awis

association
for women
in science

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Use Your Platform to Be a Changemaker

By Quita Highsmith, Chief Diversity Officer at Genentech
AWIS Institutional Partner Since 2011

Quita Highsmith is chief diversity officer at Genentech, a leading biotechnology company that discovers, develops, manufactures, and commercializes medicines to treat patients with serious and life-threatening medical conditions. A ten-year veteran of the company, Quita assumed her current role at the beginning of 2020. AWIS spoke with Quita about the reasons why she chose a career in pharma and biotech, the impact diverse and inclusive teams have on results, and her advice for women pursuing careers in science.

You've spent the majority of your career working at pharma and biotech companies. What attracted you to this industry originally? Why have you stayed in it?
One of my first jobs out of college was as a sales representative for a pharmaceutical company, calling on hospitals. I liked the interactions with the physicians, surgeons, and nurses. The other draw was the opportunity to make a meaningful difference in a patient's life. When I was growing up, my mother used to tell me, "Of those to whom much is given, much is expected." Working for pharma and biotech companies gives you the chance to make a positive impact on someone's life every single day.

Being a part of this industry has also given me a front-row seat to innovation in action. At Genentech, for example, we've developed a variety of innovative therapies—from the world's first personalized medicine to the first approved treatment for primary progressive multiple sclerosis. It's been a privilege to be a part of the community responsible for groundbreaking advancements in science and medicine.

"This experience led me, along with Nicole Richie, PhD, to cofound Advancing Inclusive Research,™ Genentech's initiative to address barriers to clinical research participation for racial and ethnic minority groups. Helping Genentech embrace the increasingly diverse world around us has been extremely gratifying, and I knew that taking on the role of chief diversity officer would allow me to expand on that work."

Before assuming your current role as chief diversity officer (CDO) at Genentech, you held a number of sales and marketing positions. What inspired you to move into this new position?
Before I accepted the CDO position, I led Genentech's Alliance and Advocacy Relations team, which engaged with patient advocacy organizations. A few years ago we were planning a patient summit for the organization and wanted to include a diverse set of patients who had participated in our clinical research. But we couldn't identify anyone—not one single patient of color—who had actually participated in a study. So I began asking why.

I learned that approximately half of the U.S. population is projected to be non-Caucasian by 2045,[1] but that today, fewer than 10 percent of U.S. patients participate in clinical trials, and of those, only 5 to 15 percent are non-Caucasian.[2] This gap extends into every aspect of the clinical journey—inclusion and exclusion criteria, the diseases we choose to study, who the investigators are, and where the research sites are located. As a result, the genetic data available to scientists doesn't reflect the majority of our diverse global population.

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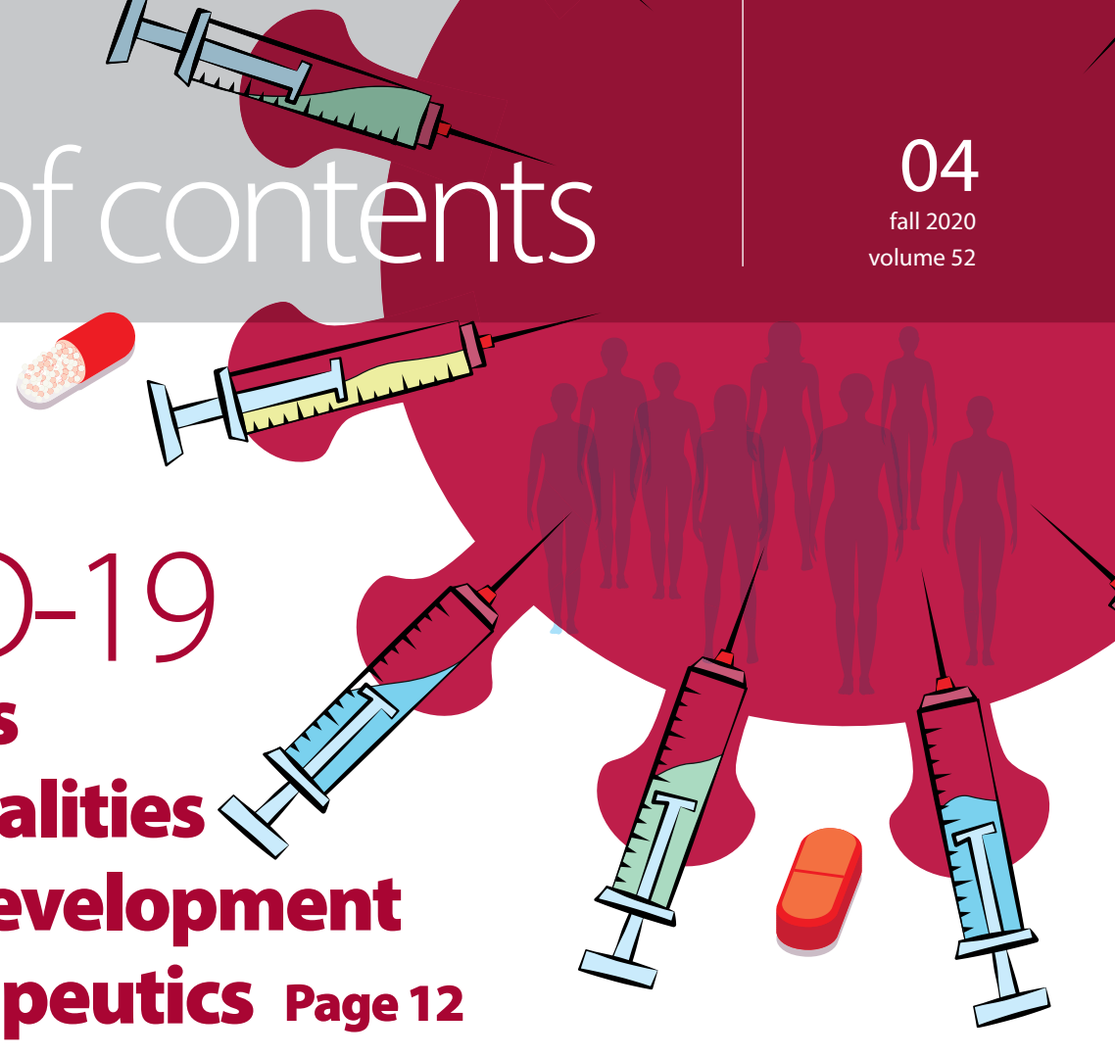

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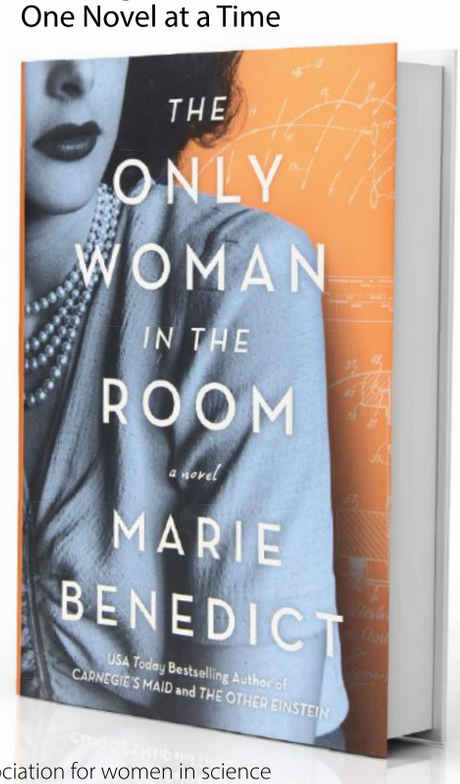

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This experience led me, along with Nicole Richie, PhD, to co-found Advancing Inclusive Research,™ Genentech's initiative to address barriers to clinical research participation for racial and ethnic minority groups. Helping Genentech embrace the increasingly diverse world around us has been extremely gratifying, and I knew that taking on the role of chief diversity officer would allow me to expand on that work.

Not every organization has a chief diversity officer. Why is this role important to Genentech?
When an organization encourages diversity of background, thought, and experience, it's far more likely to uncover new insights and unique approaches to addressing a challenge. For Genentech to succeed in discovering and developing medicines to treat some of the world's most serious diseases, every aspect of our business must be diverse and inclusive. My job is to help make that happen. Also, reporting to the CEO is important because it gives you a voice at the highest levels.

What excites you the most about your work on D&I at Genentech?
Over the last decade, Genentech has made great progress in helping more women rise to senior leadership positions. In 2007 49 percent of our workforce was made up of women, but women made up only 16 percent of our officers. That year we began making a concerted effort to change those numbers—by broadening our candidate pool, expanding career-development programs, and creating opportunities for women to connect and support one another, among other initiatives. The hard work paid off: by the end of 2019, 54 percent of our workforce and 43 percent of our officers were women.

Today our focus is on improving both gender and racial diversity—an undertaking that's equal parts challenge and opportunity. It involves everything from examining our idea of what a scientist looks like to ensuring participants in our clinical trials are representative of all patients who use our medicines.

"My favorite scientist is my daughter Quinlyn. She's a senior at Howard University, majoring in sports medicine with a minor in biology. My second-favorite scientist is Dr. Mae Jemison, the first Black woman to travel to space."

Why would you encourage young women, especially women of color, to pursue careers in science?
I'd encourage women to pursue careers in science for three reasons. And they all have to do with opportunity.

First, science careers offer professional stability. Between 2018 and 2028, STEM occupations are expected to grow by approximately 9 percent, while non-STEM occupations are expected to grow by just 5 percent.[3] Think about that: there will be almost double the number of job opportunities in STEM roles as in non-STEM roles.

Second, being part of racially and gender-diverse research teams offers all members the opportunity to make significant contributions to society. Diverse teams drive innovation, improve scientific and clinical outcomes, and help contribute to equitable healthcare access.

Third, working in STEM fields gives women, especially women of color, the opportunity to serve as role models for the next generation. The more that girls and young women see us working as epidemiologists, molecular biologists, and geneticists, for example, the easier it will be for them to picture themselves in these roles too.

What is needed to help women of color succeed in science fields?
A critical factor to my success was having a sponsor, which is different from having a mentor. Sponsors are C-suite executives who connect you to opportunities, provide air cover when you encounter trouble, give you constructive feedback, and ensure you get full consideration for available roles. A sponsor helps open doors that may otherwise have been closed. It's vital for women of color to have a champion in their organization with the power to push them forward.

Who's your favorite scientist?
My favorite scientist is my daughter Quinlyn. She's a senior at Howard University, majoring in sports medicine with a minor in biology. My second-favorite scientist is Dr. Mae Jemison, the first Black woman to travel to space. Her motto has become mine, too: "The future never just happened— it was created." So let's go create it! ✪

Learn more about Diversity & Inclusion at Genentech - https://www.gene.com/diversity-inclusion

Connect with Quita Highsmith on LinkedIn.

1 Source: William H. Frey analysis of U.S. Census population projections, released on March 13, 2018, and revised on September 6, 2018.
2 Source: "Dialogues on Diversifying Clinical Trials: Successful Strategies for Engaging Women and Minorities in Clinical Trials," Society for Women's Health Research, United States Food and Drug Administration Office of Women's Health, September 2011.
3 Source: U.S. Bureau of Labor Statistics, April 15, 2020.

Susan R. Windham-Bannister, PhD
Chair
AWIS National
Governing Board

Improving the Visibility of Women in STEM

I recently had the pleasure of speaking with Her Royal Highness, Princess Dr. Nisreen El-Hashemite, about her work as a scientist, scholar, and humanitarian. We explored the interrelationship of science and the critical issues of our time: agriculture, food, water, ecosystems, the environment, and the COVID-19 pandemic that we are confronting this year. The princess is a strong advocate for the education of women, and she and I are both big fans of the musician Prince! Celebrating our conversation seems like the perfect place to start my letter for this issue of AWIS magazine, which centers on the importance of leadership. You can view my "fireside chat" with Her Royal Highness on the AWIS website.

I have been thinking extensively about the impact of the pandemic on women in science. There have been so many COVID-19 challenges, yet one positive thing has been seeing the many women who are scientists at the forefront of fighting this virus: finding new medications to treat the virus, discovering potential vaccines, innovating new testing methodologies, setting guidelines for reducing the spread of the virus, and so much more.

Improving the visibility of women in STEM is progress, but we still have a long way to go to create true gender equity in science. We must retain more of the women who enter the STEM professions by making STEM workplaces inclusive and welcoming. As Dr. Nancy Hopkins says in the documentary *Picture a Scientist* (highlighted on page 27), "If you don't have women, you have lost half the best people. Can we afford to lose those top scientists?" A July 2020 McKinsey Global Institute study (COVID-19 and Gender Equality: Countering the Regressive Effects) came to a similar conclusion: what is good for gender equality is good for the economy and society.

Our cover story highlights the importance of diversity and inclusion, and the leadership that Quita Highsmith is providing to Genentech as their chief diversity officer. In addition, you'll read how Dr. Mary Khetani is using anti-racism to eliminate bias in her new research lab in pediatric rehabilitation (page 8). We could not be prouder of our members, allies, and partners, who are working tirelessly to improve the health and safety of our society through innovation and leadership.

Someday, we will not be referred to as women scientists. We will just be scientists. Until then, continue to support and celebrate one another. Be bold, break through barriers where you can, and make your voices heard. The Association for Women in Science will continue to support and salute you, every step of the way.

