



Brookhaven Women in Science
40th Anniversary Celebration
SPRING NETWORKING EVENT
JUNE 14, 2019

BROOKHAVEN
NATIONAL LABORATORY





IN MEMORIAM



*Brookhaven Women in Science dedicates this event and publication in loving memory of
Christina Swinson Cruz (1980-2019).*

Christina served as the deputy head of Brookhaven Lab's Accelerator Test Facility (ATF). During her time at Brookhaven Lab, she contributed to several important ATF projects, including the laser wakefield collaboration, an important part of the ATF's status as a U.S. Department of Energy Office of Science User Facility.

In addition to her notable career accomplishments and incredible promise in her field, Christina was an active leader within Brookhaven Women in Science and an outstanding advocate for inspiring and educating young people from different backgrounds about science and physics.

She is greatly missed by her family, friends, and colleagues.

Not for Women Scientists Only

Since our interdisciplinary women's network first met in September 1979, we have been working for the good of the entire Laboratory community—both women and men—to help Brookhaven National Laboratory (BNL) become not only a better place to work but also a world-class institution.

To date, our multidisciplinary membership has embraced over 200 Lab employees across all disciplines who support our mission to act as a diverse and inclusive community that promotes equal opportunity and advancement for all women in support of world-class science.

We achieve this mission by:

- Advocating for the development of policies and practices that enhance the quality of life for all Laboratory employees, with a focus on recruiting, hiring, promoting, and retaining women;
- Encouraging a mutually supportive community of science at the Lab, to nurture the formation and

maintenance of multi-disciplinary groups, to improve technical collaborations, and to foster a broader awareness of funding opportunities and sources outside the traditional areas;

- Supporting science education;
- Improving communications with the local community about Lab activities.

We are proud to support the Laboratory and the Department of Energy (DOE) in their joint goal to achieve and sustain a diverse and inclusive workplace. Diversity is linked to the Laboratory's mission and goals and is widely considered a fundamental business practice to achieve organizational excellence.

A successful Lab will help achieve the DOE's mission of growing our Nation's economy, enhancing national security, and protecting the environment. Without diversity, we will not be successful.

We are Brookhaven Women in Science (BWIS). And we are not for women or scientists only.

Breaking Ground: Notable Accomplishments

What began as a desire to fulfill a need in the community—to educate and inspire the next generation of women scientists—has grown into a far-reaching and diverse organization, one that has made fundamental contributions to the quality of life for all Lab employees.

Notable accomplishments include the following:

- In 1980, we lobbied for the establishment of a credit union branch onsite to enable BNL employees, who otherwise might be denied credit, to obtain loans and credit cards, as well as to open accounts at a cooperative association offering competitive interest rates.
- In 1983, we helped Lab couples save money that they would have otherwise had to spend on health care, by working for the coordination of medical insurance benefits for spouses who are both employed at BNL.

- Since 1986, BWIS has awarded a woman undergraduate senior or graduate student doing research at BNL in the STEM disciplines in memory of world-renowned Brookhaven physicist, Renate W. Chasman.
- Since 1995, BWIS has awarded a student enrolled in the graduate program at State University of New York at Stony Brook and/or performing her thesis research at BNL with the Gertrude S. Goldhaber Award to recognize substantial promise and accomplishment by a woman graduate student in physics.



- In 1990, the first child-care center to be built in the nation by the U.S. DOE was constructed at BNL due to the 1988 child-care initiative led by BWIS. This was not the first time that BWIS offered solutions to BNL employees' child-care challenges to the Lab administration: Our first proposal in 1980 led to the establishment of a private day-care center near the site for use by BNL and local parents.
- In 1988, knowing that parents of newborn or newly adopted infants need time at home with their new children free from the worries of their jobs, we advocated for BNL's new personnel policy on parental leave, which permits new parents up to three months' time off.
- Since 1989, we have asked the Lab administration to review the status of women at the Lab to identify where recruitment, training, and promotion of women are needed; in 2010, BWIS initiated a site assessment by the American Physical Society to assess BNL's climate for women that resulted in a Lab-wide actions, notably the mentorship program.
- Since the 1980's, BWIS has sponsored talks by women in the science, technology, engineering, and math (STEM) fields – early notable speakers included astronaut Mary Cleave, computer scientist Grace Hopper, and chemist Susan Solomon.

