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Rohini M Godbole

In her element

The particle physicist who recently received the Order of Merit from France has dedicated her life to the pure sciences, and to bringing more women into the field. Why is that so crucial? Because what you study is partly defined by who you are, she says

Snehal Fernandes

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There's a story Rohini M Godbole likes to tell. She believes it encapsulates perfectly the attitudes towards women in the pure sciences.

Ten years after the theoretical physicist returned to India from the US — where she completed a PhD in Physics from the State University of New York at Stony Brook — a male colleague said casually, "I didn't realise you were so serious about research."

There was no reason to suppose I wasn't serious, she says. "My gender had some part to play in that assumption, perhaps without him even realising it. His comment wasn't meant as a putdown, but rather as... a positive statement. But statements such as this indicate the extent of invisible or unconscious biases."

Godbole, 68, is speaking to Wknd from her home in Bengaluru, days after the French National Order of Merit was conferred upon her. This is one of the highest honours awarded to civilians by the French Republic, to recognise outstanding contributions to the country by people from anywhere in the world.

Godbole received it in recognition of her contribution to scientific collaboration between France and India, and for her work in promoting the visibility of women in science. That last bit is something she has worked towards through her career.

Godbole is a professor at the Centre for High Energy Physics at the Indian Institute of Science (IISc), Bengaluru. She is best known for her work with CERN, the European Organization for Nuclear Research — also the home of the Large Hadron Collider (LHC). There, she suggested innovative ways the colliders could search for the Higgs boson and other new particles. Some of them have been used for reference in experiments at the LHC. Some of this work was done with her French collaborators.

Godbole co-edited *Lilavati's Daughters*, a collection of biographical essays on women scientists from India. And she's worked with the Government of India as a member of the Standing Committee for Promoting Women in Science.

A graduate of the University of Pune, she got her MSc at the Indian Institute of Technology-Bombay in 1974, and then finished

her PhD, in 1979.

It bothers her, she says, that few women complete their PhDs, but even fewer go on to have full-fledged careers as scientists. "There is a general attitude that even if women choose science, a good idea is for the woman to have a career in teaching that can combine different roles which are traditionally that of a woman," Godbole says, "and life can then be comfortable for everyone concerned."

And this affects the quality and nature of the scientific research undertaken around the world. The world's best facial recognition algorithms were developed by Caucasian men, for instance, she explains, and because they programmed them for the world as they encountered it, the algorithms have very low efficiencies when it comes to African-Americans, particularly women. It was Joy Adowaa Buolamwini, a Ghanaian-American computer scientist and digital activist based at the Massachusetts Institute of Technology (MIT) Media Lab, who discovered this flaw. Efforts to fix it continue.

"In the days of artificial intelligence, cases like this are going to be a very serious disadvantage to technologies being developed. These are indirect pointers to how inclusive participation in science can add to the quality and holistic development of science," Godbole says.

Governments must step in to help. Creches and return-to-work programmes that encourage a woman to return to her career in research after a break can go only so far. "What is really needed is a change in attitude, a recognition that women's participation in science is important and science is a respectable career option for women. Just like being a doctor is very respectable for a woman. That change is not happening as fast as it should."

Meanwhile, scientific research continues to impact our lives daily, in ways we now take for granted or don't even see. From the internet to the science of communication, new frontiers in medicine and green hopes for the fuel needs of the future, pure science research continues quietly and invisibly to make some of the species' most important investments in the future.

Solving problems for all of society, some of which have not even appeared on the horizon yet, is a social responsibility, Godbole says. And it can often start with a random "Why?" "What if" or "Maybe". These were the words that led Newton to identify gravity, placed Man on the Moon, and generated vaccines for diseases that threatened the health of the species.

"Our society must realise that research in pure science without any immediate applicability is therefore essential, because that is how the biggest discoveries are made and solutions are found."

Does Godbole have other passions?

"To be honest, women in science is my passion," she says. She does love to garden, she adds, and read and go on long walks. And she loves to travel, which she gets to do a lot of, she says, since research into particle physics hinges on global cooperation.



READ more on Godbole's work and why she received the French Order of Merit



The direction of scientific research can vary depending on who is choosing it. Science is a creative activity, of pondering one's problems. So questions that get addressed might be different depending on whether you are a man or woman, Black or White.

ROHINI M GODBOLE

SCIENCE

In her element: Talking to theoretical physicist Rohini M Godbole

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Governments must step in to help, Godbole adds. Creches and return-to-work programmes that encourage a woman to return to her career in research after a break can go only so far. “What is really needed is a change in attitude, a recognition that women’s participation in science is important and science is a respectable career option for women. Just like being a doctor is very respectable for a woman. That change is not happening as fast as it should.”

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ABOUT THE AUTHOR



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Snehal Fernandes is senior assistant editor at Hindustan Times, Mumbai. She writes on science and technology, environment, sustainable development, climate change, and nuclear energy. In 2012, she was awarded ‘The Press Club Award for Excellence in Journalism’ (Political category) for reports on Goa mining scam. Prior to HT, she wrote on education and transport at the Indian Express.

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