WATCH US Collaborating Programs

The research study we will discuss at the Stakeholders Meeting has focused on six long-running programs aimed at women mathematicians:

The **Carleton College Summer Mathematics Program for Women (SMP)** started as a one-month enrichment and mentoring summer program in 1995 for eighteen first- and second-year undergraduate women to encourage these women to pursue an advanced degree in mathematics and to provide them with a network of support if they did choose to go on. This summer program, funded by NSF (originally jointly with NSA), ran for 18 of the next 20 summers, with the last summer program in 2014. The summer program featured two challenging courses, recreational problem solving, panel discussions about making the most of their undergraduate math majors and how to be successful in graduate school, and woven throughout were opportunities for the participants to build an esprit de corps so that when they needed a support group later in their education, they had one. There have been 329 participants in the summer program and an additional 14 undergraduate teaching assistants, for a total of 343 participants in our community. Over the years the program has grown to support these women at different stages of their careers with advice and mentoring through 1) a one-day annual Graduate Education Mentoring Workshop which ran 2010-2017, providing intense mentoring and talk preparation advice for a total of 112 participants, and 2) a three day symposium celebrating women who had been through the program and finished their PhDs which ran 2005-2015 (except 2006), with a total of 160 participants.

The **Nebraska Conference for Undergraduate Women in Mathematics (NCUWM)** aims to encourage undergraduate women mathematics majors to attend graduate school, to increase their success in graduate school, and to help them identify possible careers using mathematics. Held annually since 1999, the conference is funded by the National Science Foundation and the National Security Agency. The number of undergraduate participants per year has grown from 43 to roughly 250, and the total over the past 19 years is over 3600. Two plenary talks given by successful women mathematicians showcase different kinds of mathematics and different careers made possible by a mathematical education. Three panel discussions and a variety of small group discussions provide information on a variety of topics involving graduate school and career options. Undergraduate students present their own research in 48 talk slots and two poster sessions. There are also a variety of networking activities that help participants connect with peers and mentors.

The **EDGE (Enhancing Diversity in Graduate Education)** program supports women getting PhDs in the mathematical sciences. The program is in its 19th year, with the first program held in 1998 at Bryn Mawr College. Participants enter the program in the summer before the start graduate school, when they attend a 4 week immersive program that prepares them for mathematical and cultural challenges that they may face in graduate school. Participants return the following summer for a two-day Reunion Symposium, and participate in follow-up activities such as local clusters and special sessions at national meetings. Each year's cohort typically consists of 14 new graduate students, 3 peer mentors who are in their third, fourth or fifth year of graduate school and 4 workshop facilitators who organize two-week-long workshops in analysis and algebra. As of June, 2017, the EDGE program will have served 264 women graduate students. The program has been funded primarily by the National Science Foundation, with other funding from the Henry Luce Foundation, the Sylvia Bozeman and Rhonda Hughes EDGE Foundation, Institutional sponsors and, in the early years of the program, the Mellon Foundation.

The **post-baccalaureate program in mathematics at Smith College (CWM)** was designed to serve women who discover their love of mathematics late and need more preparation to continue to graduate school in the mathematical sciences. This program intervenes at a critical point, the transition to graduate student. Students come to Smith two semesters (sometimes just one) and then apply to graduate program. In addition to comprehensive mentoring and a rich curriculum, students do research with faculty and present at national meetings. The program has been funded by two NSF workforce grants DMS-0602110 and DMS-1143716 (2006-2018). Funding has been used to pay postbac tuition and give them a stipend as well as pay for programmatic activities. Several students have attended without receiving funding (but with a tuition discount from Smith College). A total of 102 women have completed the post-baccalaureate program (roughly 10 each year . Of these, 88 went to (or will start) graduate programs in the mathematical sciences.

The **Women and Mathematics program (WAM)** at the Institute for Advanced Study, Princeton, started in 1994 under the auspices of the National Science Foundation, the Institute for Advanced Study and Princeton University with a mission to recruit and retain more women in mathematics. The annual program in May is held at IAS with one day at Princeton University, and is organized around a mathematical topic of current research interest. There are daily problem workshops, a (new) afternoon computer workshop, colloquia by distinguished female mathematicians and evening discussions and panels on various mentoring topics. Each year about 45-60 women participate, very roughly a quarter undergraduates, half graduate students, and a quarter postdocs and more senior faculty. Altogether there have been over 1100 participants. The program is run by a steering committee consisting of faculty who (mostly) come from institutions near Princeton. Some outreach activities are arranged with local schools, and they plan to start an WAM ambassador program to encourage participants to participate in and develop a variety of mentoring activities in their home institutions.

The **Infinite Possibilities Conference (IPC)** is a national conference designed to promote, educate, encourage, and support underrepresented women in the mathematical sciences, as a step towards addressing the lack of African Americans, Latinas, Native Americans, and Pacific Islanders in these fields. Participants include undergraduates, graduate students, postdocs, faculty, and industry professionals. The conference has been funded primarily through the NSF, with past support from the NSA and host campuses. Held every two to three years, the conference has grown from 150 participants in its first year (at Spelman College in 2005) to around 200-250 in more recent years, with five conferences and over 1000 participants thus far. Activities include plenary sessions and panels by prominent women who can share personal experiences in addition to their research, shorter research talks and a poster session, workshops and advice sessions for those at various stages of their mathematical trajectories, and presentation of the Dr. Etta Z. Falconer Award for Mentoring and Commitment to Diversity. IPC aims to fulfill a need for role models and community-building; provide greater access to information and resources for success in graduate school and beyond; and raise awareness of factors that can support or impede underrepresented women in the mathematical sciences.