

Physics Students Visit Yale

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Physics students skipped a few chapters ahead, last week, when 33 female students traveled to Yale University in New Haven, CT. They learned about neutrino physics and the study of dark matter in the universe as part of a program to encourage female students to get more involved in high levels of math and science.

When the participants arrived on campus Tuesday morning, they were greeted by R. Shankar, the Chair of the Physics Department at Yale, and Bonnie Fleming, an Assistant Professor of Physics. After a quick lunch, the girls were ushered off on tours of the various physics labs on campus.

For the next two hours, researchers and graduate students led the students around the physics labs on campus, explaining various research projects they were involved in and showing off some of the lab's more impressive equipment, including a 16 Tesla magnet (which creates a magnetic field about 320,000 times the size of the earth's magnetic field) and a tandem particle accelerator.

"It was wonderful," said Physics teacher Dr. Jeffrey Weitz, who organized the trip. "The lab tours were fabulous because we can't show [our students that] at HM. We got to see what the working conditions are like and a sense of the scale of experimental physics." Rebecca Dell



Physics Students pose in front of the tandem particle accelerator at Yale.

(11) added, "I really enjoyed seeing the particle accelerator because we had talked about it in class a lot. I hadn't realized then, however, how big it really was."

After touring the lab facilities, the students were briefed by two professors from the department on their independent research projects. Priya Natarajan, an Assistant Professor of Astronomy and Physics, discussed mapping dark matter in the universe and how it will help scientists predict whether or not the universe will expand or contract in the future. After Natarajan spoke, Fleming addressed the students, briefly explaining her research on neutrino physics. Fleming's work with neutrino physics was featured in a *New York Times* article on the day of the tour.

"While some of the information

was very advanced, I was still able to understand most of it and grasp what they were trying to explain," said Katie Wu (11).

After the science discussion, the girls were introduced to Meg Urry,

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Female Students Visit Yale Physics Labs and Professors

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Director of the Yale Center for Astronomy and Astrophysics. Urry, who has recently made headlines as an advocate for women in the sciences, led a discussion about the challenges that women face in fields like physics and math. Natarajan, Fleming, Urry, and Assistant Professor of Physics Helen Caines talked about what it was like to be some of the few women in a traditionally male dominated field and ways to deal with potential gender discrimination.

Urry stressed that women are as capable as men in the fields of math and science. "[The talk] gave us a chance to see how women deal with the pressures to succeed in the sciences, especially in physics and engineering," said Wu. "The professors were very passionate about what they had to say, which was encouraging, and it made me look at physics in a new light." Dell said, "It opened my eyes to the possibility that I might have to fight some gender bias in college and graduate school if I want to pursue the sciences. It's good to know that there are people who make it through the system."

Weitz contacted Urry after reading

about her in an article in the *Times* and asked if he could bring a few female students to meet with her to show them that it was possible for women to succeed in the sciences. "This was a larger discussion than just physics," said Weitz. "I've been teaching for a long time. Throughout my years of teaching, there have been lots of people putting down my girls, but they are just as good as the boys. I know that it can be discouraging."

After the media controversy created earlier this year by Harvard University President Lawrence Summers' comments on the possibility that women naturally have less innate ability in math and science, Weitz said that he felt Summers' comments "undermined the work that I do. I was just looking for a way to say to the girls, 'You're terrific.'" The trip offered the opportunity to expose female physics students to women at the highest level of physics in the country. "Nobody at HM is in a position to tell you what it is like to go out and be a woman [and pursue] physics," he concluded. "I'm hoping that this trip kicked up everybody's expectations a few notches, including mine."