Yours in progress,

Susan R. Windham-Bannister, PhD
President, and Chair of the Board
Association for Women in Science

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The *AWIS Magazine* is a record of women's contributions to the STEM enterprise and their impact on society with story ideas that come from the real challenges our members face every day in labs, classrooms, corporate boardrooms, and government offices around the country. *AWIS Magazine* contributors—who volunteer their time—mine their own experiences to create content ideas. As with all our publications, we look to our AWIS members across all disciplines and employment sectors to tell us where they need support in their work or in their lives and we offer them practical, everyday solutions that are impactful, smart, and inspiring.

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Leadership: Never Let a Good Crisis Go to Waste

Sandra W. Robert, CAE
Chief Executive Officer
AWIS

As we move into fall, I find myself reflecting on how much we have already accomplished this year, despite the unwelcome visitor, COVID-19, who has settled in for a much longer stay than I originally imagined with no departure date in sight. In the words of Winston Churchill, as World War II was coming to an end, "Never let a good crisis go to waste." Therefore, we will use this opportunity to focus and rise up stronger in strength and scope.

The pandemic has required us to flex our leadership muscle fast and effectively by developing clear priorities, staying in close contact with you, and managing our resources to accomplish our goals.

From a priorities perspective, the Board and senior staff worked closely together to refresh our strategic position over the summer by agreeing to reclaim our leadership in science, and to make more investments in programs and in career resources to benefit you, and to grow our community. We're re-igniting our advocacy agenda to address key issues affecting women's participation and advancement in science and developing resources on anti-racism and racial equity.

We feel that it is imperative to stay in closer contact with you as members, and to increase our service to you. We have been prioritizing regular communication with Chapter leaders, through listening tour conversations and through regular participation with the Chapter & Affiliates Committee. We launched the weekly 'Fireside Fridays' newsletter, to give you weekly updates, reassurance, and easy navigation to new resources as we develop them. We're building out new career resources to help you stay professionally connected, such as our first 'AWIS Virtual Career Fair,' with more to come this fall. Our goal is to make sure that you have an ever-increasingly positive experience as an AWIS member, and that our value to you grows over time.

From a resource management perspective, we have brought on new senior team members in development and in marketing, who epitomize the growth mindset, innovation, and who bring the energy, focus, and leadership to help us make this strategic refresh the one that moves AWIS clearly into the future.

Leadership does start with the good basics. And, today, it requires getting comfortable with ambiguity and change at a scale we haven't worked in before. We are preparing ourselves, and our organization, to be the relevant professional partner who you can rely on now, more than ever.

With my thanks for your resilience during this time,

Sandra W. Robert, CAE
Chief Executive Officer
Association for Women in Science

The Association for Women in Science is a non-profit, 501 (c)(3) organization. AWIS champions the interests of women in science, technology, engineering, and mathematics across all disciplines and employment sectors. Working for positive system transformation, AWIS strives to ensure that all women in these fields can achieve their full potential.

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Women's Inclusion in Small Business

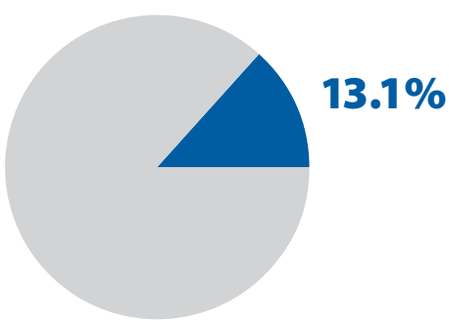
Innovation Research & Small Business Technology Transfer Programs

By Aspen Russell, AWIS Research Assistant
Heather Metcalf, PhD, AWIS Chief Research Officer

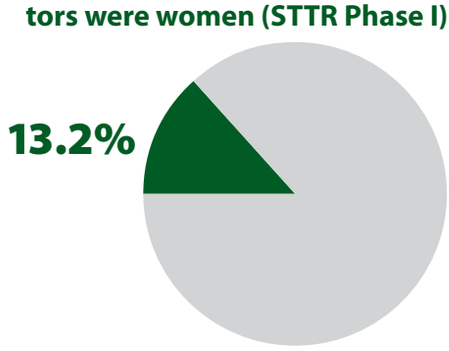
The National Women's Business Council and the Small Business Administration just released a report on women's inclusion in two major sources of governmental funding for scientific innovation: The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.

The combined 2018 fiscal year budget across the eleven participating agencies was roughly $3.6B.

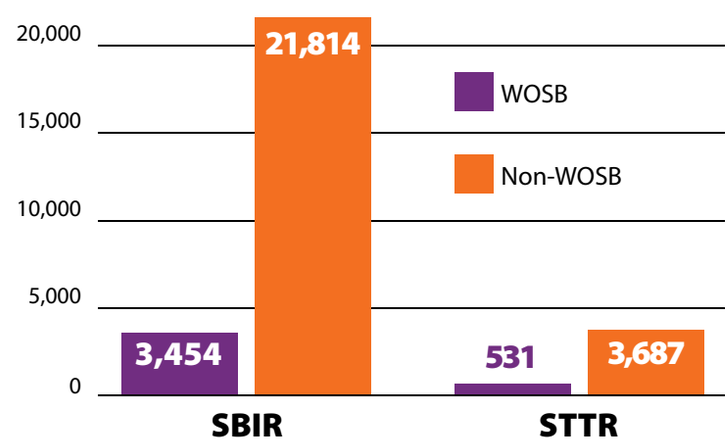
13.1% of unique principal investigators were women (SBIR Phase I)



13.2% of unique principal investigators were women (STTR Phase I)



13.7% of Phase I awards were made to woman-owned small businesses (WOSB)



The report also features advice from entrepreneurship support organizations and programs known for working toward gender equity, including AWIS' own STEM to Market accelerator program!

Read the report at bit.ly/womens-inclusion-report

Building an Anti-Racist Research Lab to Elevate Our Science

By Vivian Villegas, MS, OTR/L; Zurisadai Salgado; Kyle Truevillian; Vera Kaelin, MSc, OT; and Mary Khetani, ScD, OTR/L, AWIS Member since 2018

Why Build an Anti-Racist Research Lab?

"Not everything that is faced can be changed, but nothing can be changed until it is faced." —James Baldwin

Rehabilitation practitioners and scientists know that environments matter in shaping the lives of children with, or at risk for, disability. Similarly, institutional environments shape how we build evidence-based practices. Black, Indigenous, and people of color (BIPOC) faculty, staff, and students in academic institutions work tirelessly every day to belong. Academic research labs that train talented and committed students for careers as research-engaged clinicians and career scientists are instrumental in promoting racial equity.

Our BIPOC-majority research team embarked on a path to foster an anti-racist research lab this summer. We safely gathered, with masks and disinfectant in hand, for courageous conversations about moving beyond our online statement of solidarity with the Black Lives Matter movement. We achieved consensus about our shared privilege and our responsibility to shape a research environment where we continuously strive to elevate the standards by which we conduct our science and ourselves as scientists or scientifically engaged clinicians. We then applied the "Ten simple rules for building an anti-racist lab" from Dr. Bala Chaudhary and Dr. Asmeret Berhe's June 2020 preprint in EcoEvoRxiv (https://ecoevorxiv.org/4a9p8/) to appraise ou to appraise our lab environment and identify strategic and immediate action steps to take, to help us operate as an anti-racist research lab. We vetted this plan with eight lab alumnae (Erin Albrecht, Kristen Arestad, Dianna Bosak, Andrea Gurga, Jessica Jarvis, Xinrui Jiang, Heather Lim, and Rachel Ohene).

Action Planning for an Anti-Racist Research Lab

"Silence encourages the tormentor, never the tormented." —Elie Wiesel

Rule 1 posits that solidarity movements require intentional and regularly scheduled conversations to break the violence of silence. Our lab handbook describes norms for critical discussion and debate during weekly lab meetings and annual retreats (e.g., how to address ethical dilemmas and how to interact within journal clubs). We will expand lab meetings and retreats to routinely include courageous conversations about racism in academia. These conversations will intentionally give BIPOC lab members choices for how to engage, both when selecting scholarly resources for discussion (e.g., twitter feeds, podcasts, and articles) and by honoring the lived experiences they voluntarily share during discussions. We expect these critical discussions to empower lab members to be allies, by equipping them with vocabulary, sensitivity, and confidence necessary to act with courage.

We safely gathered, with masks and disinfectant in hand, for courageous conversations about moving beyond our online statement of solidarity with the Black Lives Matter movement.

Rule 2 posits that racism occurs in the academic workplace and impacts one's sense of safety and belonging. Therefore, an anti-racist lab's code of conduct explicitly welcomes BIPOC members to belong as equal lab partners. We co-created a lab handbook that describes our code of conduct and a lab safety plan. We have also worked tirelessly to ensure equitable access to keys, card readers, and computing time for all lab members. We will further foster a safe and welcoming environment by creating lab apparel (e.g., masks with lab logos); establishing a group text-messaging system for inclusive communication; and adopting a formal buddy system for onboarding. These efforts will be outlined in our lab handbook.

Rule 3 posits that the contributions of BIPOC scientists need to be routinely sought out and recognized. BIPOC scientists should receive equal opportunity to earn a credited role on publications, presentations, and grants for their advancement. Our lab employs a generous model of assigning credit for contribution (e.g., co-first and co-senior authorship on refer-

eed and nonrefereed deliverables, formal acknowledgement built into onboarding). Therefore, all BIPOC lab members have earned formal acknowledgement and/or authorship for their contributions. We will invest more lab resources into BIPOC-run businesses and proactively acknowledge them on deliverables to publicize their contributions. We will also include photos of lab members being acknowledged in lab website posts and in social media.

Rule 4 posits that racial biases can and do hinder mentor-mentee relationships that drive mentee success. We employ a continuum-of-mentorship model, so lab members are typically co-mentored for one or more aspects of their training, to ensure healthy transparency in the mentoring relationship. We sporadically connect current members to lab alumnae and to collaborators who are external to the lab. We will intentionally seek collaboration with lab alumnae and scholars external to the lab in ways that are of mutual benefit (e.g., through invited talks, lab dinners at conferences, and invitations to serve as committee members), so that BIPOC mentees can strengthen their scientific networks.

Rule 5 posits that BIPOC colleagues and lab members should be promoted by intentionally reading and citing their work, highlighting their scientific contributions—rather than solely highlighting their diversity, equity, and inclusion (DEI) contributions—and compensating them for educating others on DEI. Each lab member is visible on our website with their name, title, and bio vetted by the lab member. We routinely nominate lab members for awards and scholarships and have started to publicly correct omissions, when our lab's work and/or a team member is excluded from recognition. As a BIPOC-led and majority lab, we will more consistently find, share, and cite our lab's work and those of our BIPOC colleagues, to amplify underrepresented voices in our scope of work (e.g., when conducting a manuscript review). We may add ResearchGate links to further enhance lab members' profiles on our website.

Rule 6 posits that an anti-racist lab provides dedicated spaces for BIPOC members to safely examine topics related to racism in science, independent of white colleagues. Mentors may prepare an agenda and share resources prior to these meetings and urge mentees to create follow-up action items to address identified issues during meetings. We have met to discuss race equality in science with all lab members present, and lab members also have protected-mentorship meetings with the BIPOC lab director to discuss sensitive topics. We will create affinity peer groups (e.g., when assigning co-mentors), to provide safe spaces for BIPOC members to process sensitive topics about racism in academia, without retribution.

Rule 7 posits that diversifying research labs should be prioritized. Since our interdisciplinary science aims to improve interprofessional practice, we have attracted and trained students with multiple disciplinary backgrounds, perspectives, and aspirations. Approximately one-third of these students identify as BIPOC. We have a five-step process for recruiting new members, one of which is a team interview that allows the team and the applicant to appraise research and mentor fit. We will seek BIPOC lab-member input when examining our recruitment strategies, when adding DEI statements to our recruitment and hiring materials, and when making decisions about how to diversify our recruitment and hiring strategies.

"Building an Anti-Racist Research Lab" continues on page 38 >

Since our interdisciplinary science aims to improve interprofessional practice, we have attracted and trained students with multiple disciplinary backgrounds, perspectives, and aspirations.

S.T.E.M.ING WHILE BLACK
Advocating for Inclusivity

By Lataisia Jones, PhD
AWIS Member Since 2020

As a graduate student, you neglect yourself a lot to focus on earning your degree. This is amplified even more when the social climate is riddled with worry, stress, and uncertainty. This year alone, Black and Brown students witnessed the murders of George Floyd and Ahmaud Arbery on viral videos. In addition, the COVID-19 pandemic has had a greater impact on Black and Brown communities and has caused learning to move online—putting the visa status of international students at risk and disrupting bench research.

Unfortunately, Black and Brown communities have internalized these challenges for years. Many have become desensitized to these traumatic experiences, due to repeated exposure to the same ordeals. During these times, it is important for us to not only speak up, but we must also supply resources. We cannot continue to forget Black and Brown students. There is a heightened need for free conversation, the exchange of experiences, guidance, mentorship, and networking opportunities.

This series, purposefully created to provide encouragement during a time when hopes are low, features twenty panelists who are Blacks in various stages of their STEM journeys.

This was precisely my mindset when I created S.T.E.M.ING WHILE BLACK, a free virtual series that offers an inviting atmosphere for anyone and everyone to come together with the aim of talking through some of the greatest challenges in STEM academic programs and careers. This series, purposefully created to provide encouragement during a time when hopes are low, features twenty panelists who are Blacks in various stages of their STEM journeys. There is also a mental health corner, consisting of Black psychologists who provide mental health support, assistance, and resources during pivotal parts of the panel discussions.