Friends of the Lab, Friends of the Community

BWIS continues to support the academic and professional advancement of girls, young women, and professionals by offering annual awards, outreach events, and various networking opportunities at the Laboratory and in the community.

We advocate policies and practices that continue to enhance quality of life and work-life balance by supporting equal pay for women, tracking statistics for recruitment and retention of women, organizing family events like the Brookhaven Employee Recreation Association Summer Camp Science Fair, and meeting regularly with the Director's Office leadership team.

BWIS also contributes to the greater community by providing a platform for women to present their work and increasing community access to diverse viewpoints through the BWIS Speaker Series, and reaching out to schools, community groups, and professional organizations to support science education and professional development.

Some of our current initiatives include establishing a permanent display emphasizing diversity of Lab employees, improving Lab's parental leave policy, and expanding internship access to high school seniors and college first year students.

A Closer Look

In its earlier years, BWIS contributed to the quality of life at the Lab in other ways, by sponsoring concerts, theatrical performances, art auctions, and social dances, strengthening the quality of life and a sense of community at the Lab.

Over the years, we've evolved our contributions in the Lab community by sponsoring and supporting career development workshops, educational performances, and Lab programs that overlap with our mission, such as the BNL High School Career Day and the Elementary School Science Fair.



BWIS is an active partner with groups on and off-site in organizing and hosting numerous conferences, such as the International Women's Day Symposium, the American Women in Science Conference for Undergraduate Women in Physics, and the Association for Women in Science Workshop.



As an inclusive and welcoming organization, each year BWIS invites Laboratory leadership and all employees to mingle with members at the Annual Wine & Cheese reception, and we gather old, new, and prospective members at the Annual Spring Networking Luncheon.



BWIS is active not only onsite, but also in the greater community. Our relationships with on and off-site groups have grown over the years. We collaborate with an increasing number of organizations and have sponsored or participated in events that serve our goals, help achieve the Lab's goal as a good neighbor, and benefit the greater community.

Recent collaborators include the International Network of Women Engineers and Scientists, Girls, Inc., Women in Science and Engineering at Stony Brook University, and the Long Island Section of the American Nuclear Society, to name a few.



As proud representatives of the Lab and its mission, our members participate as panelists and speakers for community groups such as the Town of Brookhaven, Eastern Suffolk Boards of Cooperative Educational Services, and many New York-based schools and universities.

Women of Thought: Our Origins

BWIS was the brainchild of Harriet Martin of the Research Library, Technical Information Division, and Victoria Mclane of the National Nuclear Data Center, Department of Nuclear Energy.



Vicki Mclane (standing) and Harriet Martin.

We were originally conceived in January 1979 with no name and a single idea in mind—to send BNL’s working women into the local schools as role models for students. We were to speak about our careers as women in science, the professions, and technical fields—with the hope of informing and inspiring.

We made our debut on February 14, 1979—Valentine’s Day—at 8 p.m. at the Bay Shore-Brightwaters Public Library. The next day—Susan B. Anthony Day - we were engaged at the Ward Melville High School, Setauket. Having established a mission and commitment to work together, the founders first named themselves BNL Scientific and Professional Women.

Martin had come up with the idea for a panel after spending a year working with her local school district on complying with Title IX of the Educational Amendment Act of 1972, which requires schools receiving federal money to provide equal educational opportunities for girls and boys. After joining the BNL staff in February 1977, she realized that the women working at the Lab were a heretofore unknown resource of role models for school children in the local communities.

In the 1950’s—though there had been no question in Mclane’s mind—her high-school guidance counselor had questioned her decision to study physics and become a nuclear physicist—because she was a girl. So, in December 1978, when Martin asked her to talk to female freshmen science majors at the State University of New York at Stony Brook, Mclane went, hoping to be supportive of their decision to become women in science.

During discussions with the students, Mclane realized that the young women before her were still questioning whether their decision to become scientists was the right one for females. So, there was no question that Mclane had to join Martin in organizing the panel.

Mclane suggested the name One Mind for the speakers’ program, taking to heart the words of the ancient Greek philosopher Plato:

“Nothing can be more absurd than the practice which prevails in our country of men and women not following the same pursuits with all their strength and with one mind; for thus the state, instead of being whole, is reduced to half.”

