

Towards achieving Gender Equity: Activities of the Gender Group in Condensed Matter Physics



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ICWIP2023

8th International Conference on Women in Physics

Online Mode
10-14 July 2023



Gender Group in Condensed Matter Physics (GGCMP)

- GGCMP is a newly formed group (in 2022)
- GGCMP is working towards understanding the factors that contribute to the inequities and underrepresentation of women in the physical sciences in general, with a special focus on the areas of condensed matter physics.
- Many of its members have been very active in promoting gender related activities at various fronts and conferences for long time. One of the activities of the group consists of carrying out a detailed Survey to understand different issues faced by women in Physics and accordingly to address them as a future course of action
- Survey aimed to assess the representation of women faculty in universities and institutes, and attempt to comprehend the nuanced challenges faced by them. These challenges encompass the availability of childcare facilities on campuses, the "two-body problem," flexible working hours, career breaks, the presence of internal complaint committees, government funding, and more.
- Survey is presently ongoing. Started in May 2023 so far 154 responses have been received. Link for Survey:
<https://forms.gle/fgR92bTMQcbCAEJZ9>

Activities and Achievements

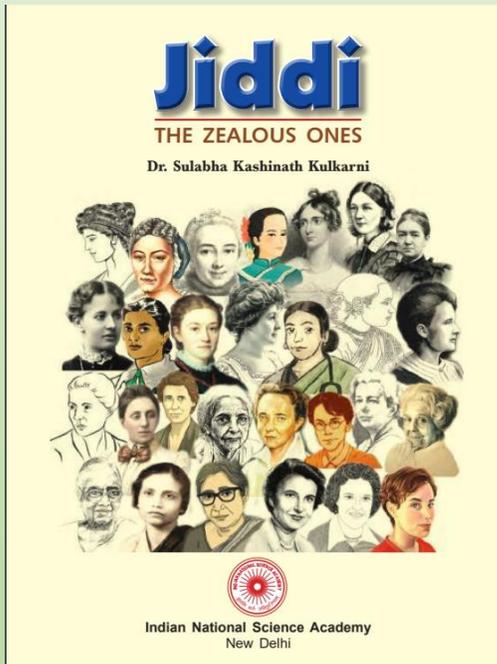
*Sulabha Kulkarni,
CMET, Pune, Maharashtra*

This book portrays the lives of courageous women who overcame numerous obstacles to achieve their goals. It offers inspiration to the younger generation, showcasing the remarkable accomplishments of women who have greatly influenced the field of science today. Each biography in this book presents captivating stories of women who serve as role models in their own right. These women all shared a common trait: their determination to overcome adversity and triumph.

*Shobhana Narasimhan,
JNCASR, Bengaluru,*

APS fellow (2022)

Citation: For significant contributions to promoting diversity, combating discrimination in the physics community, and conceiving and organizing Career Development Workshops for Women in Physics that have had a transformative effect on the trajectories of female physicists



PAVINARI Talks (CMP)

PAVINARI (पविनारी)
Lecture Series on Women Physicists

The Gender in Physics Working Group (GIPWG) of the Indian Physics Association (IPA) aims at co-ordinating national efforts towards gender parity in the Indian physics profession. As a part of this effort, the GIPWG has initiated PAVINARI (पविनारी), a public lecture series on eminent women physicists, which intends to cherish the fantastic work of women scientists and to motivate the younger generations.

PAVINARI-5 (Hybrid mode) 📅 4 PM, April 25, 2023
**Making a splash in surface science:
The life and work of Agnes Pockels**
YouTube live: tinyurl.com/Pavinari5-YT
Speaker: Prof. Arnab Bhattacharya, TIFR, Mumbai
Venue: Physics Olympiad Training Camp, Homi Bhabha Centre for Science Education, Mumbai

The fifth lecture of PAVINARI series will focus on the life and work of Agnes Pockels, a pioneer German chemist. Her work was fundamental in leading to the establishment of the "Surface Science" discipline which describes the properties of liquid and solid surfaces.

