any people describe the obstacles to women’s professional advancement as a “glass ceiling,” but chemist and AAAS President Geri Richmond chooses her materials-based metaphors more carefully.

Unlike glass, which can be shattered, “polycarbonate is one of our most robust polymers, so you bounce off it,” said Richmond, who is also a U.S. science envoy as well as presidential chair and professor of chemistry at the University of Oregon. Those who encounter a polycarbonate ceiling blocking career advancement must find creative ways around it, she added.

A longtime leader in the effort to enhance diversity in the science, technology, mathematics, and engineering (STEM) workforce, AAAS is continuing to help women and other underrepresented groups transcend the polycarbonate ceiling, guided by Richmond and other members of the AAAS leadership team, including Shirley Malcom, director of AAAS Education and Human Resources (EHR). Malcom, who this month received the UCLA Medal in part for her efforts to diversify the science community, serves as co-chair of the Gender Advisory Board of the UN Commission on Science and Technology for Development and of Gender InSITe, a global campaign to deploy science and technology to help improve the lives and status of girls and women.

A variety of AAAS projects currently offer early-career support for women, minorities, and persons with disabilities, through conferences, awards, internships, and other activities. Additional efforts, including a newly enhanced program supporting international collaboration by women researchers, are focusing on later-career needs.

Ultimately, “our institutions must transform to support values of excellence as well as diversity, equity, and inclusion,” Malcom said. “We need to go after the institutional barriers that keep women in marginalized positions within science, in the United States and beyond.”

Describing the realization that led her to found COACh, a career-training and networking program for women scientists and engineers in the United States and developing countries, Richmond recalled a time in the 1990s when she was seeing the careers of her women colleagues stalling unexpectedly: “They were publishing, they were getting grants, they were keeping their research groups going, but they were hitting this polycarbonate ceiling. They weren’t getting the invited talks. They weren’t getting the distinguished lectureships. They weren’t getting the offers from other universities that you would see the men get, yet they were equally capable.”

Collaborating internationally can often lead to new professional opportunities, but extended travel can be difficult for mothers with young children or others with family obligations. Through surveys and focus groups, the AAAS Women’s International Scientific Cooperation (WISC) project concluded that requiring shorter stays abroad, as compared to other international travel grants, would make international collaborations more accessible for women.

Through a follow-up program, Mentoring Women in International Research Collaborations (MWIRC) in STEM, AAAS has thus far administered 15 grants of $20,000 each, with funding from the National Science Foundation. The program has ramped up in recent months, with a new travel award that sent two women scientists to the international Gender Summit in Cape Town in April and will send 12 more participants to the next three Summits.

The program has also rolled out a new website and is conducting webinars for awardees to share experiences and advice.

MWIRC support has made a marked impact on the career of Delaram Kahrobaei, a computer scientist at the City University of New York (CUNY), who collaborated with a mathematician colleague at Universität Politècnica de Catalunya in Barcelona. Since traveling to Spain, Kahrobaei and two graduate students have published papers, established a seminar based on their findings, and given a variety of conference presentations. In a May AAAS webinar, Kahrobaei said that these developments contributed to her recent promotion to full professorship. CUNY “looks very favorably on international collaboration,” she said.

Other AAAS activities aim to make science and technology careers more inclusive at the early-career level, such as the Entry-Point! internships for students with disabilities and the Emerging Researchers National Conference in STEM hosted by AAAS and the National Science Foundation. AAAS also administers the annual L’Oréal awards, which provide grants to women doing postdoctoral research. And, starting this month, AAAS’s Marion Milligan Mason Fund will provide three grants of $50,000 every other year to women researchers engaged in basic research in the chemical sciences.

At the AAAS Annual Meeting, EHR organizes an intergenerational networking breakfast for women and minority attendees, which includes a ceremony honoring early-career women scholars from developing countries who are receiving awards from the Elsevier Foundation, with The World Academy of Sciences and the Organization for Women Scientists for the Developing World.
Breaking through the polycarbonate ceiling

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