

Hampton University-MIT Summer Program on the Electron-Ion Collider for Undergraduates

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In 2007, we established a program where a number (~4) undergraduates from the Hampton University Research University for Undergraduates program, funded by the US National Science Foundation, would come to the Laboratory for Nuclear Science at MIT for an extended period to work on the physics of the future Electron-Ion Collider (EIC), embraced by the U.S. nuclear science community as embodying the vision for reaching the next frontier in understanding the fundamental quark-gluon structure of matter. Our purpose in initiating this program was to expose entering physics students to the exciting physics possibilities of the future EIC and to establish a new pipeline between a diverse pool of physics talent at Hampton University and MIT.

The program operates on a two year cycle. In the first summer, each student spends eight weeks at Hampton and a week at MIT. In the second summer, the student spends the entire nine weeks at MIT. At MIT in the second summer, the students are fully integrated into MIT's Summer Research Program (MSRP). This summer we have completed the first full cycle of the program. It has worked very well. The four students who began the program in summer 2007 all elected to return in summer 2008. A new class of four students spent one week at MIT in late July 2008 and had a very positive experience.

In their first year, the students reside at Hampton campus together with other students participating in Hampton's REU program. They do their summer research at nearby Jefferson Lab, supervised by Hampton University faculty and Jefferson Lab staff. In their second year at MIT, the students stay in the dormitories and participate fully in the social activities of the MSRP program. They are supervised by MIT-LNS researchers and work with MIT graduate students. They have office space and access to MIT computing.

In summer 2007, in the inaugural year of the program, Wil Briscoe, Leigh Peterson, Lisa Barnes, and



Students participating in the 2008 HU/MIT Summer Program and other scientists during a visit to the MIT-Bates laboratory. From left to right: Ricardo Alarcon (ASU), Ben O'Neill (ASU), Richard Milner (MIT), Katie Henderson (Kansas), Eric van der Goetz (JMU), Lisa Barnes (HU), Leigh Peterson (HU), Rolf Ent (HU/JLab), Tanja Horn (JLab), Brian Pollack (CMU), Cristin Chall (Howard), David Cooper (Fisk), Douglas Hasell (MIT), Wil Briscoe (SUNO), Michael Kohl (HU).

Cristin Chall were for one week at MIT. In summer 2008, they returned and studied the resolution requirements for EIC detectors. David Cooper, Katie Henderson, Brian Pollack and Erik van der Goetz entered the program in 2008, and learned about the EIC science and project, and studied the science reach of the proposed EIC in more detail. In particular, they studied the feasibility of so-called deep exclusive reactions, which may give insight on the transverse spatial image of quarks and gluons in nucleons and nuclei.

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