

Women in Physics in India, 2008

In this paper, we summarize the current situation for women in physics in India in 2008. At the qualitative level, the number of senior women in physics who are 'visible' has been increasing slowly. However, unfortunately, we still have not been able to obtain data for women in physics, other than the data presented in the last report [?]. One of the major hurdles that we face in this endeavour in India, is that there is no genuine physical society to which all physicists belong. So there are no systematic records of the number of Bachelors, Masters or Doctorates we produce in physics every year, leave alone gender based data. We hope this shortcoming will be overcome sometime in future reports. But in this report, we will concentrate more on subjective assessment, as we had in our first paper.

Since the basic raw material for women physicists are the girls who go into physics, the teachers who teach them at lower levels of school and undergraduate colleges are extremely important.

As we had mentioned in the earlier report, one positive outcome of the earlier conferences has been the recognition of the fact of under-representation of women in physics and the specific problems faced by women as they move up the ladder. It has also started networking among the women physicists. Our hope is that this will lead to more power collectively among the women physicists to change things for the better for other women.

In the earlier paper, we had also highlighted various initiatives taken by the Academies and the Department of Science and Technology to improve the visibility of women in all branches of science. Some of the initiatives which have borne fruit in the last 3 years are the setting up of a website for women in science, which would have data on women who have dropped out, and would also give links to important information like funding initiatives for women scientists, data base of women speakers and for exchange of information among women scientists. A book called 'Daughters of Lilavati' (Lilavati was the name of a mathematician and also the name of the treatise of her father, Bhaskara, from ancient India) which has essays of around a hundred women scientists, has been brought out recently. Stree Shakti, an independent non-Government group has set up an award for women

scientists who have made an original contribution to Science in India, which is of high quality and which is relevant and beneficial to society.

At an individual level, various women have taken initiatives to get women in physics or women in science together to discuss issues and suggest ways of improving. A meeting on women in physics was held in a conference called 'Convergence with physics' in Jamshedpur in October 2006 by Prof. Nutan Chandra. Prof. Sumitra Mohan Chakravarty from Delhi University organised a national conference on 'Women, Science and Society' in Delhi in March 2006. Prof. Pratibha Jolly, the principal of Miranda House in Delhi organised a 'women in physics' session in an 'International conference on Physics Education' in August 2005. Prof. Neelima Gupte is organising a session on women and science and technology in the PAN-IIT conference which will be held in Chennai later this year. Women physicists have also been giving talks on this subjects. Many institutes have now started women's grievance cells (which is a must by government rules) and have even handled the previously taboo subject of sexual harassment. At individual levels, many university and college teachers have been actively encouraging women to do physics. But it is difficult for individuals to do more than this.

At the institutional level, the programmes set up by the Department of Science and Technology have become more popular now. For the scheme which is valid for women to apply for grants and work in mainstream science, 131 scholarships were awarded in 2005, with physics and mathematics bagging 24. For research in science and technology based research programmes, 35 were awarded in 2003 and in 2007, 15 women were undergoing training for self-employment in streams that required scientific and technical know-how.

In conclusion, although, we have still not been able to set up an official working group of women in physics as has been done in many other countries, slowly, but steadily, the number of women physicists who are in touch through informal channels has been increasing. We may not have clout at the national level to bring about changes; still, we have all been working at our institutes and with each other to bring about awareness and slow changes in the climate at our own working places to make it more conducive for younger women.

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- [] University Grants Commission, University development in India-basic facts and figures on institutions of higher education, students enrolment, teaching staff. Report, University Grants Commission (Information and Statistics Bureau, New Delhi), 1995-96 to 2000-2001.
 - [] N. Gupte, J. Gyanchandani, S. Nair and S. Rao in 'Women in Physics', Proceedings of the Women in Physics Conference, March 8th-10th, Paris, 2002 (AIP, 2003).
 - [] R. Godbole, N. Gupte and S. Rao, Women in Physics,

Meeting reports, Current Science, **83**,359(2002).

- [] R. Godbole, N. Gupte, P. Jolly, S. Narasimhan and S. Rao, in 'Women in Physics', Proceedings of the Women in Physics Conference, May, Rio de Janeiro, 2005 (AIP, 2005).
- [] Institutions surveyed: Tata Institute of Fundamental Research, Mumbai, The Institute of Mathematical Sciences, Chennai, S.N. Bose Center for Basic Sciences, Kolkata; Harish Chandra Research Institute, Allahabad; Institute of Physics, Bhubaneswar; Raman Research Institute,

Bangalore; Indian Institute of Science, Bangalore; Jawaharlal Nehru Center for Advanced Scientific Research, Bangalore.

[] All the seven IIT-s located at Mumbai, Delhi, Chennai, Kanpur, Kharagpur, Guwahati and Roorkee are included.

[] Universities surveyed: Delhi University, University of Hyderabad, Jawaharlal Nehru University, Pune University, Mumbai University, Madras University, Calcutta

University, Madurai Kamaraj University, Panjab University, Chandigarh, M.S. University, Baroda, Banaras Hindu University.

[] A science career for Indian women, An examination of Indian women's access to and retention in scientific careers, A report-2004. (Indian National Science Academy, 2004).