

The Gender Group in High Energy Physics in India: Efforts and Initiatives towards Gender Equity



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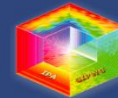


Ajit M Srivastava
IOP, Bhubaneswar

ICWIP2023

8th International Conference on Women in Physics

Online Mode
10-14 July 2023



Genesis of Gender in HEP working group

- **Special Plenary Session** in the **DAE-High Energy Physics Symposium 2020:**
to deliberate the issues related to gender-gap in HEP
- **Formation of a gender group in HEP:**
In this meeting it was unanimously decided to form HEP Gender group under the Gender in Physics Working Group of Indian Physics Association

XXIV DAE-BRNS HIGH ENERGY PHYSICS SYMPOSIUM
December 14-16
2020 NISER

Exploring pathways for achieving gender parity in High Energy Physics in India

Panel Discussion
on
17th December, 2020 at 1600 - 1800 hrs.

Activities (2021-2023)

- **First-ever gender session in Indian String meet 2021**

A panel discussion on "**Gender Imbalance in String Theory: Focus on India**", with emphasis on the imbalance at the root level of education till higher level of employment for women researchers in String Theory. [<https://www.youtube.com/watch?v=DBgAjSAurwE>]

- **Gender Session in the 2022 DAE-HEP symposium**

A panel discussion on "**Two Body Problem in Academia and Possible Ways to Overcome it**" was held.

The two body problem is identified as a major cause of the **leaky pipeline syndrome**, and the panel discussed various issues related to this.

- **A detailed survey on women in Physics**

A detailed survey on the **fraction of women in the Physics profession in various Indian institutes** and the cause and challenges were discussed.

The study was presented in the **30th International Symposium on Lepton Photon Interactions at High Energies** in January 2022



Panel discussion on "**Gender Imbalance in String Theory: Focus on India**", Indian String meet 2021 (online)



Panel discussion on "**Two Body Problem in Academia and Possible Ways to Overcome it**", December 2022, 2022 DAE-HEP symposium (in person)

Panel Discussion : Gender imbalance in String theory focus on India

- **Women in String theory**

An experimental science like Biology that requires committed time in the laboratory attracts and retains more women researchers compared to Physics in general and String theory in particular. In this context the prejudices like myth of mathematics and theoretical physics being “hard for girls” were mentioned.

- **Bias, imposter syndrome**

Panelists discussed issues like bias related to women in science, imposter syndrome etc.

- **Need of affirmative action**

The need of affirmative action at all levels and support from family and colleagues, on campus accommodation, flexible work hours, child care facilities etc. were discussed.

- **Measures taken**

The measures taken at ICTP and by the Indian Academy and Govt. of India were also discussed.

Panel Discussion : Two body problem in academia

- **Two body problem in academia**

It exists since decades (**A major cause of leaky pipeline**). Spouses not having job at same place problem adversely **affects family balance, career growth, interruption in children's education and their emotional wellbeing.**

- **Loss in trained human resource**

Many times women are not able to realize their true potential

- **Discussions by Panelists**

Personal experiences, possible issues if both spouses are hired in same department, policy level changes needed as well as situation in countries outside India

It was pointed out that in foreign countries many Institutions make effort to arrange employment at different levels to the spouse of employee as this kind gesture serve as win-win situation both the employer and employee. Similar solutions can also be looked at in the Indian context.

