster than current commercial designs. LCFI is also working on the mechanical design of the vertex detector, especially the ultra-low mass detector support technology, and on physics simulations to develop analysis tools and optimise the detector performance.

Responsibilities

The successful applicant for the post will work on testing and developing new pixel detectors, as well as participating in the active LCFI physics studies programme. They will:

- Carry out laboratory testing of CPCCD and ISIS sensors and their associated readout electronics;
- Work with electronic engineers (in-house and commercial) and conduct detailed simulations to develop and optimise new sensor designs;
- Use Monte Carlo simulations of physics processes to evaluate different vertex detector options and optimise their parameters;
- Develop new algorithms and software tools that will maximise the impact of the vertex detector on the ILC research programme.

Requirements

- A passion for scientific Research & Development and a demonstrated interest in a career in this area, shown through academic studies and/or previous work experience.
- Be studying for or have attained a PhD in Particle Physics. A background in physics analysis and computing will be helpful, including familiarity with Monte Carlo techniques, event reconstruction and programming.
- A working knowledge of silicon particle detectors or similar devices.
- Knowledge of analogue and digital electronics, and experience of testing and operating complex systems are highly desirable.
- Fluent reading, written and spoken English – TOEFL minimum score of 580, IELTS – 6.5.
- Good interpersonal skills - including ability to seek advice and guidance where necessary and to work independently and as part of a team.
- Demonstrated ability to take ownership of tasks and project ensuring delivery and overcoming challenges and setbacks.
- Knowledge of Microsoft Word, Excel, and PowerPoint.

To apply for this opportunity, please contact the China Scholarship Council

www.csc.edu.cn

You will be required to complete a written application form and provide a copy of your CV in English as well as copies of your academic transcripts and TOEFL/IELTS scores.