✉ gipwg.ipa@gmail.com

PAVINARI (पविनारी) Lecture 5
Lecture Series on Women Physicists

Making a splash in surface science: The life and work of Agnes Pockels
Washing up greasy dishes is perhaps just an unpleasant everyday household chore. But, for Agnes Pockels, it inspired careful investigative experiments that would lead to her to make the very first direct measurements of the surface tension of a liquid. Pockels' work was fundamental in establishing the field of interface and surface science. Her methodical scientific approach was remarkable for someone with no formal training or degree, and kept out of the educational system, given the rules of the times. Let's take a journey through life and work of an amazing scientist.

Speaker: Prof. Arnab Bhattacharya
Arnab Bhattacharya is a scientist and science communicator at the Tata Institute of Fundamental Research (TIFR) in Mumbai, and the Centre Director of TIFR's Homi Bhabha Centre for Science Education (HBCSE). He pioneered Chai and Why?, Mumbai's popular science café and also coordinates TIFR's public outreach activities. He was awarded the *Indira Gandhi Prize for the Popularization of Science* by INSA in 2017.

*Making a Splash in Surface Science:
the Life and work of Agnes Pockels*

- Arnab Bhattacharya, TIFR, HBCSE

PAVINARI (पविनारी)
Lecture Series on Women Physicists

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PAVINARI-6 (Hybrid mode) 📅 4 PM, May 30, 2023
**Tale of Photo 51 -
Puzzle of DNA & Rosalind Franklin**
YouTube live: <https://tinyurl.com/4zttd59>
Speaker: Prof. Shikha Varma, IOP (Retired)
Venue: Institute of Physics, Bhubaneswar

The sixth lecture of PAVINARI series will focus on the life, work and struggle of Rosalind Franklin, a pioneer British chemist and X-ray crystallographer. Her work was instrumental towards understanding of the molecular structures of DNA, RNA and viruses, although her contributions were not fully recognized during her lifetime.

✉ gipwg.ipa@gmail.com

PAVINARI (पविनारी) Lecture 6
Lecture Series on Women Physicists

Tale of Photo 51 - Puzzle of DNA & Rosalind Franklin
The name of Rosalind Franklin (1920-1958), today, is synonym with the discovery of the structure of DNA. Her diffraction pattern provided the proof of the double helix. However, her contributions were not fully recognized during her lifetime. Even though her data was essential for the discovery, she did not receive the limelight she deserved. Her journey for DNA research and discovery is embedded with many instances that reflect uncomfortable, and at times, hostile work atmosphere she faced as a woman scientist. Rosalind's remarkable life as a scientist was defined by her unwavering commitment to rigor, excellence, and relentless determination. This talk will give glimpses of her inspiring journey.

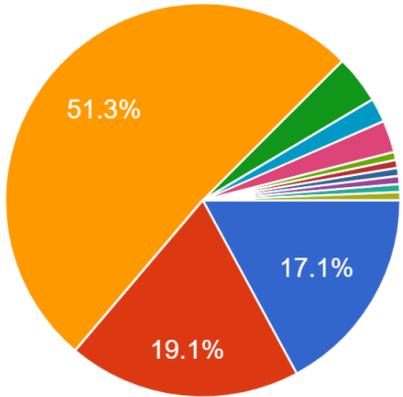
Speaker: Prof. Shikha Varma, Institute of Physics (Retired)
She received her PhD from Syracuse University, New York, in Experimental Condensed Matter Physics and works with Ion Beam Accelerators and utilizes various spectroscopy and microscopy techniques. She is the chairperson of Accelerator User committee of IUAC, Delhi, and is an editorial Board member of PRAMANA and Frontier. She is currently member of various SERB & DST committees including Women in Science (POWER, WEA, WISE-KIRAN). She is chair of the GIPWG-Condensed Matter group, and is a strong advocate for equity in science. She has been making strong efforts for spreading the awareness of gender related issues.