The Early Years

In addition to encouraging students, the founders quickly learned that they benefited from each other's support for their endeavors as working women. They had the sensibility to know, however, that mutual support was not sufficient—that they had to increase the Laboratory's awareness of the contributions made by women in the sciences, professions, and technical fields, as well as to help Brookhaven better enable women to do the best job possible.

Inspired by their success with One Mind, they enlarged their scope, renamed themselves Brookhaven Women in Science, and met on September 26, 1979. They were granted a certificate of incorporation on November 19, 1982, from the Regents of the University of the State of New York.

On September 25, 1984, BWIS was granted a 501(c)(3) non-profit status and is currently supported by Brookhaven Science Associates (BSA) and membership fees. The organization continues to be run entirely by employee volunteers.



The Fruits of an Idea: BWIS Today

The BWIS organization itself has grown and evolved, with a Board that has expanded greatly over the years and offers leadership opportunities to over 20 officers. Senior board members, such as the President, President-Elect, and Trustees, have the privilege of meeting regularly with Laboratory leadership to discuss goals and needs.



With different membership levels offered, BWIS members are granted benefits such as voting rights, priority registration for BWIS events, and access to BWIS' network of resources, such as assistance with grant writing, presentation and leadership skills, and other support.

Through the support of its members and funding, BWIS continues to sponsor nearly 40 events annually that reflect the vital interests of its members, the Lab, and greater community.

BWIS prides itself on its ever-growing and diverse membership, both in terms of gender as well as occupation and background. Over the years, BWIS has fostered professional development and networking, but also mutual support and friendships that have grown over the years.

Role Models of Excellence

Just as BNL is an American and international scientific resource, BWIS members are exemplars in the ever-evolving STEM fields—from biologists to engineers to chemists to physicists to computer scientists—as well as non-STEM fields that support the Lab mission.

Our members excel in their chosen fields and are passionate about the Lab's mission. Whether in STEM or non-STEM fields, BWIS members have won prestigious awards, such as the National Medal of Science, the BNL Brookhaven Award, Brookhaven Town Woman in Science Recognition Award, and the Humboldt Research Award, among others.





The Importance of Role Modeling

Studies have shown that role models are critical for girls when they are deciding whether to pursue traditionally male courses and careers, such as math, science, and engineering. Girls need to identify with positive role models, women in whom they can see similarities between their own selfimage and their image of successful women in science.

Which is why, in 1979, BWIS' founders formed the One Mind school program.

BWIS' engagement and role modeling have continued to this day through events such as the BWIS-sponsored High School Career Day, International Women's History events, and Laboratory student science events.



We serve as role models in hopes of positively influencing the academic and career choices, as well as perceptions and expectations, of boys and girl within our local schools. To do this, we speak about our lives, our work, and our experiences as women in science during panels and presentations at schools and colleges. We also have advised teachers and guidance counselors on ways to encourage female students to consider scientific and technical careers.

By reaching out to all students, and to their teachers and counselors, we hope to overcome the cultural myth that math and science are male preserves. We hope to ease female students' math and science anxiety by encouraging them by our example—

"If we can do it, so can you."



It Takes a Village

BWIS could not have reached 40 years without the sustained support and commitment of BNL's senior leadership and management throughout the years, beginning with Associated Universities, Inc. to Battelle, the non-profit science and technology company that manages Brookhaven Lab with Stony Brook University as Brookhaven Science Associates.

Offering his insight and sharing his wisdom, the Laboratory's late Deputy Director Warren Winsche was BWIS' founding mentor, since BWIS' inception until his death in 1983.

Our relationship and mutual support with Lab leadership continues today, shown by the regular one-on-one meetings held between BWIS leaders and the Lab Director, Deputy Director for Operations, Deputy Director for Science and Technology, and the Associate Lab Directors for Human Resources and Stakeholder Relations & External Affairs. Their continued support and open engagement with BWIS have enabled us to achieve our annual goals for which we are deeply grateful.



BWIS itself would not exist or have sustained itself for 40 years without the support of its own members, Lab employees who support the mission in various ways, volunteer their time to attend and help run meetings and events, and serve as officers in various positions.