If you've tuned in to previous sessions, you may have already built an understanding of the needs of current Black and Brown graduate students through the panel discussions. All discussion topics are based on questions submitted during the registration process, many of which focus on the barriers faced by Black and Brown students in STEM. Most of the questions reveal hopelessness and a drastic need for support, as these students face challenges with inclusivity, racism, macroaggression, lack of representation, and more.

One registrant asked, "In a STEM world, where there are so few of us, especially within our own departments, where do we start to make a change to help pave a path for those Black and Brown students who come after us?" Dr. Nathan A. Smith, a neuroscientist in Washington, D.C., responded, "Representation matters in all that we do. We can actually bring in students of color. I bring in students, and I want them to feel that science is an option. I want my lab to reflect what the country and the rest of the world looks like. Too often, students of color are treated like they are not human or are invisible—causing them to abandon science as a career choice. We are losing their contributions to science.

"It is very important for people of color like myself and others to embrace students of color, embrace the differences that they have, and show them that science can be a welcoming environment for anyone and everyone. They might be the next Nobel Laureate, but because of the experiences they have had before, we have lost the person who could cure cancer, HIV, and anything else." Dr. Adrienne Stephenson, assistant dean of the graduate school at Florida State University, echoed similar points by advising Black and Brown leaders in STEM to "Lift while you climb, bring someone else along, position yourself where you can make changes, and educate others, because that's how you get your allies."

But where do inclusivity and anti-racism really start? Is it too early to address these matters at the grade-school level, or should we wait to let graduate school departments address

them? "Middle school and high school are some of the most impressionable years of a child's life. Keep young people encouraged," says Elam Cutts, a NIH Prep Scholar. Lateakwa Jones, a cyber-security analyst, later expanded on the topic by saying, "Everybody needs to be able to talk about these topics in the household. I think that's one of the things that's going to change soon and that's going to help with things in America. We have to start in the household. The mindset has to change at home."

If change really starts with conversation, how do you have these conversations, and how can an ally be supportive? "A lot of times these can be used as educational moments. It now opens the doors to discussion and dialogue. It's very important to address those moments because now, allies have the ability to identify those moments so that they can stand up and fight and be allies for somebody going through those things," says Maynard Okereke, a civil/environmental engineer. Multiple panelists agreed that the responsibility of an ally is greater now than ever before. Allies are often in the best positions to use their voices to effect the changes needed to increase diversity in STEM.

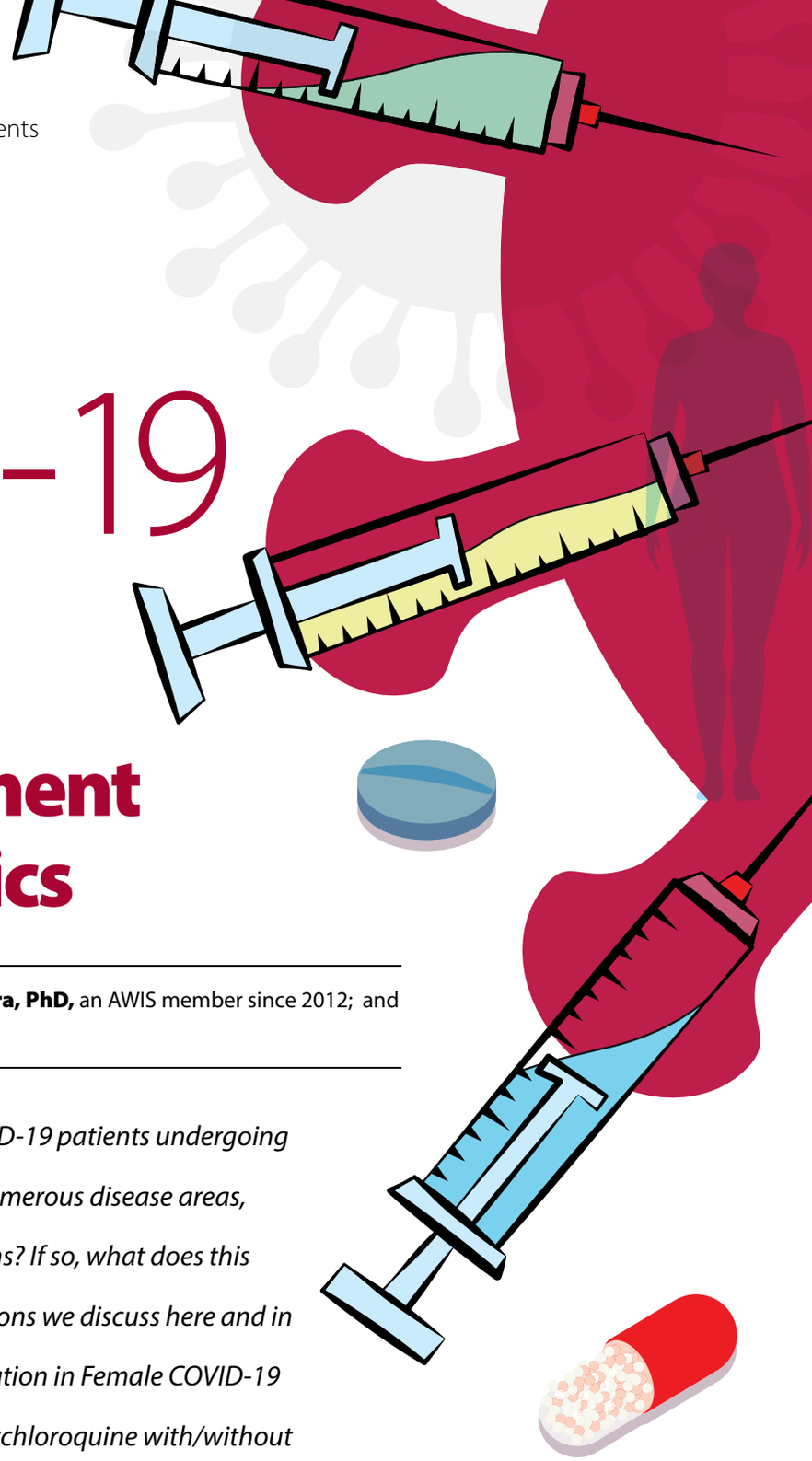
"As a Black woman and person of color, I don't think it needs to be us always speaking up. What I want to propose is that if you're not a person of color and see something, help take that burden off of us. From the moment we were born, we were already Black. We need advocates because we are tired. We need people who are in power and in privilege," says Dr. Siobahn Day Grady, a computer scientist and assistant professor at North Carolina A & T State University.

"As a Black woman and person of color, I don't think it needs to be us always speaking up. What I want to propose is that if you're not a person of color and see something, help take that burden off of us. From the moment we were born, we were already Black. We need advocates because we are tired. We need people who are in power and in privilege," says Dr. Siobahn Day Grady

Change rarely happens overnight. It especially won't happen because of one event. The S.T.E.M.ING WHILE BLACK series has provided a space for people from many walks of life to come together to discuss issues that were once avoided. Topics like macroaggressions from senior staff, confidence issues, the imposter syndrome, and the effects of the social issues faced by Blacks take the conversation to some of the most unimaginable places—all of which are needed by current Black and Brown graduate students. For so many years, these students have neglected themselves to earn their degrees, often internalizing and desensitizing themselves to traumatic issues that have occurred for centuries. S.T.E.M.ING WHILE BLACK provides an outlet for these individuals to feel inspired and strong enough to work through every challenge presented. It provides them with a voice that is lifted and heard by many. Furthermore, S.T.E.M.ING WHILE BLACK provides other individuals with an understanding of these debilitating issues and helps create the advocates and allies we need to amplify our voices.

Join us in the fight to advocate for inclusivity in STEM while encouraging students, professionals, and allies. S.T.E.M.ING WHILE BLACK has four editions currently in production that will persist through 2021. You can catch all of the episodes on YouTube at http://www.youtube.com/c/HeyDrTay. To learn more, you can write us at s.t.e.m.whileblack@gmail and/or follow us on Facebook (@stemingwhileblack), Instagram (@stemingwhileblack), and Twitter (@stemingwhileblk). If you'd like to be added to the mailing list and/or to join us in the future, please register at tiny.cc/6xwmsz. ✪

With thirteen years of experience as a scientist, **Dr. Lataisia Jones** *is currently an Ethics Fellow at the American Society for Microbiology, an AAAS IF/THEN Ambassador, mentor, and STEM consultant. As the first African American to earn a PhD from the Florida State University College of Medicine, Department of Biomedical Sciences, Jones advocates for inclusivity within STEM careers and academic programs through several programs and media platforms.*



COVID-19 Highlights Sex Inequalities in Drug Development and Therapeutics

By Sarah K. Grewal; **Aman Handa, MD**; **Kamana Misra, PhD,** an AWIS member since 2012; and **Gloria A Bachmann, MD, MMS**

Is the cardiotoxicity risk higher for female COVID-19 patients undergoing treatment? Do these risk factors encompass numerous disease areas, therapeutic modalities, and treatment regimens? If so, what does this mean for female patients? These are the questions we discuss here and in our recent study, "QTc Prolongation Risk Evaluation in Female COVID-19 Patients Undergoing Chloroquine and Hydroxychloroquine with/without Azithromycin Treatment."[9]

Background

The drugs chloroquine, hydroxychloroquine, and azithromycin have been widely prescribed for COVID-19 patients, based on their anecdotal potential to slow COVID-19 disease progression and improve survival. Disturbingly, all three investigational drugs have also been individually implicated in prolonging corrected heart rate (QTc), a measure of QT prolongation that can lead to fatal arrhythmia cardiotoxicity.

Males appear to be infected with COVID-19 more often and more severely than females. Sex-disaggregated data from numerous global locations indicates a higher fatality rate in male COVID-19 patients than in female patients.[1] Similarly, other coronaviruses, such as MERS-CoV (Middle East Respiratory Syndrome-Coronavirus) and SARS-CoV (Severe Acute Respiratory Syndrome-Coronavirus), also demonstrate higher infectivity rates in males versus females. This holds true in SARS-CoV mouse models too, where male mice are more susceptible to infection than female mice.[2] However, oopho-

rectomy—exposure to an estrogen receptor antagonist— in these female mice results in an increased mortality, while gonadectomy in the males does not affect the disease outcome. These findings suggest that estrogen signaling protects female mice from a lethal infection.

Although it may protect females from initial infection, estrogen can increase cardiotoxicity risk in females consuming QTc prolonging drugs.[3] Therefore, despite greater instances of infection and higher hospitalization rates for male COVID-19 patients, COVID-19 infected females may have higher cardiotoxicity risks caused by QTc prolonging drugs, such as chloroquine, hydroxychloroquine, or azithromycin.

On the whole, adverse drug reactions (ADRs) cause 74,000 emergency room visits, 19,000 hospitalizations, and over 106,000 deaths annually in the United States, more deaths than from pulmonary disease, diabetes, AIDS, pneumonia, and automobile accidents. And, importantly, women experience adverse drug reactions nearly twice as often as men.[4]

The Problem with Sex Not Being a Variable for COVID-19 Therapeutics

Most drugs currently in use have been approved based on clinical trials conducted only with males, and this is problematic. Sex differences in drug metabolism and differences in body weight mean that females are at risk of overmedication. A recent study shows elevated blood concentrations and longer elimination times for most of the FDA-approved drugs in females.[4] These pharmacokinetics are likely the same for chloroquine, hydroxychloroquine, and azithromycin as COVID-19 therapeutics. These three drugs are individually implicated in inducing cardiotoxicities by prolonging the heart rate interval (QTc). Since the female sex is more susceptible to QTc altering drugs, the likelihood of cardiac perturbations in females is much higher.[3]

Logically, knowing all this means that we should require sex-differentiated therapeutic dosing and increased monitoring for female COVID-19 patients. This, however, is far from the reality of what typically happens in medicine. Sex has not yet been an important variable in monitoring female COVID-19 patients and still lacks the importance it deserves. An initial urgency for understanding the disease and sharing results expeditiously explains the lack of sex segregation in data reported early in the pandemic. What is perplexing now, however, is that there are still no mitigating frameworks in place to address sex-difference-elicited risks for COVID-19 female patients.

"As a clinician who cares for females at all stages of their life, these data exemplify the fact that females are not small-framed males and therefore should be cared for by health care templates that are generated by research data collected on them vs those data collected on males."

Says Gloria A. Bachmann, MD, MMS

Global Data Sharing and Collaboration to Address Sex Elicited Risks for COVID-19 Female Patients

Since we at ContraRx focus on developing pharmacovigilance tools for females, we have reached out to clinicians associated with major clinical trials across the globe to assess sex-mediated disparities in cardiotoxicities, specifically QTc alterations in female COVID-19 patients undergoing these treatments.

These clinicians have conducted trials on safety and efficacy of anti-malaria pharmacotherapies in COVID-19 patients from France, the Netherlands, Italy, New York State, and New York City. Along with other top cardiologists and women's health experts, these clinicians shared data with us to help answer our questions.[5-8] This collaboration has resulted in a scientific publication, "QTc Prolongation Risk Evaluation in Female COVID-19 Patients Undergoing Chloroquine and Hydroxychloroquine with/without Azithromycin Treatment," in record time.[9] This is the first report focusing on female sex as a variable for reporting clinical COVID-19 data.

This textbook example of extraordinary global collaboration and data sharing during the pandemic will hopefully serve as a model and be adopted by clinicians worldwide. The COVID-19 pandemic has been globally devastating. But for the scientific community it has heralded an extraordinary global mobilization, a unification never seen before. We were able to compile clinical data sets without reinventing the wheel, while raising critical safety questions for female COVID-19 patients.

