



72

Overcoming fear and forging ahead

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Why did I choose to be a physicist?

I was a very good student in my school and college days, and was always interested in puzzles, whether verbal or numerical. As a child, I loved detective stories. I enjoyed maths and science, both of which seemed to be based on deductive logic. As I grew up (in Vadodara), I started reading books on popular science and scientists and wanted to become a scientist.

My father encouraged us to aim for the top: the minute I announced that I wanted to be a scientist, he decided that I would be like Marie Curie. My mother's ambitions were more down-to-earth and realistic. She herself would have loved to study, so the idea of my being a scientist and hence a life-long student found immediate favour with her. She thought of it less as a career and more as a passion that one could combine with family life.

However, I was not just fond of science, I had very strong feminist views and career ambitions and, in fact, at the school leaving stage, I thought hard about whether it was a good career

choice, or whether engineering would be a better option. (I hated medicine!) I was also worried that doing science would be considered less prestigious for someone who was a 'topper' and who had got admission into the more prestigious lines like medicine and engineering, including I.I.T. Securing the National Science Talent Scholarship (NSTS) was actually what made me follow my heart, since it differentiated me from the others who were doing physics because they could not get into the professional streams.

The NSTS summer schools also enabled me to meet other young students of my age interested in science. This was not true in my peer group at school (a girls' school). This was an eye-opener to me and it was fun to meet other students who also wanted to discuss problems in physics. This enjoyment continued later at the Indian Institute of Technology, Mumbai, where, despite the pressures of tests and exams, I remember that studying physics was a lot of fun.

Stonybrook where I did my Ph.D. was also more of the same. We had a wonderful peer group where we learnt a lot of physics and a lot about life from one another. I did my Ph.D. in high energy physics, in the sub-field of grand unified theories, which seemed really exciting in those days. I had a reasonably good rapport with my Ph.D. advisor, who was quite young, and did not have any bias against a woman student, although he was pretty worried when I came back to India for a long break in my first year; he thought that I would get married and drop out!. But my real mentors were my fellow students; we all inspired, tested and taught each other!

The major obstacles in life came as we grew older and had to look for jobs. I got married to a fellow student at Stonybrook and both of us took post-doctoral fellowships. My first post-doctoral fellowship was together with him, but after that it was difficult to get jobs together. We used to discuss physics in the early years of our marriage, since that was one of our common interests and partly what had brought us together, but I had to be careful to work independently, so that I could be judged independently.

We both wished to return to India, and did not look for jobs abroad. But in those days (the mid-to-late eighties), there

were not too many institutes in India, and not too many jobs. There were archaic, unwritten, anti-nepotism rules which prevented a husband and wife from having jobs in the same place. I got a job at the Institute of Physics in Bhubaneswar and my husband got a job at the Tata Institute in Mumbai, at two opposite ends of India. We were both career-oriented, so the choice between staying together and staying apart to take up jobs at two different places was not hard to make. I must add that I have had an exceptionally supportive family. My in-laws, in particular, never made me feel guilty for making this choice.

However, having made the choice, life was not easy. Communication was difficult in those days. Neither of us had phones and the Information Technology era of emails and internet was still in the future. So was cheap air travel. Trains between the two cities took about 40 hours. Besides living apart from my husband, even living alone in the small town that Bhubaneswar was in those days was not easy. I finally ended up staying in a guesthouse room on campus, and living a Ph.D. student's life, ten years after I had got my Ph.D.!

This was when I also realised that it is hard for a young woman faculty member to be taken seriously by students and post-doctoral fellows who are close to her in age. Besides the kind of attention that a 'single woman' (and young married women living apart also fall in this category!) attracts, young women physicists are constantly being tested. Not having a loud voice or an aggressive personality is confused with lacking confidence in one's work.

Finally, when I found that my achievements were belittled, and my work and papers attributed to my husband, I made a crucial decision to shift my field of research so that my husband and I would not be in the same field. This essentially made life more difficult for me, since a lot of my training in high energy physics and contacts abroad would no longer be useful and I would have to start all over again.

In the long run, I think this was a good decision. Condensed matter physics is a wide field with a lot of interesting problems and my earlier training has not gone to waste. Also, it has enabled me to get good Ph.D. students - I am grateful to my first

Ph.D. student, who was smart enough to be unbiased - and they have definitely helped in keeping me enthused about physics. Finally, eight years after we returned to India, and twelve years after our marriage, both my husband and I found jobs at the Harish-Chandra Research Institute, in Allahabad in 1995. We are now well settled and are both senior faculty. Over the years, besides research and teaching (which I enjoy), I have also started working on the question of women in physics, and the subtle biases that force out many highly talented women from the job market.

If I had to restart my career now, would I still choose physics? Definitely, yes. I still feel that it is one of the most logical subjects and teaches one to think about everything under the sun. Finally what would I do differently if I had to start all over again? I would be far less sensitive to the comments which hurt me as a young woman. I would be less afraid of working on what I liked, less afraid of making mistakes, and less afraid per se! But perhaps this is something only a senior woman can say. Other than that, I guess I am quite content with life as a physicist in India and wouldn't trade it for any other profession! Which other profession allows us so much freedom? In which other career does one feel part of an international community? In which other career can one visit so many different countries for seminars, collaborations and conferences, and get to know at least the physicists from that country?