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Looking forward to new challenges

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When I was a child, my family moved around Karnataka quite often so I ended up attending schools in ten different towns. I studied in different mediums of instruction, but language did not matter for science and maths and I started enjoying them. I was the many teachers' favourite student because they recognized my keenness and ability in these two subjects. This was the catalyst for me to pursue physics, chemistry and maths in college.

During my M.Sc., I chose "Electrical Double Layers" as my seminar topic and I went to the Indian Institute of Science (IISc) library to read up on it. At this time, I got an opportunity to discuss science with a few research scholars at I.I.Sc. who were working in this area. The atmosphere for research and the dedication of the research scholars impressed me greatly. As a novice in science, I had many basic and simple questions, which were answered with patience. I was lucky enough to even be taken on a lab tour! My interest in a research career began to crystallize about this time, with encouragement from my family. This was at a time when girls of my age would have traditionally been married and

not have pursued higher studies. Thus, I joined I.I.Sc. as a research scholar working toward a Ph.D. with the hope of pursuing a research career. My thesis work was in the area of magnetic and electrical properties of perovskite-based ceramics. It was here that I met and married Ramasesha. After completing my Ph.D. degree, I had to decide whether to apply for post-doctoral positions independently of my husband's plans or go with him to a place where he had a fellowship. I took the second option because of my conviction that marriage meant spouses staying together. I followed my husband through his post-doctoral positions and took up opportunities that came to me.

Apart from being a homemaker, I also had the experience of working in newer areas in chemistry; this was to stand by me in good stead during the uncertain years that were to follow after our return to India. The new fields that I was exposed to gave me a unique opportunity to work as a post-doctoral fellow with many highly respected scientists at the University of Oxford, Louisiana State University and Princeton University. I learned the kind of rigor that needs to be put into research work in order to achieve deep understanding of scientific phenomena. I thoroughly enjoyed working with stalwarts of science during my tenure at these universities. My daughter was born during this period, which made our family life more enjoyable.

After returning to India in 1984, career options for me were limited. I could either teach in an undergraduate college with no research facilities or continue taking temporary fellowships. I was also told, "You have a good family, why do you want a regular job? You can't have everything in life"; this upset me quite a bit. Given the independent thinking that I grew up with and a broader outlook in life, I wondered if men had to face a similar situation. I was passionate about having a regular research career and was willing to put in the hours needed without compromising family life. With the support of my family, I decided to continue pursuing research.

I took up a U.G.C. position at National Aerospace Laboratories. Again, this was a difficult decision for me because I had to leave home at 7.30 a.m. and return at 6.30 p.m., with a young

daughter at home. Despite these challenges, I embarked on an independent and productive research career that was to last thirteen years. During the initial years, I worked on the electrical properties of ceramics under pressure. Assembling high-pressure cells was a new experience for me because all the components of the cell had to be perfectly flat and all the electrical and thermocouple leads had to be fitted on a small surface area. Many phase changes of samples, which could barely be detected under ambient pressure experiments became prominent when high-pressure was applied on these samples. Through some collaborative work, I was able to obtain high T_c YBCO single crystals and we measured the Seebeck coefficient not just in the ab-plane but also along the c-axis. The high-pressure set-up was later redesigned to obtain dielectric constants and hysteresis loops of ceramics. At this stage, I decided to build an independent research group and obtained support from DST for a project to work on high-temperature structural ceramics, ceramic matrix/ metal matrix composites. I put together a team of Ph.D., M.Tech and B.Tech students. Working with youngsters was fascinating and refreshing.

When GE started its R&D operations in Bangalore, Luckily, for me, it happened at a time when I was looking for bigger challenges. I was in a secure and pensionable job where my credibility had already been established. Many people warned me against moving into the corporate sector which is rife with challenges and competition. Notwithstanding the naysayers, I applied for a position at the GE John F Welch Technology Center (GE-JFWTC) and embarked on an industrial R&D career.

I started enjoying my work right from the first day. I was the program coordinator for the Solid Oxide Fuel Cells (SOFC), a topic I had never worked on or studied before. It was almost like getting back to school! I went to the library to understand the basics. The SOFC has many metallic parts and we had to develop alloys that performed better than currently known materials. Although my expertise was in ceramics, I moved quickly into metals/alloys and we successfully developed several high performance alloys for SOFC application, for which we were given a management award.

Later, I was promoted as the manager for the Ceramics Synthesis and Processing Lab and nominated for a six-sigma Black-Belt role. As a manager, I had the opportunity to create a vision for the lab, develop and encourage team-members to excel in their work and also bring in new technologies and programmes. All this required both technical and business acumen. We worked on almost all aspects of ceramics. I spent six and a half years here. My career as a scientist has been satisfying. I have eleven U.S. patent applications. I also have about 85 publications and a few awards to my credit.

Looking back, on the whole, life has been good to me. Professionally and personally, I have got everything I ever wanted and am looking forward to all the challenges and newer opportunities that the future holds!