Future Recommendations

Although we observed higher cardiotoxicity risks in females in three out of four cohorts included in our study, we could not correlate a distinctive risk association. First, there was sex disproportionality in our data, as a greater proportion of COVID-19 patients admitted to the hospitals were males. Second, none of the trials we had female sex listed as an outcome measure variable. Third, given the diverse study designs, our retrospective analysis lacks statistical validation.

The reality is that these trial design deficiencies are not COVID-19 restricted. Clinical trials without sex as a variable

"COVID-19" continues on page 36 >

Ensuring Women Are Seen, One Novel at a Time

By Shelley O'Brien, MBA
AWIS Chief Marketing Officer

In 1896, Mileva Marić was the only woman in her class studying math and physics at Zurich Polytechnic. It was there that she met, and later married, Albert Einstein. There is speculation that she collaborated with him on his work, at least until their children were born, but there is no specific documentation to confirm this.

In 1933, Hedwig Eva Maria Kiesler (later known as Hedy Lamarr) married Friedrich Mandl and was in the room during sensitive conversations regarding munitions technology. After fleeing to America, she developed a frequency-hopping signal to keep torpedoes from being tracked or jammed.

Marie Benedict, lawyer and New York Times bestselling author

Her invention was initially dismissed by the U.S. Navy—then went on to become the precursor to modern wi-fi, GPS, and Bluetooth technologies.

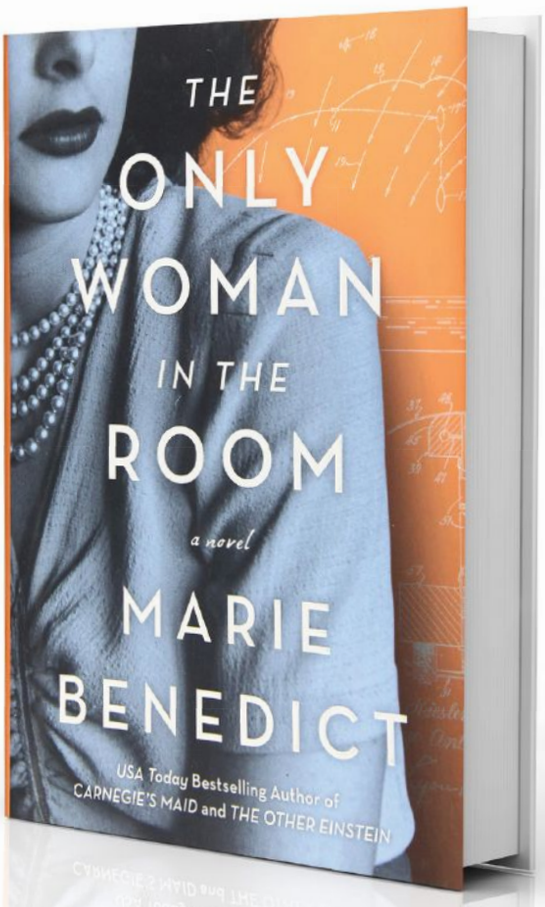
What do these two women have in common? They both had to battle the stereotype that women can't be brilliant—and they are both featured by *New York Times* best-selling author Marie Benedict in her current series of novels unearthing the historical stories of women.

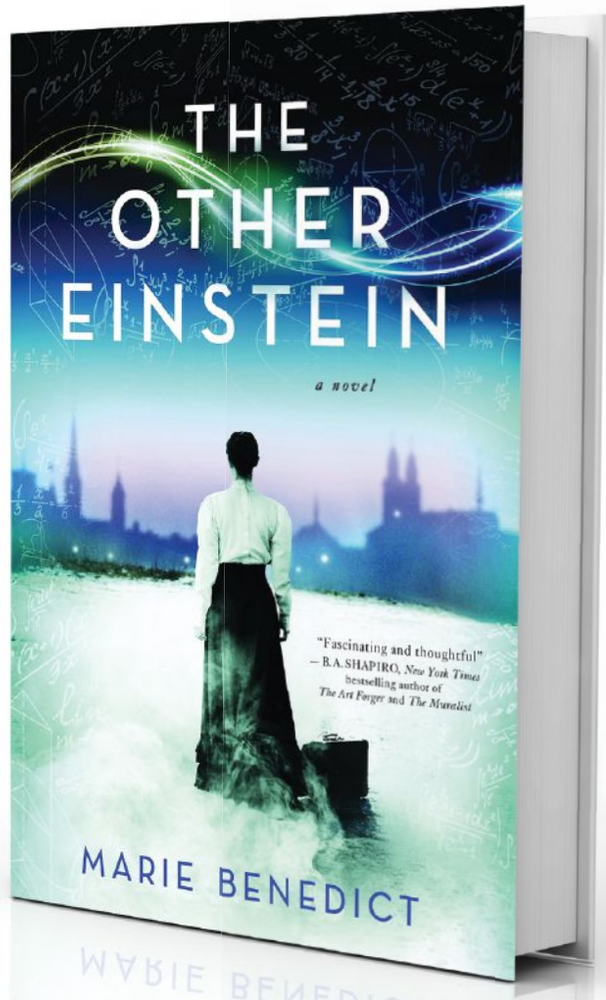
Formerly a commercial litigation lawyer in New York City, Benedict knows what it feels like to be the only woman in a room full of men. She loved reading as a child and majored in history before attending law school, but she never lost her love of history and books.

She is now on a mission "to excavate from the past the most important, complex, and fascinating women of history and to bring them into the light of the present day, where we can finally perceive the breadth of their contributions, as well as the insights they bring to modern-day issues."

When asked recently why she doesn't write biographies, Benedict replied, "Nonfiction was designed for men's stories." She explains that while conducting her research, she found many gaps in women's stories, due to either a lack of documentation or to a lack of recognition. She reasons, "While we don't know precisely what happened, I get to know these women so well that I can make a logical extrapolation to bridge the gaps." In this way, Benedict feels that she is able to honor these women.

She also hopes to show that there is more than one point of view in how we capture history. "We need to make sure that women's stories aren't lost in the future. We know women are contributing, but how can we ensure that they are seen?"





She is now on a mission

"to excavate from the past the most important, complex, and fascinating women of history and to bring them into the light of the present day, where we can finally perceive the breadth of their contributions, as well as the insights they bring to modern-day issues."

Benedict also realizes that disabled, LGBTQ+, Latinx, Black, Indigenous, and women of color face even more barriers in their careers in their careers, and their contributions are more likely to be overlooked. She explores the impact of racial inequity in The Personal Librarian, co-authored with Victoria Christopher Murray, to be released in June 2021. To learn more about Marie Benedict and her books, visit: authormariebenedict.com.

Books by Marie Benedict:

- The Other Einstein
- The Only Woman in the Room
- Carnegie's Maid
- Lady Clementine
- The Mystery of Mrs. Christie (coming January 2021)
- The Personal Librarian (coming June 2021)

AWIS hosted a Q&A with Marie Benedict on September 29 at 3pm ET. This event was free for members ($29 for non-members). Watch the recording on awis.org. You do not need to have read Marie's books to find the conversation valuable.

We discussed the themes in her books – challenges that women scientists still face today – including gender and racial equity, self-efficacy, how to successfully pivot your career, and work-life integration. ✪

Embracing Change

By Jennifer Gerbi, PhD, Associate Director for Technology, ARPA-E

"Academia or industry? If I choose industry, I can never publish again! My career will be over! If I choose academia, I can still publish, but will I get the funding to work on what I really think matters? My ability to have an impact might be over!" I kept going over and over those choices in my head, as if there were only one right answer. But I gradually learned that there is no one optimal path. Through my educational and professional journey I've learned that the only true misstep is to fear change.

I've worked at a national lab, in academia, in industry, and in government. Progress along your path can come down to smaller, daily decisions, to knowing yourself, and to challenging yourself in the right ways. Every risk I have taken—and I have taken many—has paid off because I set the stage with those smaller choices. I'll be the first to admit that not every risk has been pleasant, but I I have learned from every step. This is my story and the lessons I have learned.

Lesson One: Ignore the Naysayers—Take the Shot

I grew up in a small town and went to a small high school. I knew I'd have to pay most of my way through college. I was extremely shy, nervous, and had very poor self-confidence. When I asked my guidance counselor about applying to the liberal arts college nearby, she said, condescendingly, "Oh, that's really hard to get into. You won't get in." Well, not only did I get in via early decision, but

being high school valedictorian meant I got a $30,000-per-year scholarship—all because I didn't listen to her.

I worked ridiculously hard as an undergrad. I majored in physics but also took classics, literature, film, art, psychology, and most of the chemistry sequence, all while I was on work study. I struggled with horrible test anxiety. At the last minute, I would often scratch out the right answer and second-guess myself. I started to learn that I was my own worst enemy. I needed to stop being afraid and trust myself. My undergraduate advisor was incredibly patient and kind during this time.

I believe your undergraduate years are for learning how to learn. I applied to a summer Research Experience for Undergrads (REU) program and to a Science and Engineering Research Semester (SERS) program, both of which helped me broaden myself scientifically and personally. I still remember how very kind the people who led those programs were to me. (Yes, kindness has been an ongoing theme. I simply cannot emphasize enough how this kindness has enabled me to stay in science.) The SERS experience ultimately even helped me get into grad school, although I admit, the only reason I could attend was the heavy credit load I took prior to my final undergraduate semester.

I was, however, at a real risk of not being accepted anywhere as a graduate student, since my undergraduate institution did not offer a competitive level of preparation for physics. When I had the chance to listen to a guest speaker from a school I was applying to, I steeled up the courage to say hello to him after his talk, to chat about my work, and to mention I was applying. (I had never built up the courage to do something like this before.) I introduced myself, chatted with him, and he ended up remembering my name. It was the chance I needed. I did not get into any other graduate school.

But I gradually learned that there is no one optimal path. Through my educational and professional journey I've learned that the only true misstep is to fear change.

Lesson Two: When You Need Help, Reach Out!

Grad school was hard for a variety of reasons. I had only taken one semester in many key subjects as an undergraduate, while many of my peers had taken two. Some of the professors were great, some were curt and hard to work with, and some were downright horrible. Of course, I was also dead broke, living in an apartment without air conditioning that was full of roaches, and my apartment was robbed over Christmas.

Now with far fewer possessions, I moved into a tiny room in someone's house, and I was always studying or grading at my office in the attic of the physics building. A group of us studied together, and that collaboration was essential. I remember something one of my excellent undergrad professors said: "Physics is a team sport."' It really was, and this was the best part of my time there.

When the physics building caught on fire, however, all I had left turned to ashes. I was actually lucky: what I lost wasn't thesis work, which some of my peers did lose. When a professor chided us for asking for more time to study for our midterm the next week ("You shouldn't need notes! THIS should all be in your head! This is high-school level!"), I decided to leave, both that school and that subject.

Planning my next move took careful consideration. What had actually made me happy? What was I good at? I thought back to the chemistry classes I had taken for fun and remembered a professor suggesting materials science as an area I should explore. I asked my wonderful undergrad physical chemistry professor what the best school was to further pursue these interests. Thus, I applied to the University of Illinois at Urbana-Champaign.

Lesson Three: Do What Feels Right to You

Illinois was a different world. The professors were supportive of the students. I worked hard but also had fun, especially with an excellent study group. I worked on solar energy, something I had always been passionate about. Skills I had learned as an undergrad (both in writing and in psychology) were paying off. I started really thinking about human behavior in the context of group dynamics.

Then my mom got sick. For many months, I spent two weeks in the lab, then flew to Connecticut and spent two weeks helping my father take care of

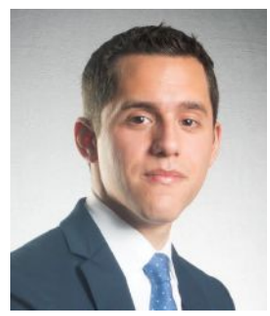
"Embracing Change" continues on page 37

The 2020–2021 ARC Network Virtual Visiting Scholars

By Crystal Bedley, PhD, Project Director, ARC Network
Stephani Page, PhD, Community Engagement Manager, ARC Network

Innovation is often born from a desire for change, whether it's the restructuring of a system or addressing an unmet need. At the core of the ARC Network's Virtual Visiting Scholars (VVS) program, researchers are synthesizing innovative scholarship and practices that are advancing STEM equity in higher education. To date, these scholars have explored equity in mentoring, technology transfer, networking, publication, and more. As the VVS program enters its third year, the ARC Network is excited to share four timely and novel projects being conducted by leaders in their respective fields.

Ramón Barthelemy, PhD



LGBT+ Faculty and Students in STEM: Policies to Support Success and Inclusion

Barthelemy is currently an assistant professor of physics and astronomy at the University of Utah in Salt Lake City. His current research applies qualitative and quantitative methods to study workforce preparation of underserved student populations and the impact of student perceptions of diversity and inclusion on final course grades and learning outcomes. During his tenure in Finland as a Fulbright Fellow, Barthelemy researched physics education and taught collegiate courses on international education and equity in science. He then served as an American Association for the Advancement of Science (AAAS) Science Policy Fellow at the U.S. Department of Education (DOE), where he worked on national STEM education equity and wrote national policy on the matter. His extensive publication portfolio focuses on experiences of women in graduate physics and astronomy and on LGBT+ persistence in the field of physics.