Speaking Our Minds

To increase the Laboratory's awareness of the accomplishments of women in science and to provide our members with role models of their own, BWIS initiated its seminar-lecture series in 1980.

To date, hundreds of respected women scientists and women prominent in related fields have presented their cutting-edge research some offering their thoughts on diversity and inclusion along with topics ranging from carcinogens to computers to crystallography.

BWIS continues its Speaker Series to this day, with an emphasis on diversity of speaker and topic. Recent notable speakers and topics include:

- **Laurie Santos**, Yale University, *What Makes Humans Special: Insights From Non-Human Primates*
- **Kathryn Guarini**, VP IBM Research, *IBM Research's Technology Vision: Technology Innovation and Implications for Business and the World*
- **Barbara Hoffheins**, Technical Advisor in the U.S. Department of Energy, Nuclear National Security Administration, *STEM Assignments Outside of the Laboratory*
- **Cathy Cutler**, Director of Medical Isotop Research and Production Program, Brookhaven National Lab, *How a Farm Girl Became a Scientist and Impacted Patients' Lives*
- **Mamta Naidu**, Center of Cancer Systems Biology, *A Scientist's Journey: From Research to Regulation Policies*
- **Bruce Kagan**, Local Historian, *Fly Girls: The Women Airforce Service Pilots of World War II*
- **Shobhana Narasimhan**, Jawaharlal Nehru Centre for Advanced Scientific Research, *She Is on Her Way: The Changing World for Women in Science in the Developing World*
- **Sabine Hossenfelder**, Frankfurt Institute for Advanced Studies, *Lost in Math: How Beauty Leads Physics Astray*



Looking Forward: New Challenges

Since BWIS was formed, women's advancements in the STEM fields have made impressive leaps both in the U.S. and abroad. BWIS is proud to support this local and societal evolution. Still, inequities continue.

According to the National Girls Collaborative Project, gender disparities persist, especially for minority women. Women remain underrepresented in the science and engineering workforce, with the greatest disparities occurring in engineering, computer science, and the physical sciences (NSF, Science & Engineering Indicators, 2016). Consider the following:

- Women make up half of the total U.S. college-educated workforce, but only 29% of the science and engineering workforce.
- Female scientists and engineers are concentrated in different occupations than are men, with relatively high shares of women in the social sciences (62%) and biological, agricultural, and environmental life sciences (48%) and relatively low shares in engineering (15%) and computer and mathematical sciences (25%)
- Race and ethnicity are salient factors in rates of participation in the science and engineering workforce (NSF, Science & Engineering Indicators, 2016).
- The U.S. science and engineering workforce has become more diverse, but several racial and ethnic minority groups continue to be significantly underrepresented. (National Girls Collaborative, 2018)

For example:

- 35.2% of chemists are women;
- 11.1% of physicists and astronomers are women;
- 33.8% of environmental engineers are women;
- 22.7% of chemical engineers are women;
- 17.5% of civil, architectural, and sanitary engineers are women;
- 17.1% of industrial engineers are women;
- 10.7% of electrical or computer hardware engineers are women; and
- 7.9% of mechanical engineers are women.

Given this picture, BWIS is sensitive to and actively promotes events featuring not just women, but all individuals who may be under-represented or otherwise disenfranchised due to their race, class, religion, or sexual orientation.

We are proud and supportive partners with our sister Employee Resource Groups onsite, such as the African-American Affinity Group, Asian Pacific American Association, Gay, Lesbian, or Bisexual Employees, Hispanic Heritage Group, and Veterans Association.

We recognize that issues related to inequality are often connected, and that collaboration is the key to overcoming these challenges.

Join Us

If you like what we have accomplished to date and agree that we can do more in the future, then we invite you to become a Brookhaven Women in Science member and help us advance our goals into our 50th decade!



The BWIS Mission

Brookhaven Women in Science (BWIS) is a diverse and inclusive community that promotes equal opportunity and advancement for all women in support of world-class science. BWIS is a volunteer-run 501(c)(3) non-profit funded by Brookhaven Science Associates and membership dues.

To learn more about BWIS, visit <https://www.bnl.gov/bwis/> or search for "Brookhaven Women in Science" on Facebook.

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www.bnl.gov/bwis