*Tale of Photo 51 - Puzzle of DNA &
Rosalind E. Franklin*

- Shikha Varma, IOP, Bhubaneswar

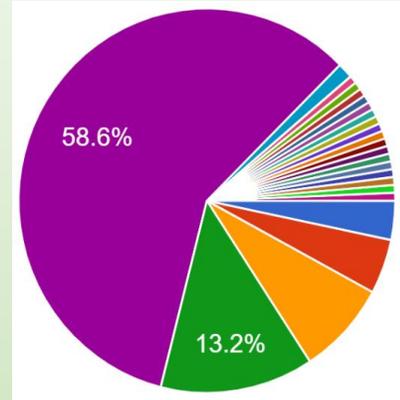
Survey Report on Women in Physics, India

1. Designation



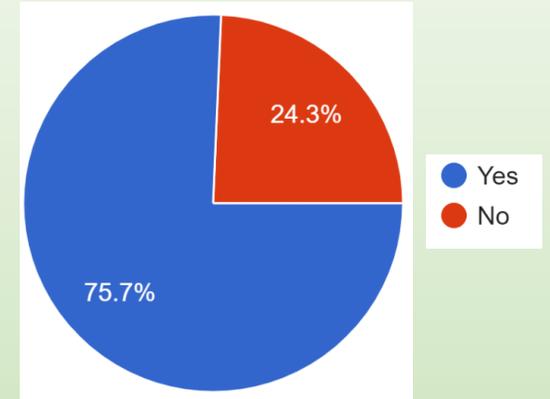
- Professor
- Associate Professor
- Asst. Professor
- Scientist
- Visiting
- Temporary
- Retired
- Project investigator

3. Number of women students in a Dept. (in percent of total strength)



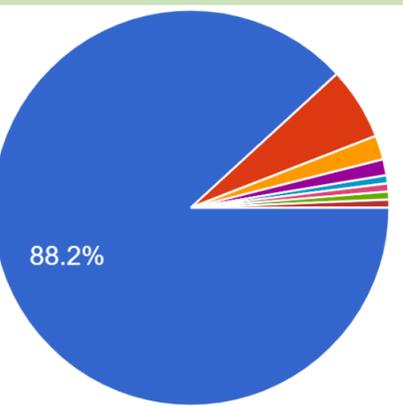
- less than 1 percent
- 1-3 percent
- 4-6 percent
- 7-10 percent
- more than 10 percent
- 100%
- 67%
- More than 40%

5. Are you aware of internal complaints committee (ICC) in your Univ./Institute



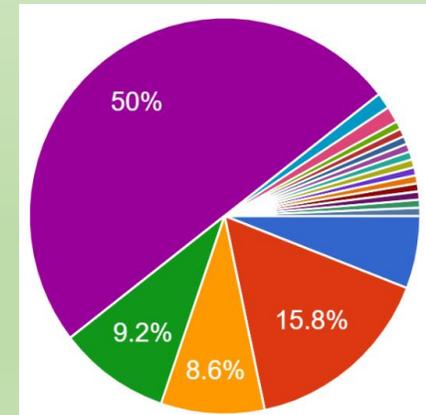
- Yes
- No

2. Department



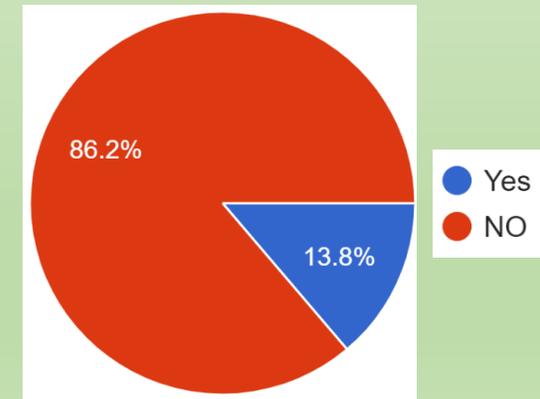
- Physics
- Engineering Physics
- Material Science
- Biophysics
- Applied Sciences
- Space Science and Astronomy
- High Energy Laser and Optics
- Agricultural Physics
- Department of Basic Science and Humanities

4. Number of women faculty in a Dept. (in percent of total strength)



- less than 1 percent
- 1-3 percent
- 4-6 percent
- 7-10 percent
- more than 10 percent
- 80%
- 100%
- more than 50%