The overarching goal of Barthelemy's VVS project is to understand the experiences and perspectives of gender and sexual minority (GSM) persons in STEM higher education. His project places an emphasis on informing and supporting new and existing policies to further GSM persons' inclusion in STEM and to ensure that conversations of gender in STEM also include GSM communities.

Ramon Goings, EdD

Examining How Race/Ethnicity and Gender is Explored in Research on STEM Contingent Faculty

Goings is an assistant professor in the Language, Literacy, and Culture interdisciplinary doctoral program at the University of Maryland, Baltimore County. In his research he explores the academic and social experiences of gifted/high-achieving Black males PK–PhD; diversifying the educator workforce in K–12 and higher education; and the contributions of historically Black colleges and universities to education and society. Goings has written more than fifty scholarly publications, including four books. His scholarship has been featured in leading academic and popular press outlets, including: *Teachers College Record*, *Journal of Teacher Education*, *Adult Education Quarterly*, *Gifted Child Quarterly*, *Inside Higher Ed*, *Education Week*, and *Diverse: Issues in Higher Education*. Goings earned his doctorate of education in urban educational leadership from Morgan State University; a master's of science in human services from Post University; and a bachelor of arts in music education from Lynchburg College (now University of Lynchburg).

The primary goal of Goings' VVS project will be to determine which identities are considered in research on contingent faculty in STEM disciplines, in order to address the policies that institutions of higher education implement to support the needs of STEM contingent faculty at the intersection of race/ethnicity and gender.

At the core of the ARC Network's Virtual Visiting Scholars (VVS) program, researchers are synthesizing innovative scholarship and practices that are advancing STEM equity in higher education.

Joya Misra, PhD

Gender, Intersectionality, Workload, and Leadership in STEM Departments

Misra is currently a professor of sociology and public policy at the University of Massachusetts, Amherst. She has also served as director of the Institute for Social Science Research at the University of Massachusetts; as vice president of the American Sociological Association; and as editor of *Gender & Society*. Misra's experience includes leadership on multiple NSF ADVANCE grants that focus on organizational change for gender equity in STEM. Her research in political sociology and labor markets explores inequality from an intersectional standpoint. Much of her research considers how gender and parenthood affect women's employment, wages, and risk of poverty. Misra has also studied how race, gender, nationality, and class shape the experiences of retail workers and academics. She published her first piece on intersectional inequality among faculty members in 1999. Her collaborative research on gender equity in STEM appears in a wide array of journals, as well as in regular contributions to *Inside Higher Education*.

The primary aim of Misra's VVS project is to address the impact of intersectional identity on—and its inclusion in—decision-making and leadership, with an additional emphasis on retention and career advancement of faculty. This meta-analysis aims to generate new insights into how the overrepresentation of women faculty—especially women of color—in service work, as a form of leadership, has not led to an overrepresentation of women in leadership positions.

Kimberly Scott, EdD

Analysis of Funding Trends Addressing Girls/Women of Color and STEM: An Intersectional Approach

Scott is a professor of women and gender studies in the School of Social Transformation at Arizona State University (ASU), and she is the founding executive director of ASU's Center for Gender Equity in Science and Technology (CGEST). CGEST is a one-of-a-kind research unit focused on exploring, identifying, and creating innovative scholarship about underrepresented women and girls in science, technology, engineering, and mathematics (STEM). Center projects include the National Science Foundation-funded COMPUGIRLS; U.S. Department of Education-funded COMPUPOWER; Gates-funded project on African American Families and Technology Use; and NSF-funded Culturally Responsive Co-Robotics Program. Scott is also an affiliate faculty member at George Mason University's Center for Digital Media Innovation and Diversity, located in Fairfax, Virginia. She was recently appointed to the National Academies of Sciences, Engineering, and Medicine's Committee on Addressing the Underrepresentation of Women of Color in Tech.

The primary goal of Scott's VVS project is to apply intersectionality as an analytical strategy to determine how funding agencies reinforce or challenge majoritarian narratives of girls/women of color in STEM. This meta-analysis will provide insight into decision-making, structural barriers, and funding patterns, with the ultimate goal of revising funding strategies to be more effective in addressing race-gender disparities for women of color. ✪

Learn more about the ARC Network Virtual Visiting Scholars fellowship, including the work of previous cohorts, at equityinstem.org.

How Activate is Building a More Inclusive Fellowship

By Mary Catherine O'Connor, Editorial Director, Activate
Meron Benti, Research Assistant, Activate
AWIS Partner Since 2019

Launching a business is a difficult endeavor for anyone, in any industry and for any product. But for scientists and engineers who envision commercial pathways for their research in the hard (physical and biological) sciences, the time, resource, and capital requirements are especially daunting. To address these challenges, Activate supports early-stage startup founders in our fellowship program, which provides two years of intensive training, mentorship, and laboratory access. But we have been reexamining how inclusive our fellowship program has been, to date.

Our archetype for the kind of Activate fellow we aspire to bring on board is someone who is willing to make an extraordinary commitment to their vision—without the benefit of a predefined or well-trodden path. As Dr. Sarah Richardson, CEO of MicroByre and a Cohort 2017 fellow, put it, "The transition from academic scientist to entrepreneur is neither easy nor generalizable."

This path to becoming a science-entrepreneur, though not easy or easily defined, should at least be equitable. But a quick scan of our fellowship community a while back revealed profound gender and race/ethnicity disparities. So before recruiting our sixth cohort in 2019, we consulted with AWIS to review our outreach efforts, with an eye toward fostering a more diverse applicant pool.

Our main objective was to get guidance on how to improve our outreach and answer these questions:

- Network: Do our outreach channels connect us to diverse audiences? Or do they reinforce or perpetuate the lack of diversity we are trying to combat?
- Positioning: Are we using the right words and images to attract and persuade a diverse pool of applicants?
- Clarity: What do potential applicants hear about their purpose and path forward as entrepreneurs? How openly or narrowly do we set expectations, and how do we define success?
- Values: Are we clearly conveying how Activate empowers fellows to create impact and address societal problems through their innovations? Are these statements backed up by the experiences of the fellows?

Over the spring and summer of 2019, Activate worked closely with AWIS's chief research officer, Dr. Heather Metcalf, as well as with her STEM to Market colleague Erin Kelley and AWIS research assistant Aspen Russell, to answer these questions and to chart a path toward improvement.

Christina Boville, CEO and co-founder of Aralez Bio | Cohort 2019

"The transition from academic scientist to entrepreneur is neither easy nor generalizable."

We provided a wide range of data and information sources, including demographic data about applicants versus fellows accepted into past cohorts; and information on how applicants heard about our program. We shared recordings of webinars, emails, social media posts, and other collateral from past recruitment cycles. The AWIS team also conducted interviews with individuals who had shown interest in the fellowship program but who had ultimately decided not to apply.

What AWIS Found and How We Responded

Finding #1: Direct referrals and word-of-mouth networking are top sources of applicant referrals. However, the majority of applicants who come through these channels are white men.

Therefore, AWIS suggested that we examine and expand our outreach channels, as an effective means to attract more women and people who are Black, Indigenous, or people of color (BIPOC), and those who identify as transgender or non-binary.

Course-Correction: Instead of sending emails, we are asking our existing contacts for warm introductions to their networks. Plus, we are working to build relationships with organizations and affinity groups that have clear mandates to

improve equity and inclusion, both in STEM and in the industrial sectors we target—including forging a partnership with AWIS. We have also used webinars to reach graduate students who are women at prominent universities. This effort has paid off, netting a female fellow in Cohort 2020.

Finding #2: The audit of our outreach process showed a mixed bag, in terms of the language, themes, and images we were using. We need to diversify our outreach images and language to ensure racial diversity, it found, and we should showcase examples of women fellows with families.

We do not use stock imagery, and AWIS praised our authentic approach. However, we realized that we often show women in public speaking contexts but seldom show them performing research at a bench. In terms of language, the review focused on key and sometimes gendered phrases, such as "no man's land," and on concepts, such as "all-in commitment," that might be a turn-off to some potential women applicants to our fellowship program.

Course Correction: We are growing our image bank and working to present a more representative view of the women in our program, by better balancing images of them in the lab with images of them speaking at events. In terms of language, we are more mindful of perception and more careful to avoid gendered words.

Finding #3: Potential applicants chose not to apply due to wrong assumptions about who could become a fellow and what we mean by entrepreneurship. We need to clarify expectations and information being conveyed to increase transparency.

When AWIS interviewed past potential applicants, many of them said that framing the fellows as entrepreneurs had turned them off because they did not identify as entrepreneurs, at least not in the conventional sense. We also examined our application language and process to clarify the specific information we sought and how we ran the selection process: how transparent was our application process? Did applicants misperceive that only insiders have a shot at a fellowship?

To broaden the candidate pool, AWIS also suggested that we curb our use of happy hour events at bars. This approach could be unappealing to some people or inconvenient to those with family obligations.

Course Correction: We examined how we deliver information, what we ask of applicants, and how we interact with them. We have reframed what we mean by entrepreneurship in our outreach. We have overhauled our application process, infusing it with clarity and directness. We are counteracting the notion that we only support freshly minted PhDs.

Finding #4: Social impact is important to Activate, but this mission is not reflected in the organization's recruitment outreach. Including this message could increase applicant interest.

Our recruitment messaging frames Activate as an organization that supports fellows who want to bring their technological innovations to market explicitly to address pervasive social problems, ranging from climate change to the need for more secure and accessible computing and communications systems. However, the way we conveyed our selection process was focusing more on ensuring that our fellows' proposed technology is feasible and marketable.

Course Correction: We are devising a framework for telling our impact story in a way that resonates with and reflects our fellows' and partners' goals and missions, in addition to asking fellows to convey their own impact stories.

Reflections

Processing AWIS's feedback on our framing of entrepreneurship was tough. Activate exists to support founders, and an enterprising, entrepreneurial spirit is an essential attribute, and something we need to see proof of before deciding to support any applicant. But we are committed now to using language, imagery, and the impact stories of our current and alumni fellows, which will help us frame entrepreneurship in a way that refutes the negative connotations that often color the term.

We are also putting more emphasis on the fact that we are a people-centered organization that works very hard, first and foremost, to support and mentor all our fellows, rather than focusing on the companies they start. Activate does not take any equity stake in our fellows' companies, and this is a feature of the program that we are promoting more explicitly.

Our intent is to use this framework to inform our recruitment, application, and selection process. We will give candidates opportunities to indicate the ways in which their vision for commercialization connects with our mission, to tell us how their work might have a positive social impact and how they will benefit from the fellowship program. We believe this reframing will show the values we hold central as an organization and fellowship community—and how we put those values into practice through the program.

It is also important to acknowledge that gender and race disparities (with regard to representation, access, and success) in both STEM and entrepreneurship are systemic problems. We could never eliminate them just by improving our recruitment efforts.

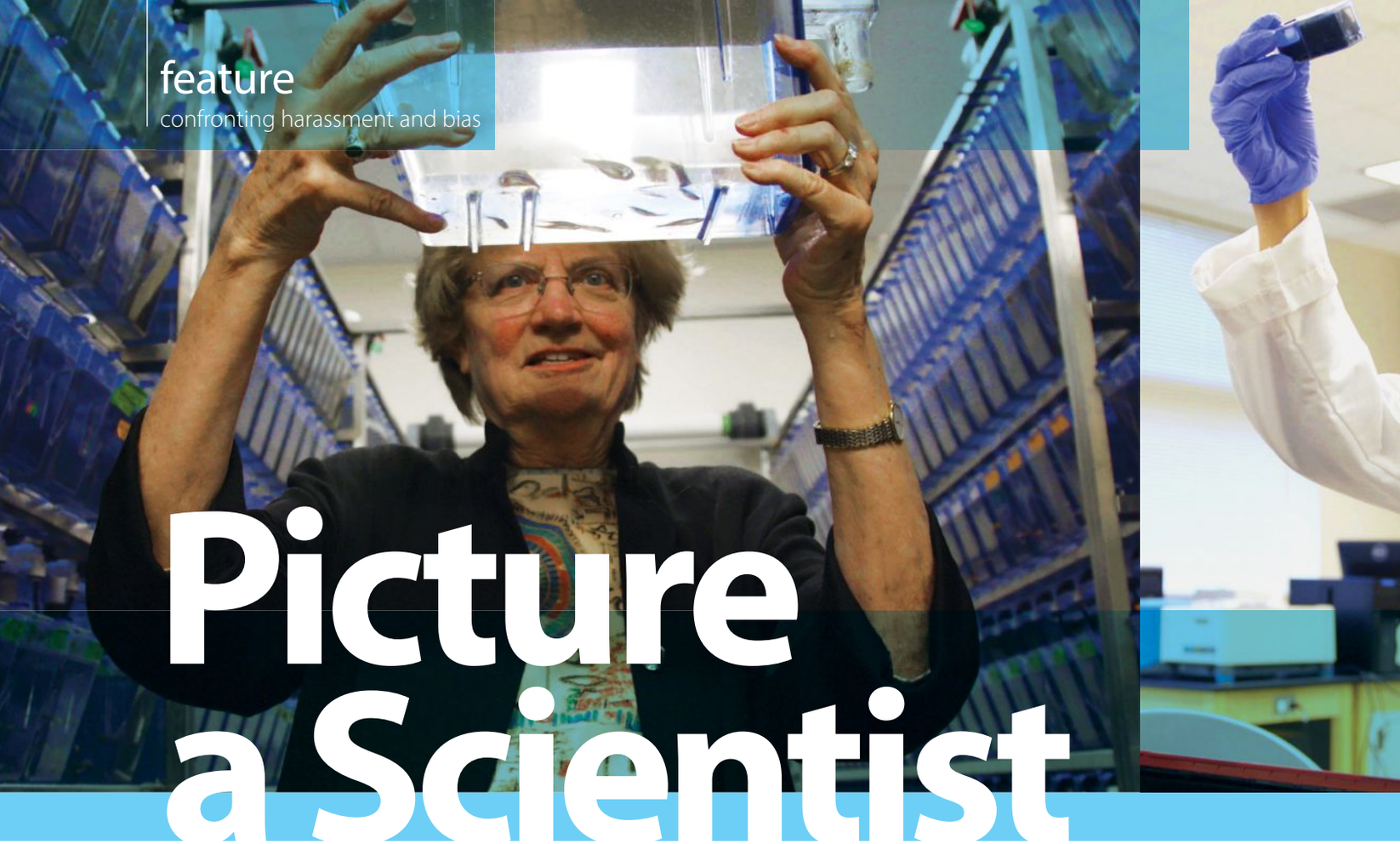
We are grateful to AWIS, which is dedicated to addressing these systemic disparities through its outreach and advocacy work, talent development, research efforts, and partnerships. "Partners like Activate are great to work with because they approach equity issues from a growth mindset, a willingness to take a hard look at the root causes of inequity, and a commitment to meaningful and evidence-based organizational change," says Dr. Heather Metcalf, AWIS's chief research officer.

