

Urging women in physics to stay in physics

January 17 2014, by Robert Sanders

UC Berkeley graduate student Katayun Kamdin's experience as an undergraduate physics major at the University of Chicago was like that of many women who enter a field traditionally dominated by men.

"It felt like a boys' club," she said. "It seemed that the guys knew what to do to succeed and get into graduate school, and there was no similar community for [women](#). Plus, the classes were really hard, and I didn't do very well at first, and I didn't know if I could make it."

Instead of quitting – three-quarters of the women physics majors in her year dropped out of the field before graduation – she created her own community, cofounding a campus Society for Women in Physics. She discovered studies that said that bias against woman in physics often leads them to leave the field. And as a senior, she attended a [Midwestern conference](#) organized for undergraduate women in physics where she discovered that her lack of confidence and feelings that she didn't belong in physics were not unique.

"These activities helped me to put my own struggles in a wider academic context, and I was able to use that knowledge to understand ways I can succeed personally," said Kamdin, who graduated in 2010 and entered graduate school at UC Berkeley in 2011. "I still struggle with confidence, it's an ongoing thing. But it helped me move forward."

Conference draws nearly 170 women physics majors

Kamdin is now a third-year [graduate student](#) in physics at UC Berkeley

and head coordinator of the Society for Women in the Physical Sciences, a campus organization aimed at creating a friendly and supportive environment for all graduate students in physics, astronomy, earth and planetary science and biophysics. Eager to support other undergraduate women who have had similar experiences, she helped organize the 2014 West Coast Conference for Undergraduate Women in Physics, which will take place Friday, Jan. 17, through Sunday, Jan. 19, at UC Berkeley, Lawrence Berkeley National Laboratory (LBNL) and Lawrence Livermore National Laboratory (LLNL). This is UC Berkeley's first year as host of the five-year-old event, and it is expected to draw nearly 170 women majoring in physics from around the western U.S.

"We want to show these women that there are successful females in academia and you can do physics if you want to," said Kamdin, 25, who is now doing programming and computer simulation in the Department of Physics for a neutrino detector to be used at the underground Sudbury Neutrino Observatory in Canada.

The conference consists of three days of talks, panel discussions, lab tours and a career fair designed to encourage attendees to pursue careers in a field where women are still a minority. The conference is one of eight concurrent regional conferences sponsored by the American Physical Society, and it attracts about 1,000 women nationwide. Only about 1,200 women graduate in this country each year with an undergraduate physics degree.

Thanks in part to national conferences like these, the number of women physics majors continuing in the field is increasing, whether they pursue doctoral degrees or enter careers in industry or finance.

"We want to give women the chance to continue in physics in or outside academia, to show them the great breadth of options there are and encourage them to go out and pursue them," said conference organizer

Gabriel Orebi Gann, UC Berkeley assistant professor of physics, an LBNL physicist and Kamdin's research advisor.

Being the only girl in your physics class

Emily Duffield, another UC Berkeley graduate student helping to organize the conference, had a much different experience at her undergraduate alma mater, the University of Minnesota, where she was one of 10 women and 50 men in a supportive physics department. She attended two earlier conferences in the Midwest that "opened my mind to the fact that other women didn't have that experience, ... that a lot of them were the only girl in their classes."

"As a woman in physics, you are a minority in your major, and it was nice to go to a conference where you are surrounded by other women and hear their experiences," said Duffield, 21, a first-year graduate student currently working with physics professor Marjorie Shapiro. Duffield programs computers to analyze data from the European Organization for Nuclear Research's ATLAS experiment, one of two experiments to discover the Higgs boson two years ago.

Orebi Gann noted that the percentage of [undergraduate women](#) majoring in physics at UC Berkeley has hovered around 20 percent for more than a decade, but that the percentage of women entering physics as graduate students rose to 29 percent in fall 2013, double the percentage in 2000.

"We aren't aiming for a 50-50 mix; we just want women to feel that if physics is what they love and want to do for the rest of their lives, that it's a real option," she said.

"Physicists struggle to understand why there are relatively so few women among our ranks," added Steve Boggs, professor and chair of physics at UC Berkeley. "This conference will give us a chance to explore this issue

with women physics majors from many universities. It will also give us an opportunity to celebrate the outstanding contributions of women in physics today."

Five well-known women physicists are scheduled to speak at the conference, including Saturday's keynote speaker, planet hunter Debra Fischer, a Yale University professor of astronomy and former UC Berkeley post-doctoral fellow. Other speakers will be Luisa Bozano, an IBM Almaden research scientist; Frances Hellman, a UC Berkeley professor, former chair of physics and an LBNL researcher; Clara Moskowitz, an associate editor at Scientific American who covers space and physics; Sofia Quaglioni, an LLNL theoretical physicist; and 2010 Nobel Laureate Saul Perlmutter, a UC Berkeley professor of physics and LBNL researcher who argues that physics needs women.

Women graduate students involved in the conference plan to take groups of undergraduates out to lunch, and Duffield and Kamdin are even hosting some of them in their apartments. Kamdin hopes the women get as much out of the conference as she did when she was an undergraduate at the University of Chicago.

"That conference was the first time I had seen so many women in one place doing [physics](#)," she said. "That is really powerful for students who may come from universities where they are one of few women in the department. The conference is an opportunity to talk with women from other institutions, compare ideas for summer jobs, research projects or even learn how to organize and advocate within their departments for change to create a better environment for all students."

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