

# **A Meeting on the National Challenge of Providing Research Opportunities for U.S. Undergraduate Students at Major Research Sites Abroad**

## **An Initial Case: Feasibility Analysis of a U.S. LHC Study Abroad Program in Geneva**

Dear Colleague,

We wish to invite you to participate in a one-day meeting focusing on the feasibility of creating a U.S. LHC Study Abroad Program in Geneva. The meeting will take place at the Center for Strategic & International Studies in Washington, DC, on Monday, June 1, 2009 from 10:00 am until 5 pm. Though the Meeting will focus on the specific case of undergraduate student research participation in the Large Hadron Collider in Geneva, the issues involved pertain much more broadly to overall U.S. national science policy, as more and more frontier research facilities are being located beyond the borders of the United States.

### **Background**

More than 1,700 physicists representing 94 U.S. universities and laboratories currently participate in the LHC experiments being commissioned at the European Laboratory for Particle Physics (CERN) in Geneva, Switzerland. When particle collisions at CERN occur at the end of this year the world of physics will enter a very exciting period of discovery. Yet, unless action is taken soon, the U.S. will miss an important opportunity offered by this extraordinary endeavour by not having provided for an adequate level of involvement of outstanding U.S. undergraduate physics students.

For the first time in decades, the primary center of high energy physics research will shift overseas, with no competitive U.S.-based facility coming on line for perhaps several decades in the future. Current U.S. lab-based initiatives offering opportunities for undergraduate students to participate in active high energy physics research will almost disappear, creating a potentially serious long-term impact on the U.S. HEP program. While these negative effects had been foreseen at the closing of the SSC, the true impact is only now approaching its full realization, as the major U.S. labs begin to ramp down their physics programs and a large fraction of the available resources are being re-directed toward the LHC in Geneva.

The current NSF-funded REU program at CERN has been highly successful, introducing young students to the excitement of LHC research and, in many cases, drawing them into high energy physics in subsequent post-graduate studies. This program, however, only provides opportunity to 15 students over the course of two months each summer, far below the needs of the 94 participating U.S. universities.

### Proposal

To explore options for addressing this issue, we are convening a one-day meeting to examine the idea of creating a U.S. supported LHC Study Abroad Program in Geneva. Such a program would be based close to CERN, and would operate year round. It would provide 40-50 outstanding undergraduate students with top-notch physics and related classes, taught by accredited faculty, on site or at a nearby facility. These students would have the rare opportunity to participate in cutting-edge research at CERN, exposing them to the people, tools and activities surrounding the LHC program, while offering them academic credit for their contributions. It is foreseen that students would participate over the course of an academic semester or year -- most likely during their Junior year -- and would receive sufficient credit to complete their academic requirements within the normal period of their college program. The program may become allied with a Geneva area university, providing an avenue for students to take credit-bearing courses that would be accepted at their home institutes.

### Meeting Goals

The primary goals of the meeting are to reaffirm the importance of the undergraduate program in high energy physics, to look back at the lessons learnt from experience with students participating in existing smaller programs, to note the various challenges and issues inherent to remote academic programs, to identify possibilities for funding and partnerships and, if there is agreement, to chart a path forward toward the creation of a final project proposal.

### Meeting Details

A detailed agenda, prepared by the organizing committee, will be distributed shortly. We expect to have representation from the US Large Hadron Collider Physics Community, the U.S. State Department, the Swiss Embassy, the Association of American Universities (AAU), various university consortia, directors of university study abroad programs, and key federal agencies and private foundations. If you personally cannot attend, we urge that you suggest a name of an individual who might attend in your stead.

We ask that you please let Ms. Beth Demkowski at [demkowsk@umich.edu](mailto:demkowsk@umich.edu) (or 734-615-5811). know by May 12, 2009 if you plan to participate.

We thank you for your attention to this request and hope you will find it possible to attend.

Sincerely,

(for the Organizing Committee)

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