"We have not internalized everything from the feedback, but these findings have had a significant, lasting impact on how we approach recruitment," says Brenna Teigler, Activate's chief fellowship officer.

"We have not internalized everything from the feedback, but these findings have had a significant, lasting impact on how we approach recruitment," says Brenna Teigler, Activate's chief fellowship officer. Activate is working to understand how we can confront bias and become a more equitable and inclusive organization, and improving the diversity of our fellow cohorts is just one important step toward those goals. As an organization, Activate is charting a path toward understanding the best use of our privilege. Among our networks, sponsors, and partners are some of the most important companies, agencies, and individuals in the innovation ecosystem. To really create change in the world of STEM entrepreneurship, we need their participation and help. ✪

For more information about how Activate adjusted its 2020 recruitment outreach, cohort objectives, and candidate demographics at each stage of the selection process, please read the full case study in the Innovation and Entrepreneurship section of the Research Center on the AWIS website.

Mary Catherine O'Connor *is the Editorial Director and* **Meron Benti** *is the research assistant for Activate*



Picture a Scientist

By Shelley O'Brien, MBA
AWIS Chief Marketing Officer

When you ask someone to draw a picture of a scientist, chances are they will draw a man. This is because women are extraordinarily underrepresented in science. There are numerous factors that perpetuate this disparity, including harassment.

Harassment is not just unwanted sexual attention. Women often endure more subtle slights, like being left off of an email, ignored in meetings, or questioned in ways men are not. Whether this behavior is intentional or due to unconscious bias, the negative impact on their career is the same.

I recently had the opportunity to view a screening of the documentary *Picture a Scientist*. It chronicles the journey of three women scientists and their experiences with overt harassment and implicit bias. It also incorporates data and approaches from twenty other science luminaries on how to make science more diverse, equitable, and open to all.

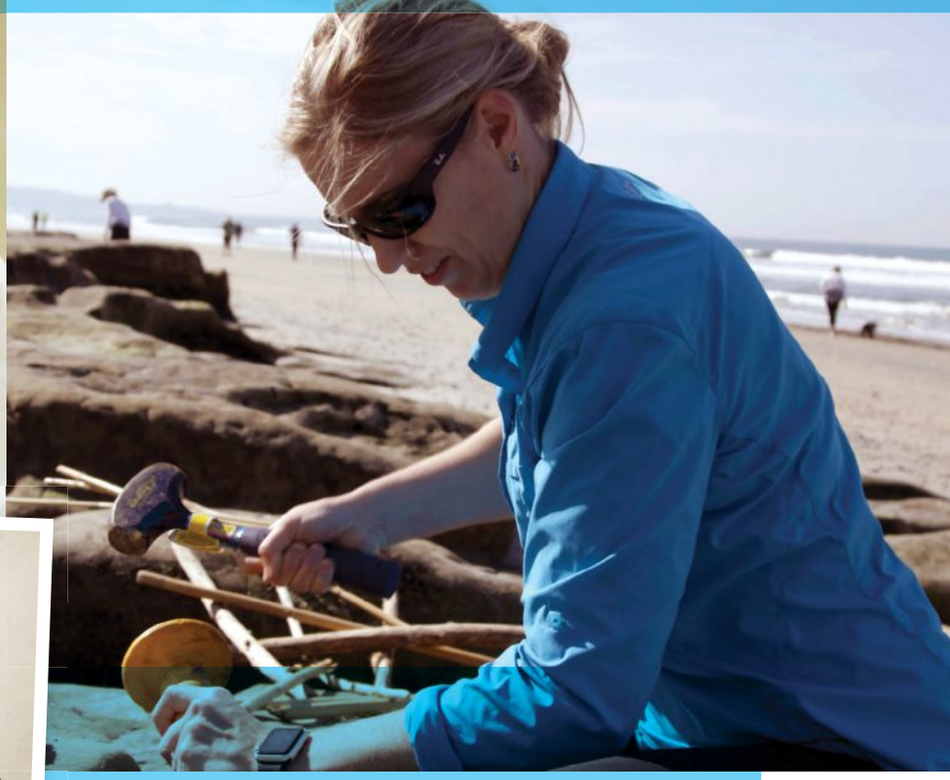
We were thrilled to offer AWIS members and prospective members an exclusive screening of the film. Following is a Q&A with the film directors Ian Cheney and Sharon Shattuck (edited for length and clarity).

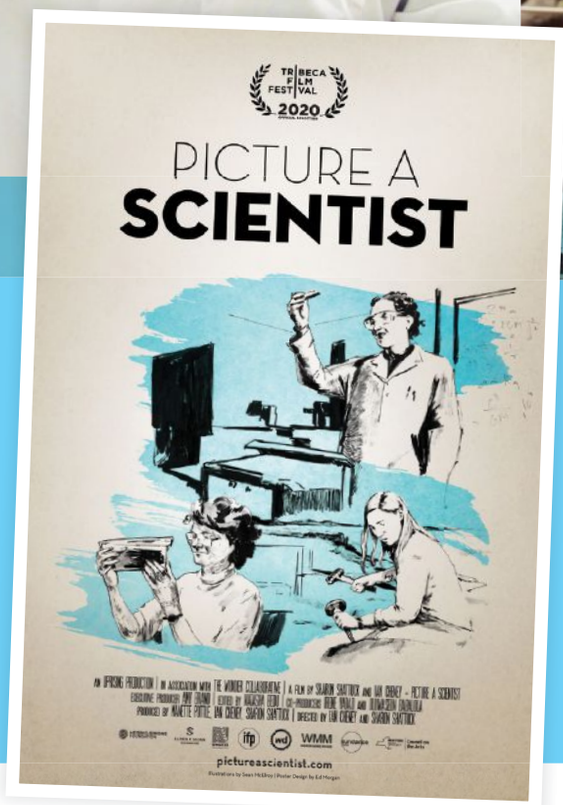
AWIS will host a private screening for members and prospective members, followed by a live Q&A with the directors and cast, on October 13 at 12 p.m. EDT. For more information, visit www.awis.org.

Q: What inspired you to make this film?

Sharon and Ian: Our journey began with the MIT story and biologist Dr. Nancy Hopkins, who we were connected to via the film's executive producer, Amy Brand. While immersed in exploring the story of the remarkable success of the 1999 MIT report, we also realized that the problems that women in science face are far from over. The #MeToo movement made that clear across all areas, but with our science backgrounds and interests, we really wanted to shine a light on this issue in science specifically.

The data show that today, only 33 percent of working scientists are women, so we began talking with many scientists to further understand the problem. Once we realized the vast extent of the challenge, we saw an opportunity to broaden the conversation toward change by putting the stories of women scientists front and center, and *Picture a Scientist* was born.





***Picture a Scientist* was an official selection of the 2020 Tribeca Film Festival, postponed due to the COVID-19 pandemic. The film's virtual theatrical run reached forty-seven theaters across the United States in June 2020 and raised money for two organizations advancing women of color in STEM.**

Q: What was your approach to building out the narrative?

Sharon and Ian: We knew we wanted to feature the idea of the "sexual harassment iceberg"—an idea prominently featured in the NAS report on sexual harassment in the sciences. Basically, the idea is that blatant harassment, like sexual coercion, come-ons, and assault, is only about 10 percent of the harassment that women face in the workplace; the other 90 percent consists of more subtle slights, like insults and exclusion. But long-term, those subtler slights can be just as damaging to a woman's career. We thought the best way to highlight this idea was by structuring the film around three stories of women at different points in their careers, facing different types of harassment.

We also wanted the film to dive into the science of gender bias. By including pivotal research studies on gender bias, we're backing up and underlining their stories with data and showing how systemic and long-standing the problem of gender bias is.

Q: The film deals with some difficult themes of harassment. How did you approach this challenge?

Sharon: Harassment is a sensitive topic, but it's also one that I believe pretty much all women have faced in some form in their careers, whether they admit it or not. As a filmmaker who's also worked in television, I'm unfortunately very familiar with that feeling of being 99.9 percent sure you're being discriminated against because of your gender, but knowing that you can't say anything because no one in power would

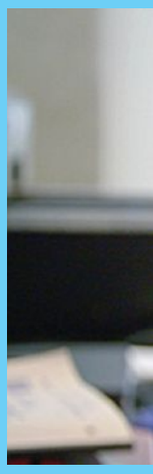
believe you. That fear of being labeled a "difficult woman" that Dr. Nancy Hopkins vocalized so well in the film, is, unfortunately, still very real.

When I talked with our scientists about the harassment they experienced, I felt both sympathy and raw indignation that women have had to deal with these same issues over and over. But I also found a lot of solace in the data on gender bias—it made me feel less alone to know that so many other women, even brilliant scientists at the pinnacle of their careers, have faced these issues.

Ultimately, we didn't't want to shy away from the difficulties our scientists faced, but their stories are also hopeful: these women successfully navigated less-than-ideal situations to forge careers that worked for them. Their experiences will undoubtedly serve as roadmaps for others: by being who they are and leading by example, they're making science more open and accessible to a new generation of women.

Q: How do you think scientists are changing in their overall approach to politics and activism?

Ian: For a long time, in the popular imagination, a brilliant scientist was thought to be a lone man who dedicated himself almost maniacally to science. Under this paradigm, it was possible to be a good scientist and also a bad human: society will forgive your eccentricities, and perhaps even your transgressions, because of your contribution to human knowledge.



Under this paradigm, the best science is thought to emerge from the most concentrated effort on science, and science alone. Under this paradigm, there is pressure to put aside concerns about the culture of science—how people are treated, whether resources are shared equitably, the diversity and inclusiveness of the community—because it might take away from time in the lab.

Today this paradigm is shifting. Many scientists we spoke to are not only keenly aware of the importance of improving the culture of science, but they're also aware that it's likely better for science as a whole.

Perhaps the definition of a "good scientist" can evolve to include someone who not only excels in the lab or in the field, but who also actively advocates for their peers, contributes to their community, and mentors the next generation of scientists in an inclusive and supportive way.

Perhaps the definition of a "good scientist" can evolve to include someone who not only excels in the lab or in the field, but who also actively advocates for their peers, contributes to their community, and mentors the next generation of scientists in an inclusive and supportive way. Advocacy, in this light, is not a liability for a scientist: it's an asset—It builds a better culture of science. And here I'm hopeful that men in particular will step up to play a larger role. It's time.

Q: Why is diversity in science important?

Sharon and Ian: Not only is it the right thing to do, but science benefits from having a diversity of perspectives, from people with different economic and cultural backgrounds contributing.

If women and minorities are shut out, we could miss out not only on their perspectives but also on their actual contributions to important discoveries for society, like during the worldwide effort right now to fight COVID-19.

Dr. Nancy Hopkins said it best: "If you believe that passion for science, ability for science, is evenly distributed among the sexes, if you don't have women, you've lost half the best people. Can we really afford to lose those top scientists?"

Q: What actions and conversations do you want to see stem from the film?

Sharon and Ian: So many things! We hope scientists globally will watch the film and then take actions in their own communities. Ultimately, the culture of science must be equitable for all, which means several things:

1. Mentorship in the sciences needs reinvention. The old system is set up so that one adviser has a lot of influence over a young scientist's career. Furthermore, the women we talked to told us that as they moved up the career ladder and started competing for the same resources, that's when their male peers really started trying to shut them out.

2 Women and minorities shouldn't have to carry the burden of making science fairer. The majority group—men—have the lion's share of the power and resources. Therefore, we hope to see more men becoming advocates and using their status to demand fair and equal treatment for their women and minority peers.

3 Implicit bias needs to be addressed head on. While this bias will continue, recognizing it as a problem is an important first step in taking interventions to mitigate the impacts. For example, some of the work we featured showed the potential benefits of a gender-blind application process for jobs. ✪

AWIS Recognizes Coe College Physics Major Sophie Weiss

"I am a product of outreach. If people didn't talk about the schools they knew of, or the type of careers people have, or about science in general, I would never have known to even look in the direction my life is currently heading."

