

notes. Russia, however, has historically followed the global norm. According to the January report *Reducing the Use of Highly Enriched Uranium in Civilian Research Reactors* by the National Academies of Sciences, Engineering, and Medicine, Russia has converted all of the research reactors it had installed in countries outside the former Soviet Union. But the Russian government does not see the conversion of its domestic fleet of 41 HEU-fueled reactors as a priority, the report says.

The NNSA-developed fuel might be used to convert some Russian-origin research reactors, says Hanlon. But cooperative nonproliferation activities between the US and Russia have been suspended amid deteriorating relations.

The academies report lists two other US facilities not among those currently slated for conversion: the General Electric Nuclear Test Reactor in California and the Transient Reactor Test Facility (TREAT) at Idaho National Laboratory. Discussions between NNSA and GE officials have just recently begun, the report

says, and TREAT is due to resume operating in 2018 and will convert once an LEU fuel becomes available.

Hanlon and Harrington declined to comment on the report's recommendation that US reactors be fueled with 45% enriched uranium—half the ^{235}U concentration of their current weapons-usable fuel—as an interim step until LEU fuel is available (see PHYSICS TODAY, March 2016, page 27). The report says that all six US reactors could operate on that silicide fuel with no loss in performance. Hanlon says the report is still under review by the NNSA.

Kuperman says moving to 45%-enriched fuel would undermine efforts to phase out HEU. Reactor operators would be loath to change fuels twice, and new reactors might be built to operate with the 45% material. In addition, he says, the NNSA's Naval Nuclear Propulsion Program, which has just begun exploring the possibility of designing an LEU-fueled power plant for ships, wouldn't use a fuel with a lower enrichment level than research reactors use.

David Kramer

Combatting professional isolation through mutual mentoring

An online system to be launched soon will help female faculty self-organize into mentoring groups.

In 2008 Barbara Whitten of Colorado College in Colorado Springs was invited to join a small group of women who, like her, were senior physics professors at liberal arts colleges. The group met in person and online as part of a five-year experiment in horizontal mentoring. The experiment was funded by an NSF ADVANCE grant to increase the representation and advancement of women in science.

Whitten was not looking for mentors. Indeed, she often advised junior colleagues. But, she says, the experience was “transformative.”

Now, under the auspices of the American Association of Physics Teachers, Whitten and others are expanding the earlier horizontal mentoring program

with the goal of helping to alleviate isolation among female physics faculty. The Mutual Mentoring eAlliances program will roll out at AAPT's July meeting in Sacramento, California.

Self-organization

An online tool will guide people to organize themselves into so-called eAlliances. Any interested US-based female physics faculty member may enter her profile and her answers to a questionnaire into a confidential database (see eAlliances.aapt.org). Algorithms will then respond with potential matches based on the priority people give to such parameters as the number of years they've been in the profession, the type of institution they work at, their race, family issues, and sexual orientation. “We think of the database as computer dating for physicists,” says Whitten. The organizers will vet to avoid trolls, she adds.

“Isolation has many meanings,” says



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THE FIRST NSF-FUNDED MUTUAL MENTORING GROUP IN PHYSICS continues long after the money ran out. The five members were all full professors at liberal arts colleges. From left, Amy Graves of Swarthmore College, Barbara Whitten of Colorado College, Anne Cox of Eckerd College, Cindy Blaha of Carleton College, and Linda Fritz of Franklin & Marshall College.

Idalia Ramos of the University of Puerto Rico at Humacao. "You might be the only woman in your department. Or the only astronomer in a physics department. Or in a college with no physics department. Or a single mother."

The organizers hope for a strong response and plan to select, fund, and advise five alliances this year and five more in 2018, each with about five members. NSF's ADVANCE is backing the program for five years with \$750 000, which covers the cost of creating the database and travel expenses for alliance participants. The participants in each group will meet virtually about twice a month and face-to-face once a year. They must commit to eating together when they meet in person, completing electronic questionnaires, and being interviewed by an external evaluator. Cindy Blaha of Carleton College in Northfield, Minnesota, and Anne Cox of Eckerd College in St. Petersburg, Florida, who were both part of the original group with Whitten, will join Whitten and Ramos in administering the AAPT program.

The formation of eAlliances "fits into AAPT's strategic plan and with the needs of the profession," says Beth Cunningham, AAPT executive director and the project's principal investigator. "The persistence of women in academia is not good. AAPT is interested in increasing the diversity of physics educators." She hopes that even beyond the funded alliances, other physicists—men and women, students and faculty—will join the database to form networks that improve their professional experience.

The professional and the personal

Several years after their NSF funding ran out, four out of five of the women in Whitten's original group continue to

meet via Skype every two weeks and get together in person every year or so. From the beginning, Whitten says, the group discussed both personal and professional topics. "At our first meeting, it seemed we were all anxious about our research. We felt guilty that we weren't doing enough. We agreed that in time for our next meeting, we would each think seriously about what we were doing, and whether it was enough."

The five women in the group took turns sharing their thoughts, and the others made comments. "I remember thinking, 'these people know what I am talking about, and they can be helpful,'" Whitten says. It's also helpful, she notes, that the group members are all at different institutions and in different subfields of physics. "There is no competition, and we can talk openly and honestly with each other."

Kerry Karukstis of Harvey Mudd College in Claremont, California, came up with the idea of horizontal mentoring more than a decade ago in response to a call from the Andrew Mellon Foundation for ideas on faculty development. She cold-called a handful of other senior female chemists and asked if they'd like to participate, and they all said yes.

"In my alliance, there were a number of us dealing with aging parents while trying to carry on an active professional life. It's hard to talk about personal issues on campus, because someone might misread your dedication to your job," she says.

Another discussion topic was whether and how to move into administrative leadership roles. The nice thing about horizontal mentoring, says Karukstis, "is that sometimes you are the giver of advice, and sometimes the receiver. But no one is in the same role all the time."

Toni Feder