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October 16, 2014


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Oct. 15, 2014

High school teachers learn to connect students with science

By Lora Hine

On a beautiful fall day, two dozen high school science teachers from across the state and beyond attended the Xraise Science Teacher Workshop, hosted at the eXploration station behind Wilson Synchrotron Laboratory.

The Sept. 27 workshop was one in a series of professional growth and development opportunities for science teachers, offered by the outreach program of the Cornell Laboratory for Accelerator-based Sciences and Education (CLASSE).

Featured talks by scientists included a keynote by Ernie Fontes, associate director of Cornell High Energy Synchrotron Source (CHESS) who, in addition to describing cutting-edge research and engineering taking place at Cornell, asked teachers to thoughtfully reflect upon their practice. He encouraged them to evoke students' sense of curiosity, creativity and wonder surrounding science.

Physics assistant professor Tom Hartman shared highlights from his research on quantum gravity and quantum field theory while also touching upon cosmology concepts that later were explored by the teachers in a lab investigation titled Cloud Chambers and Cosmic Rays.

"The students will love the relativity aspect of how muons make it to the Earth's surface," said Jim Greenhall, a teacher from the Wallkill Central School District, near Poughkeepsie, New York. "Anything connected to Einstein is inspirational and relevant."

Tours of CHESS introduced teachers to crystallography techniques, applications of atomic force microscopy and X-ray fluorescence at the Wilson Lab facility.

The workshop was one of many professional development events being offered to teachers from the Dundee Central School District, the recipient of a New York state 2014-16 Title II Mathematics and Science Partnership Grant. The grants are aimed at increasing the academic achievement of students in high-needs school districts in New York.

Dundee has partnered with Cornell outreach programs in science, math and engineering to enhance content knowledge and instructional practices for secondary science teachers. During the next two years, selected Dundee science



Provided

Arthur Woll, senior research associate at Cornell High Energy Synchrotron Source, shows the tip of an atomic force microscope to Jen Clancy, a science teacher at Dundee Central School District, during the Xraise Science Teacher Workshop.


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teachers will spend 90 hours working with the Xraise outreach team and scientists to develop or enhance laboratory investigations that address New York state learning standards.

Eva Luna, CLASSE teaching support specialist, said: “We at Xraise are looking forward to working with the Dundee science teachers in developing and enhancing curriculum material that ties into the science of Wilson Lab and at the same time ties into the New York state learning standards. These teachers are highly motivated educators who are excited to take current research concepts, as well as their experience at Wilson Lab, back to their own classrooms.”

Luna added that these new curriculum materials, when complete, will be freely shared online.

The Xraise Science Teacher Workshop was funded by physics associate professor Liam McAllister’s National Science Foundation CAREER grant.

Lora Hine is director of CLASSE Outreach Programs.

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