



## Prof. Neelima Gupte



**Y**oung Neelima's (born 19<sup>th</sup> March 1956) family was proud when she was selected for her postgraduate studies at the prestigious IIT Kanpur. Even so, there were a lot of discussions going on about how she would manage in another state, with her parents voicing concern for their daughter. Nothing deterred the bright chirpy girl from getting ready to start her new innings at the prestigious institution. Very soon, all these discussions came to a happy end, as she got admission at IIT Bombay too. Remember, this was in 1976! "I would say, I have been very lucky to have parents who

trusted my choice and of course indebted to their upbringing!" recalls Prof. Neelima Gupte.

Little Neelima loved to ask why and how non-stop, even before she started learning formally. Her mother, having been a teacher for a few years, knew how to engage her curious mind. Her teachers and the environment at home encouraged her, when she wanted to pursue science after school. During her undergraduate days, she qualified in the National Science Talent Search exam (NSTS), designed to spot and mentor the best minds of our country. Emphasising on the mindful guidance she received

through this programme, she reminisces, "I was fortunate enough to be in the right place at the right time mostly. While the external experts pushed me to complete the tasks they allotted on one side, they were also in touch with my teachers helping my well-being. This kind of expertise combined with empathy would definitely build confidence and increase the pool of talented researchers in our country. **Definitely our country doesn't have a dearth of young talents, they just need guidance and we need a very empathetic mentoring system.**" This helped her traverse the right path and opened ways to apply for IITs, which was not very common in those days.

Soon after completing postgraduation from IIT Bombay, Neelima joined SUNY (Stony Brook University - New York) and obtained her doctoral degree in 1983. Most of her family members were from science background and it was a welcome move when she applied for research abroad. She recalls, "I owe to my expert committee of NSTS (National Science Teaching Standards) who



spot our strengths and channelised us towards excellent quality research. They helped the cohorts understand the research path in a very constructive and kind way. For that matter, almost forty of my batch mates trained under this scheme continue research in their chosen fields till now”.

Returning from abroad, she joined Pune University as a faculty, after a short stint at University of Hyderabad. “This was a very cheerful department with people who were ambitious in their work. This really helped me to grow in my early years, and even more crucially, helped me to change fields to an area that I had zero exposure to before. **It is important to note that this was neither a well-funded nor a well-known department. It just had people who had a can-do attitude. Finally, this is what counts!**” Comparing her student days at IIT Bombay that had only one woman faculty then, she joined here as the tenth woman faculty in 1985! Times had changed for good in a decade.

In a few years, Dr. Neelima Gupte was married and her husband was a researcher in Chennai. As they both worked in different cities for ten long years, life was not easy. “Here again, I must acknowledge support from both my family and my husband’s. Had they brought pressure on us, I might have quit, as have so many women.

Finally, I moved to IIT Madras, which turned out to be fortunate. The institute was undergoing a sea change, and I found my own niche there”, recalls Prof. Gupte. New environment came with its own challenges, as she feels this was a more conservative workplace than her previous city. She continued her research here on statistical physics, thermodynamics and chaos theory.

Prof. Neelima Gupte stands as a testimony with her excellent contribution to the field of Physics. Her research outcomes find potential applications in nanotube, nanowire and biological networks. Some of her works in communication networks explaining the role of connectivity in congestion and decongestion, hidden geometry of traffic jamming have received international acclaim.

Currently, she holds the **Girija Vaidyanathan Chair Professorship** in the Department of Physics, IIT Madras. She has been a member of the editorial boards of reputed journals. She has held the **chair of the DST committee of the SERC schools on nonlinear dynamics**, and has been **one of the main organisers of the international conference series** in this domain. **She is a long standing member of the advisory board of many committees organising conferences including International Center for Theoretical Sciences, Bangalore and the Sigma-Phi conferences in Greece.**

She has been elected as a **Fellow of The National Academy of Sciences India (NASI)** in recognition of her research contributions.

Prof. Neelima Gupte has been involved with the women’s forum at IIT-M as well with the IUPAP working group for Women in Physics and has been a part of committees empowering women. She was honoured with the **Stree Shakti Science Samman award** of Indian Academy of Sciences in 2006, for her contribution towards Women in Science initiatives. As a woman scientist who has been voicing for Women in STEM, she suggests we need a robust system and sensitisation about the differential needs. Talking about strategies to arrest the leaky pipeline, Dr. Neelima says there is no need to shy away asking for help when one needs! “People are generally very kind and helpful and there is nothing wrong asking for help. Most people are willing to help us once they understand our perspective”, reflecting on her journey on how one can resume research and establish oneself in a different environment.

**Nothing can replace hard work. Excellent subject knowledge and capacity to do research should be very strong, for anyone who prefers to stay in this line.** When asked what life-lessons the next generation can take from her, this role model for women in science adds, “Trust others, be empathic, connect with others and don’t be too strict on yourself. Persistence is the important lesson, so do not give up on anything. But remember, you cannot give equal importance to everything that you handle. Just change your priorities based on the circumstances. **Learn to prioritise with prudence. You can afford to have imperfections, accept them, but keep going. More so, be ready to learn throughout your journey.**”