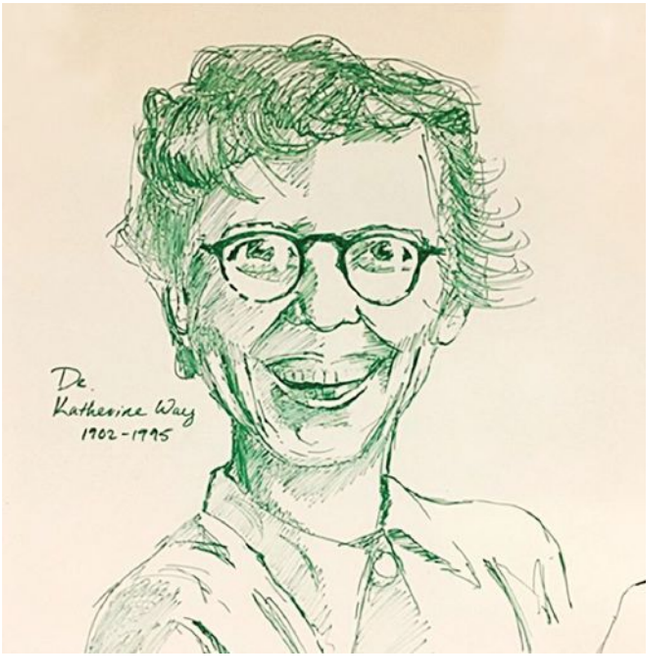
Meet Sophie Weiss, the 2020 recipient of the AWIS Kirsten R. Lorentzen Award. A senior physics major at Coe College in Cedar Rapids, Iowa, Weiss is clear about her passion for physics, the value of nonacademic involvements, and her dedication to helping other students, especially those from junior colleges, pursue science. Get to know Weiss through the following questions.

The Kirsten R. Lorentzen Award honors an "an exceptionally well-rounded student, who excels in her studies, as well as in outdoor activities, service, sports, music, or other nonacademic pursuits." This describes you well. What have you gained from your nonacademic involvements?

I've gained new perspectives. Physics isn't an isolated subject, so sometimes when I'm drawing, or running, I see unusual connections to what I'm learning. I can allow myself to think of my research or my coursework more abstractly and see how it fits in, or acts like, the situations I witness day to day.

Why did you decide to study physics, and what do you love about it?

Shout out to my first physics professor for getting me to switch to the physics major. Most of my life was surrounded by art, but I really enjoyed math, so when I went to college and took my first physics class, it was a big thing, and it really opened my eyes. Physics gave me a mathematical diction rather than an artistic depiction to explain what I was thinking as I watched the world go on around me—a language to help me process the peculiarities I was coming across. I love how imaginative physics is, and I love that there are research positions and careers where I can be curious and creative for a living.



Sophie's whiteboard illustrations of Dr. Katharine Way (1903-1995), American physicist and founder of the Nuclear Data Project; and Mileva Marić (1875-1948), Serbian Physicist and Albert Einstein's wife and collaborator.

What is your dream job or career path?
Overall, I want to do research. I'm open to careers in industry, as I'm not well versed in that yet, but I do have an image of myself working as a professor running a lab at a university, and teaching, maybe as an adjunct, at a junior college. Maybe this comes from being a transfer student myself and knowing how hard it is to start upper levels without your reputation to vouch for you, but I also believe junior colleges are a hub of overlooked, talented and driven students. If I could help give them quality research experience and skills to ease their transition into university, and build their confidence for lives in research, it would be a dream. I have a lot of friends from high school, much smarter than me, who were unable to reach university, and I really want to change that narrative.

What is the most challenging thing about being a physics major?
Remembering that everyone has no idea what they are doing. Sometimes in classes I can feel like something is wrong with me because nothing makes sense, but I have to remind myself to look around, and feel comforted by the collective blank stare across the class. It really keeps me going!

Why is outreach so important to you?
I am a product of outreach. If people didn't talk about the schools they knew of, or the type of careers people have, or about science in general, I would never have known to even look in the direction my life is currently heading. I feel a duty to give back the knowledge I have gained and to enhance the prospects of the next cohort of scientists. ✪

About the Awardee: *Sophie Weiss is a senior physics major at Coe College in Cedar Rapids, Iowa, where she transferred in 2019 after earning an associate's degree in science from Cottey College in Nevada, Missouri. At Coe, she is publicity chair for WinSTEM, an athlete on the cross country and track and field teams, resident whiteboard artist of the physics lounge, and a member of the Society of Physics Students. She attended Physcon 2019, which reaffirmed her path as a physics major. She has held research positions at the University of Missouri (chemical engineering), Cottey College (biology), Brown University (chemistry), and now at Coe College in physics. She hopes to continue to do research in graduate school. She is dedicated to continuing her outreach work as well, in order to ensure that the next group of students has the mathematical and technical skills, and the support they need, to do well in physics.*

About the award: *The Kirsten R. Lorentzen Award is an AWIS Educational Foundation program for women who are college sophomores and juniors studying physics, including space physics and geophysics, or geoscience. The award is given annually to an exceptionally well-rounded student who excels in her studies as well as in outdoor activities, service, sports, music, or other nonacademic pursuits or who has overcome significant obstacles. The award is administered by SPS and may be used for any aspect of education. Applications for next year's annual award will open in early 2021.*

Standing Up for International Students and Scientific Innovation

On July 6, U.S. Immigrations and Customs Enforcement (ICE) issued a memo to college officials announcing that international students would be required to attend face-to-face classes in order to maintain their educational visas. This change to the Student and Exchange Visitor Program (SEVP) would mean that the thousands of students planning to take an all-virtual course load would be no longer be allowed to return to or stay in the United States.

Concerned about the implications for international students and scientific innovation as a whole, AWIS, alongside several scientific and academic institutions, voiced its opposition to the harmful decision. On July 8, AWIS joined sixty-five other scientific and engineering societies in signing an open letter to the White House, Department of Homeland Security, and Department of State urging the immediate withdrawal of the SEVP modification.

On July 14, ICE rescinded the ruling. The scientific community breathed a sigh of relief, considering the far-reaching consequences the policy would have had.

"When we stop to think about having about a million international college students in our college and university system, who contribute about $41 billion a year to our economy, as well as support about 450,000 jobs, we start to see the scope and scale of this problem," said AWIS CEO Sandy Robert, CAE.

"Additionally, when we think about the number of graduates who become part of our communities, and continue to contribute to our STEM brain trust, we see the ramifications that this policy could have had."

Unfortunately, not all international students are in the clear. On July 25, ICE stated that new international students, enrolled after March 9, 2020, will "likely not be able to obtain" visas to enter the United States if they plan to take their classes online this fall.

Through progress and setbacks, AWIS will continue to stand up for marginalized communities and the future of scientific innovation. Diverse talent and broad participation strengthen the STEM enterprise, and the inclusion of international students is no exception. ✪

Follow AWIS social media for future advocacy-related information and action items.

"When we stop to think about having about a million international college students in our college and university system, who contribute about $41 billion a year to our economy, as well as support about 450,000 jobs, we start to see the scope and scale of this problem."

AWIS Welcomes New Chief Marketing Officer

By Meredith Gibson, AWIS Chief Operating Officer

We are pleased to announce that Shelley O'Brien, MBA, has joined the Association for Women in Science as Chief Marketing Officer.

O'Brien spent her early career at Hewlett-Packard and AT&T learning multiple marketing disciplines, including product marketing, channel marketing, executive positioning, and public relations. At AppSense (now iVanti), she led the North American Field and Channel Marketing team in their efforts to drive demand. Her experiences include co-marketing with partner organizations and heavy internal collaboration.

In 2017 she joined the Association of International Certified Professional Accountants. Leading the Association's marketing for group sales and channels, she developed a global value proposition; revamped the website; launched new social media channels; and created customer case studies, white papers, and videos to tell the story of AICPA as the go-to learning partner for accounting firms and finance departments.

While O'Brien's career has spanned a variety of marketing disciplines at large enterprises, small software companies, privately held organizations, and member associations, one thing has remained constant: her sense of urgency in helping to solve problems for key audiences.

"It is an exciting time to join the Association for Women in Science," O'Brien shared. "Next year we will celebrate our fiftieth anniversary and the achievements of the organization, our members, chapters, and partners. We will continue to provide our members with valuable professional development, mentoring, networking, and career resources. I'm grateful to be here and spend each day engaged in equity work—advocating for all women in science and related STEM fields, so they may reach their full potential."

O'Brien has an economics degree from Bucknell University and an MBA from Rutgers University. She resides in North Carolina with her husband, her two sons, and two dogs. ✪

AWIS Expands Career Resources for Members

By Heather Pownall, MBA, CAE, Chief Development Officer at AWIS

On August 26, AWIS held a Virtual Career Fair connecting AWIS members with STEM employers who were actively hiring. Holding our first-ever career fair was especially important during a time when networking and job searching have been even trickier than before—and when the role of scientists and the vital need for diversity and inclusion in recruitment is more important than ever.

The Virtual Career Fair was the opposite experience of sending résumés into the abyss. Registrants shared résumés directly with employers, met one-on-one with recruiters in private chat sessions, scheduled second-round interviews, and exchanged contact information for the future. All in all, 234 women in science connected with 42 recruiters, sparking hundreds of new connections and possibilities.

If you missed out, you can still leverage a growing list of AWIS resources to help you take your next step. On our AWIS Career Center, you can explore over 1,000 science and STEM jobs, with more opportunities added daily. Sign up for job alert emails based on what you're looking for, and add your latest resume to our AWIS résumé bank by updating your profile so employers can find you.

We have added a new feature for you to access during any stage of your journey: Résumé Critique. You are now able to submit your résumé or CV for a free evaluation by a résumé expert on the AWIS Career Center website. Another new resource will be available within the next few months, Career Coaching. The AWIS Career Center will allow you to schedule a complimentary session with a certified career coach. Additionally, we've added a hub of career resources, including tips on résumé writing, interviewing, negotiating, and more.

Whether you're looking for your dream job, a better fit, a higher role, a better balance, or an industry switch, AWIS is here to help you discover what's next. ✪

Go to AWIS.org/CareerCenter

Connecting STEM job seekers and employers

234 Women in science attended AWIS' first Virtual Career Fair

42 Recruiters represented 13 STEM companies at the Virtual Career Fair

400 New employers joined the AWIS Career Center in the past year and have searched the AW-IS resume bank and posted jobs

981 Individuals have uploaded a resume to the AWIS Career Center to date

1,140 Science and STEM jobs were posted on the AWIS Career Center in the past year

218,000+ Individuals viewed job postings on the AWIS Career Center in the past year

Digital Transformation: More frequent, focused communications

By Shelley O'Brien, MBA, Chief Marketing Officer

Greetings, AWIS Members! In an effort to improve our communications and serve you in more timely and focused manner, we will be making a few changes to our publications:

1) Fireside Friday, our new AWIS member weekly, will become our primary membership e-newsletter. You will be able to count on weekly updates to AWIS news, exciting new programs and opportunities.
2) We are creating an online content hub that will allow you to search for information and easily share with students or colleagues.
3) AWIS volunteers will continue to provide curated articles. Rather than sharing these in a monthly AWIS Insider, we will include these in the weekly Fireside Friday messages and the content hub to help you stay current.
4) The AWIS Magazine will move to an all-digital format beginning with our next issue. Read on for more details.

Last November, we organized a magazine readership survey, and nearly 64 percent of respondents voted in favor of this change. An additional 7 percent stated they prefer a printed copy but understand the benefits that a digital solution offers.

Some who favored print lamented that they receive too much email, want to avoid additional screen time, or like to read in internet-free locations. For those who need a print version due to accessibility, please reach out to awis@awis.org us to explore how we can accommodate you.

Several of you stated that you enjoy displaying the magazine where it might spark interest from others. To address this need, we will develop some one-page, eye-catching pieces that you can print.

The benefits of digital access cited by supporters included the ability to:

- Save trees and energy used to print and ship.
- Put printing and mailing savings toward other programming.
- Access it anywhere a device is connected without carrying more stuff.
- Share articles easily via email or social media accounts.
- Save past issues and articles without adding physical clutter.

In addition, the digital format will allow us to track which articles are most read and downloaded so that we can deliver more of the content that is of value to you. We are evaluating platforms for the digital edition of the Winter magazine to ensure it is easy to read and navigate as well as mobile friendly.

Thank you for reading our communications and keep the feedback coming! ✪

"COVID-19" continued from page 14

encompass numerous disease areas, therapeutic modalities, and treatment regimens. To address these deficiencies, we need to change the way clinical trials are designed and conducted. Inclusion of sex as a variable should be mandated in all trial designs. Additionally, for drugs already approved and in use, evidence-based drug dosing for females must be assessed. Providers, as well as patients, need to be re-educated to change their outlook about the importance of this set of issues.

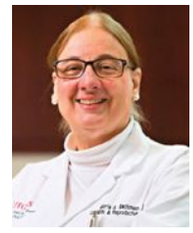
"As a clinician who cares for females at all stages of their life, these data exemplify the fact that females are not small-framed males and therefore should be cared for by health care templates that are generated by research data collected on them vs those data collected on males." Says Gloria A. Bachmann, MD, MMS, and co-author of the study. "In fact, these differences highlight an important take-home message: Although there are health conditions that affect only females or only males, many medical illnesses occur in both sexes but may have a different effect on the overall health of the individual and their health outcome. Prevention and management, however, must be individualized, so that: 1) prevention protocols consider risk factors that are sex specific; and 2) interventions be tailored to recognize that the illness may present and respond to treatment differently in females versus males." ✪

Interested in our educational content focused on QTc elevation mechanisms? Contact us at info@contrarx.com.

