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Women in Physics: an interview with Sharona Gordon

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Sharona Gordon is a biophysicist, who applies the tools of physics to understand the fundamental principles of life. Her work combines biochemistry, electrophysiology, and fluorescence spectroscopy to understand how chemical signals get converted to electrical signals at cell membranes. She is a full professor at the University of Washington School of Medicine.



Credit: Sharona Gordon

Why did you choose to be a physicist?

I chose biophysics because I get to have fun doing experiments while contributing to knowledge that helps make peoples' lives better. I get to learn new things every day and share what I've learned with others. The icing on the cake is getting to teach and spend time with students.

What scientific developments are you most excited about?

For the last few years, I have been obsessed with genetic code expansion, the technology that allows us to incorporate noncanonical amino acids with novel chemical properties into proteins within cells. Together with click chemistry (2022 Nobel Prize in Chemistry), optical control of enzyme activity, and super-resolution microscopy (2014 Nobel Prize in Chemistry), genetic code expansion allows reductionists like me to address the mechanisms of cell function, rather than just taking a descriptive approach.

In your view, what are the issues women are facing in terms of diversity and

inclusion in academia? What has been your experience?

Being a woman in STEM remains a lonely experience, particularly for women in senior positions. Having to be twice as good to be taken half as seriously is exhausting. The generosity and risks that others took to support me in the early stages of my career when I experienced overt sexual harassment and discrimination drive my work to support junior people and dismantle institutional barriers to diversity and inclusion. Paying this extra "tax" to make life better for those coming after me is a choice I make every day, and it comes at the expense of scientific productivity.

If you could change one thing (or two)—what would you change to increase the proportion of women+ studying physics?

I would make it easier for graduate students to switch labs/research advisors. No one advisor is going to be the right mentor for all students, so even the most dedicated and talented advisors will fail to meet the needs of some students. Some faculty should not be in the student business. Empowering students to recognize when an environment isn't a good match for their educational goals would keep more students in science and help increase satisfaction among those who didn't get lucky with their initial choice of mentors. I believe this would also create market forces to encourage faculty to work on their mentoring skills.

Have you engaged in Women in Physics activities yourself, organised or participated in any?

I founded Below the Waterline (www.belowthewaterline.org) to support women, gender minorities, and others who experience identity-based harassment or discrimination in academic sciences. One program I am most proud of is Faculty Allies (<https://sites.uw.edu/uwallies>) at the University of Washington. We are a group of volunteer faculty who provide trauma-informed support to graduate students and postdoctoral scholars facing barriers to career success. Allies support each other, work in teams, and share power with our trainees by using our institutional power only at their direction. Allies assume that trainees are the experts in their own

lives. Instead of trying to solve their problems, we listen and share our institutional knowledge to empower trainee choices. Although I hope our work also makes positive changes to our institutional culture, I am certain that we make individuals' experiences in our institution better. And the talented, dedicated students and postdocs we work with give me hope for the future of our scientific enterprise.

How does your gender intersect with your identity as a scientist?

I had one child in graduate school, one when I was a postdoc, my third as an assistant professor, and my fourth as I was promoted to associate professor. I couldn't have asked for more supportive mentors. I also faced discrimination, harassment, and institutional indifference. This year, for the first time, I am on a PhD student thesis committee in which all the faculty are women. Progress feels slow; it is slow. In too many rooms I am the only woman or the only senior woman. As Claude Steele (author of *Whistling Vivaldi*) describes, my identity as a woman has been foremost in scientific contexts because it puts the most contingencies on the opportunities I can access. Being a woman and a mother and a scientist is a privilege and a responsibility; I couldn't have made it through the system alone, and no one else can either.

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