

Editorial

Rohini Godbole, Guest Editor

Issues of *Resonance* feature the life and work of famous Scientists from all parts of the world and from different branches of Science. In this issue you will read about Maria Goeppert Mayer who was one of only the two women ever to receive the Nobel Prize for Physics. She put forward the Nuclear Shell Model and made extremely important contributions to our understanding of how the neutrons and protons in a nucleus are put together. She was a mathematician and physicist who had a deep appreciation for experiments. As she said in her Nobel lecture, “The shell model, although proposed by theoreticians, really corresponds to the experimentalist’s approach. It was born from a thorough study of the experimental data, plotting them in different ways, and looking for interconnection”. In fact she has summarized in this one sentence the essence of a big part of the process of discovery of nature’s secrets that all the scientists pursue and needless to say, she followed all her life.

As you will find in the hugely inspiring story of her life in these pages, her accomplishments were possible only due to her immense commitment to science. In spite of proven achievements in the field of science, her first fully paid tenured professorship came at the age of fifty-four, just three years before the Nobel Prize. The ‘policy’ of not giving jobs to a husband and wife in the same institution along with, perhaps, the depression in the USA, was responsible for this. It is only her love for and dedication to science that drove her to carry on research in all these decades, despite the adversities. Equally importantly, the story also underscores how easily such high intellectual potential and the corresponding contribution to human endeavor of the quest for knowledge could have been lost to the humankind due to gender bias. The stellar heights of Prof. Goeppert Mayer’s achievements only emphasize how much the cause of science may have lost through the ages, by missing out on the contributions of the ‘other’ half.



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As a matter of fact, the story has both the features which are common to such cases even today: the anti-nepotism policy and social conventions which prevented her from getting a job and the liberal attitude of some in the academia who recognized merit when they saw it and helped as well as facilitated her efforts through the decades. The story also tells us that, while it is not exactly easy for a girl to fulfill a dream to be a great and successful scientist, it is not as impossible and out of consideration, as many seem to feel, even today. Further it also highlights that grit and determination can get one through. If we look back through history, names like Sofia Kovalevskaya, Madam Curie, Emmy Noether and Margaret Burbidge remind us that even in the areas of mathematics, physics and astrophysics, there are women who have made towering contributions. So, in fact, the scientific aptitude for different disciplines does not depend on the gender of the person.

The need to streamline gender issues in all walks of life and particularly in science, so that half the human intellectual potential is not lost to us, has been well recognized by now. While a large number of issues are common to both India and the Western world, where much discussion/action has taken place, I can see one striking difference. Compared to the West, where people are still discussing ways of 'attracting girls to study science', in India we have no dearth of women studying and teaching Science, at all levels. However, at the end of the day, the percentage of women 'doing' science is not all that different here from that in the rest of the world. It is heartening that in India there exist special programs like those run by the Department of Science and Technology¹ and the summer teacher fellowship program, run jointly by all the three Science Academies, is alive to the additional constraints faced by women teachers.

Of course, there have been shining examples of *Indian* women scientists who have made very significant contributions. Alert readers of *Resonance* would have already noticed the June 2007 issue which featured the work of Dr. Janaki Ammal, the famous

¹ For further information log on <http://www.ias.ac.in/womeninscience>



botanist. In addition to the lives of the likes of Marie Curie, Maria Goeppert Mayer, Dorothy Hodgkins and Rosalind Franklin, *Resonance* plans to continue to feature, from time to time, great women scientists from India as well. So my young friends, of both gender who read *Resonance*, will realise that when we list women scientists, we need not begin and end with the above mentioned names. More importantly, I hope they all realise that a career in science is as viable a career option as any for a girl. In the very near future, the Indian Academy's Panel for Women in Science (WiS) will bring you, in a book called *Leelavati's Daughters*, the stories of successes and struggles of a large number of Indian women who are practising a career in science. Just like the case of Maria Goeppert Mayer, we also found, in putting together these stories, that almost all who trode this path successfully, felt they could do this only because of a supportive family! This is for our *Resonance* readers who are parents of the scientists of tomorrow. In fact all of us could do well by remembering the advise of Maria Goeppert Mayer's father to her: "Do not be a woman!"; meaning thereby 'do not be constrained and shackled by the traditional image of a woman! The whole world is yours – reach out for it!'

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