Sarah K. Grewal, *DO candidate, is a medical student passionate about health discrepancies in populations such as women and minorities.*

Aman Handa, MD, *is a physician-scientist with expertise in multiple therapeutic areas. He is a Medical science liaison professional and consults on multiple projects.*

Kamana Misra ,PhD, *is the founder of ContraRx, a company developing female focused pharmacovigilance tools.*



Gloria A Bachmann, MD, MMS, *is a professor of Obstetrics and Gynecology and Medicine, associate dean for Women's Health, and director, Women's Health Institute (WHI), Rutgers Robert Wood Johnson Medical School.*

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"Embracing Change"
continued from page 19

her (while working up those data from the previous two weeks). This just about did me in. She died in 2000, when I was on the plane, returning from one of the trips. I graduated in 2001. If my advisor hadn't been so kind and flexible, I don't think I would have graduated.

After I graduated, I immediately started a postdoc at a national lab. It was lonely and busy, but I was performing research that I cared about, which got me through the challenges. I started to appreciate just how important it was to me for my work to have a clear impact. I realized I really cared about the application of technology and solving real world problems, not just about learning what made things tick.

I interviewed for fourteen faculty positions and will note that twelve of the institutions asked me—during the interview!— if I was planning on having a baby (hopefully that ratio has gotten better, twenty years later), but ultimately I found a job at a large company that wanted to get into solar technology. I learned an enormous amount, working in industry. I looked at what information was being used (and how); how decisions were being made; how I was interacting with people; and how structures drove behavior. I learned that the only way to perform applied research was for tech and market to be in concert at every step.

At my next company, I received leadership training and moved into a business development role. This felt right to me. I was always good at making the right decisions, and I relished risk.

Lesson Four: Always Take the Call
One day, out of the blue, a former colleague suggested I come to ARPA-E. There were so many reasons to say no. When he asked if there were an energy problem I was passionate about, I immediately had one in mind and made the decision to join the team.

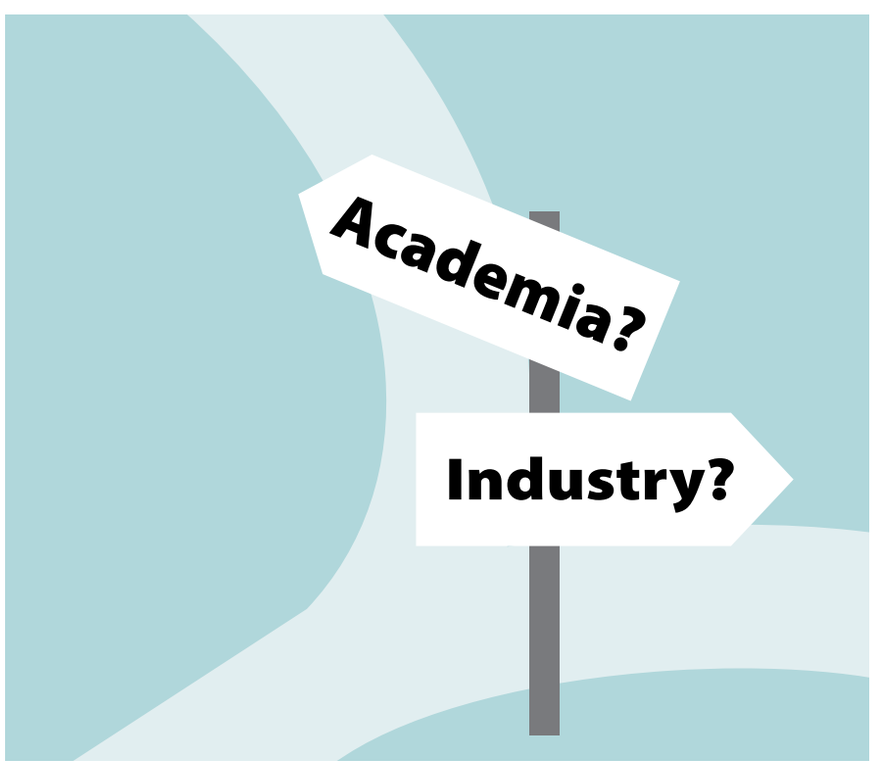
ARPA-E is a truly collaborative place. People are driven by ideas and conduct high-risk high-reward research that includes market considerations at the earliest stages. I have never worked so hard and so effectively as I do at this agency: self-managing, constantly learning, making hard decisions.

My career path has been somewhat convoluted. The key has been to learn from every step, and when in difficult situations, to figure out what I can do, every day, to enable a change. I've worked hard, have never wavered in my ethical values, and, when all else has failed, I have tried to achieve things that are documentable (degrees, journal articles, patents, etc.)

I have learned that having a core group of friends is crucial; that having a network is crucial; and that my choices should be driven by my own goals, not by what anyone else might want. I needed to find what I cared about, let it drive me forward, and fight every barrier in my way. It has turned out to be a great adventure so far.

What's next on my career journey? Who knows? One can only plan so much.

Dr. Jennifer Gerbi *joined ARPA-E as a program director and now serves as the associate director for technology, responsible for supporting the deputy director for technology in oversight of all technology issues relating to ARPA-E's programs. Previously Gerbi worked at Dow Corning in multiple capacities, including as a business builder in the company's Business and Technology Incubator. She also served as a senior materials scientist at The Dow Chemical Company and as a postdoc at Argonne National Laboratory. Dr. Gerbi holds a PhD in materials science from the University of Illinois at Urbana-Champaign, an M.S. in physics from the University of Virginia, and a B.A. in physics from Bard College.*



"Building an Anti-Racist Research Lab" continued from page 9

Rule 8 posits that an anti-racist research lab motivates a focused and flexible research agenda that rewards scientific innovation and amplifies the voices of BIPOC members, whose innovations might otherwise be overlooked. We will amplify intellectual perspectives that challenge our norms for conducting our science. For example, we are partnering with white and BIPOC colleagues to challenge rules to adapt pediatric rehabilitation measures to new cultural contexts (e.g., deny requests to change the color black from an assessment's aesthetic) and accurately describe those adaptations (e.g., describe an assessment as adapted for use in a cultural context, but not generalizable to all individuals in that context). We will diversify our assessments and interventions so that they are more accessible (e.g., including terms like racism, microaggressions, and bias to help families complete an assessment of how an environment might impact their child's participation in activities). We will amplify and better credit BIPOC contributions when recruiting, enrolling, retaining, and describing sample participants in upcoming intervention trials.

Rule 9 posits the importance of BIPOC representation in lab leadership and within professional networks, to benefit from their knowledge, skills, and actions rather than to merely meet a quota or gain publicity. Our lab handbook contains policies about the use of lab resources to support lab members when presenting at conferences, as well as policies that provide for flexible schedules, so that lab members can participate in volunteer opportunities that help them build meaningful professional networks. We will more intentionally empower BIPOC members by providing advancement opportunities within sponsored projects for their scientific career development.

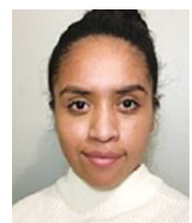
Rule 10 posits that one does not have to hold a position of power to speak truth to individuals with power. To create a safe environment, we have and will act on violations of confidentiality as outlined in our lab handbook. This will allow lab members to share instances of overt and covert biases and aggressions encountered (e.g., confronting ethical concerns arising during peer review), so that we can address them. Authentic allyship is important when inside the research lab, when representing the lab at the institution, and when representing the lab within the broader scientific community. We will require each member to have a goal and assigned readings on authentic allyship in their mentorship agreement, and we will create a protocol in our lab handbook for appropriately acting as a bystander.

Where We Go from Here

"Do the best you can until you know better. Then when you know better, do better." —Maya Angelou

Science benefits from inclusive excellence. Racism in academia hinders BIPOC lab members from doing their best scientific work and from sustaining long, successful scientific careers. Knowing this, we have designed an action plan to undertake strategic improvements in our lab's research portfolio and in our code of conduct. We expect experimental failure, are prepared to fail forward, and believe we will continue breaking silence through action. We share this initial anti-racist action plan as a resource to encourage other labs to do the same.

Vivian Villegas, MS, OTR/L, *is a pediatric occupational therapist and OTD student at the University of Illinois at Chicago (UIC). She is a BIPOC graduate research assistant at the Children's Participation in Environment Research Lab (CPERL) at UIC (https://cperl.ahslabs.uic.edu). Her work aims to create clear, accessible, and compelling information for caregivers as they navigate electronic participation-focused tools.*



Zurisadai Salgado *is a first-generation Mexican-American honors undergraduate, majoring in kinesiology at UIC. She is a research assistant at CPERL, working on her capstone project to optimize stakeholder use of two electronic tools in pediatric rehabilitation.*

Kyle Truevillian *is an undergraduate studying human health and nutrition at Emory University. He identifies as a BIPOC intern at CPERL. He contributes to diversifying optimizations of electronic tools for family-centered and participation-focused pediatric rehabilitation.*

Vera Kaelin, MSc, OT, *is an occupational therapist and PhD student in rehabilitation sciences at UIC. She identifies as a non-BIPOC member of CPERL. Her work focuses on the development and implementation of electronic assessments and interventions to promote participation of children with disabilities.*

Mary A. Khetani, ScD, OTR/L, *is a pediatric occupational therapist and rehabilitation scientist. She is an associate professor and BIPOC faculty member at UIC. She directs CPERL, where her research team conducts interdisciplinary and multisite translational research to advance family-centered and participation-focused pediatric rehabilitation. Khetani serves as president for AWIS's Chicago chapter.*

Alisa Boutin, PhD
Biologist, National Institute of Diabetes
and Digestive and Kidney Diseases
AWIS Member since 2018

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Dr. Carlotta Maria Arthur

Member since 2012

What is your favorite word?
My favorite word is interdisciplinarity.

How do you define your favorite word?
For me, the word means working across fields, tying the disciplinary threads together in a way that reflects reality.

How has this word influenced or inspired your career?
I had to become interdisciplinary to address the problems I saw in the world. I was a bit ahead of the curve in this way and am constantly explaining how my background and training all fit together!

What was the best professional or personal advice you have ever received?
"It doesn't have to be perfect; it just has to be done!" Like many women, I struggle with perfectionism, which has resulted from having to "prove it again" or to be accepted in spite of my accomplishments. One of my dissertation committee members told me this, and I have never forgotten it.

What is the most important leadership lesson you have learned the hard way?
I have to stand up and tell others that I am a leader, not wait for them to endorse me. As an African American woman of short stature, I am constantly pushing against stereotypes. No one assumes I am a leader, when in fact, I am both a leader and a trailblazer.

What do you aspire to accomplish in your career and why? What obstacles will you have to overcome?
I work to encourage women and young people from underrepresented backgrounds to pursue STEM. I will need to overcome the same obstacles I have always faced: other people's perceptions and expectations. ✪

Carlotta M. Arthur, PhD, *was the first African American woman to earn a B.S. in metallurgical engineering from Purdue University. After a decade in the aerospace and automotive industries, she completed an M.A. in psychology and a PhD in clinical psychology, with a specialty in psychophysiology/health psychology, from the State University of New York at Stony Brook. Arthur was a member of the inaugural cohort of W.K. Kellogg Scholars in Health Disparities at the Harvard School of Public Health. She also served as an assistant professor at Meharry Medical College, an HBCU in Nashville; an Andrew W. Mellon Postdoctoral Fellow at Smith College; and as an adjunct assistant professor at the Dartmouth Geisel School of Medicine. Prior to joining the Henry Luce Foundation, Arthur directed the Mellon Mays Undergraduate Fellowship program, Diversity Initiatives, and HBCU and Appalachian Colleges Programs at the Andrew W. Mellon Foundation.*

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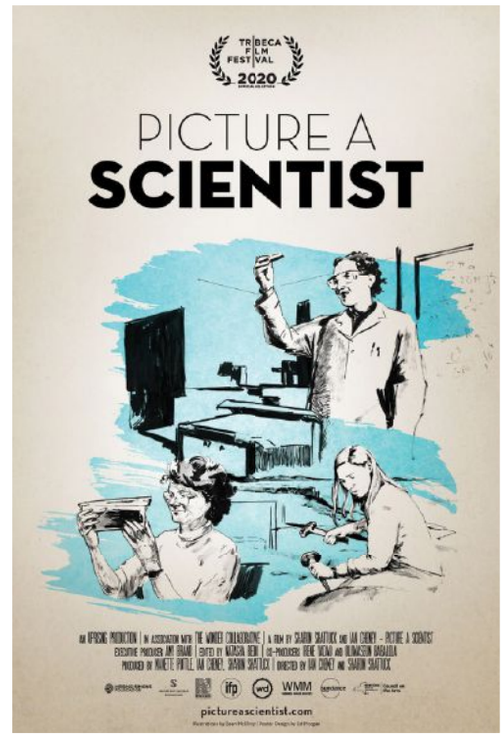
Picture a Scientist,
an official selection of the
2020 Tribeca Film Festival.



Private
Film Screening and Live Q&A

Exclusive event for AWIS members and prospective members

Be among the first to see Picture a Scientist, a new independent film about bias and sexual harassment against women scientists. Then join us for a live Q&A and learn how you can be part of the movement for change.

Live Q&A DATE: October 13, 2020 | TIME: 1:00 PM ET | COST: Free

Register at awis.org/whats-next-webinars/. You will be sent a link for the virtual, private screening room the week before the event.

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