6. Is your Vice Chancellor/Director a female

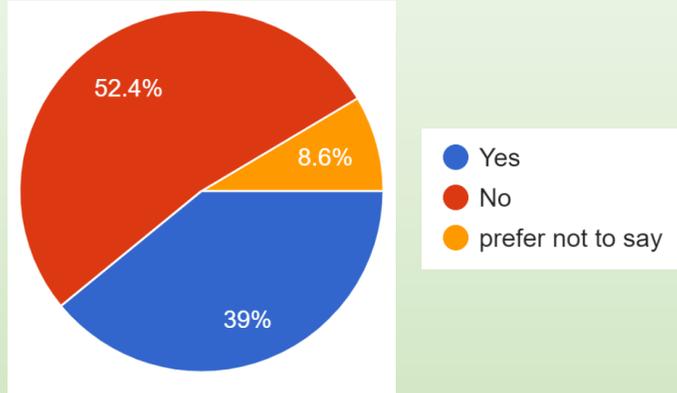


- Yes
- NO

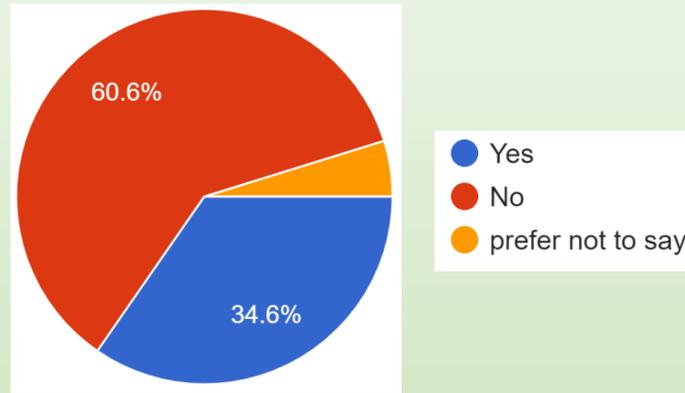
This preliminary report is based on approximately 154 responses

Survey Report Continuing...

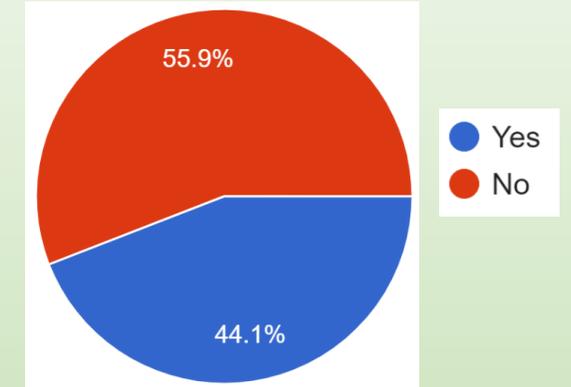
7. Did you receive flexibility in office hours due to family reason



8. Do you have two body problem (i.e. your spouse having permanent position in a different town)



9. Do you have child care facility in your Univ./Institute



Take on Message:

- From the survey data, it is clear that women are emerging strongly in Physics in India. Total percentage of women faculty and students in a Department in the report are encouraging.
- Proper child care facility, flexible office hours are must for women to grow professionally and at same time to take care of the family. Much remains to be achieved in this direction.
- Two body problem is also an important issue. A large percentage of women (> 34%) are facing this problem. This creates an overall instability for women to manage and maintain professional and personal life, especially when they have children.
- This survey is a preliminary one and more Responses will be collected and analyzed to get a clearer picture.

SOME IMPEDIMENTS FACED

Networking-peer
interaction

Experimental
condensed matter
requires long
working hours

Networking: access to
facilities in other labs

Long commute times
(Non-residential
campus)

Reproductive age
coincides with age limits
of academic jobs

Spouses in different
cities/transferable jobs

Many impediments in the early stages add up: the mole-hills add up to make a mountain

WAY FORWARD:

Need more women in leadership positions

Do women shy away from aspiring for top jobs

Ambition: Career vs job

Consolidate through collaborations

Improve visibility: Invited Speakers in conferences

Action Plan:

- Group plans to initiate several endeavors, including workshops, panel discussions, etc. for raising awareness about gender-related issues for both women students, post docs, and faculty.
- By spearheading these initiatives, the group aims to drive positive change and foster a more inclusive and equitable environment in the field of Condensed Matter Physics, where women researchers are able to freely communicate with each other about their problems and challenges.
- Analysis and Evaluation of Survey Results

Acknowledgements to Vandana Nanal and Srubabati Goswami for many useful discussions.

Thank you for your attention !