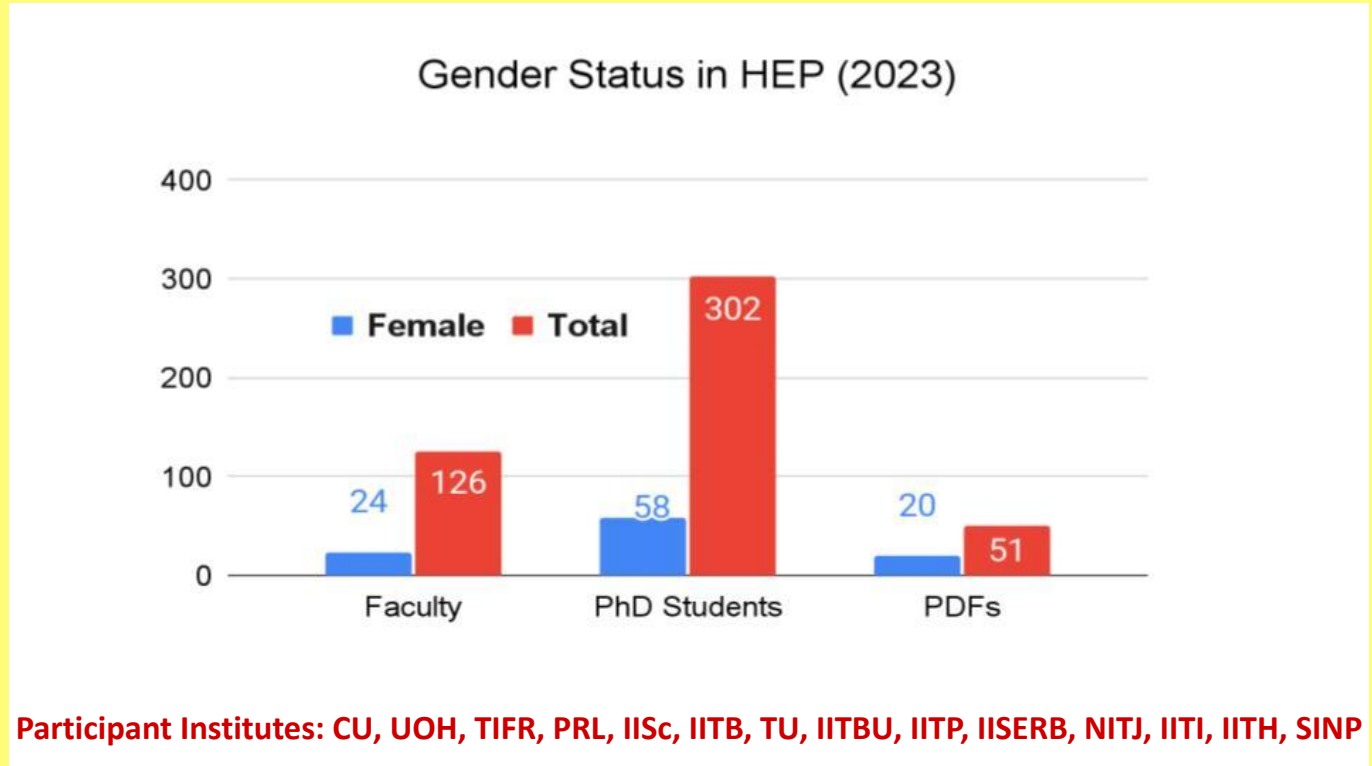
- **Creating two body opportunities**

— Govt of India policies — **mobility grant for women researchers, various women in science schemes.**

Gender Status in HEP (2023)

- The data from the participant institutes across India shows the following **fractions for female representation**:

Faculty	16 %
PhD Student	19%
PDF	28 %



Courtesy: Dr. Pragya Pandey

HEP talks at PAVINARI Lecture Series

(<https://tinyurl.com/pavinaritalks>)

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-3: Promoting physics across borders : some women who opened doors for others
The third lecture of PAVINARI series will focus on the contributions of a few women physicists , who have given back to the community by nurturing scientific talent and giving a platform for new ideas. The contributions of Émilie du Châtelet, Cecile DeWitt-Morette, Milla Baldo Ceolin and Bimla Buti will be discussed.

Speaker: Prof. Bindu A. Eambah
(Jointly organised by IPA GIPWG and University of Hyderabad)
Venue : Seminar Hall, School of Physics, University of Hyderabad
YouTube live: <https://youtube.com/live/vzF12oIKN1U0?feature=share>
Zoom meeting ID: 867 2093 4428 , Passcode: 136787
📅 3 PM, February 3, 2023 ✉ gipwg.ipa@gmail.com

PAVINARI (पविनारी) Lecture 3
Lecture Series on Women Physicists

Promoting physics across borders : some women who opened doors for others
We examine the contributions of a few women physicists , who have given back to the community by nurturing scientific talent and giving a platform for new ideas. These are Émilie du Châtelet, Cecile DeWitt-Morette, Milla Baldo Ceolin and Bimla Buti. Émilie du Châtelet is known for translating Newton's *Principia* into French, and advocacy of Newtonian physics. Cecile DeWitt-Morette founded the famous Les Houches Summer school in France, where many new ideas of physics were generated. Milla Baldo Ceolin initiated the series of international workshops on neutrino telescopes at Venice. Bimla Buti has a foundation for encouraging young Physicists.

Speaker: Prof. Bindu A Eambah, Honorary Professor, University of Hyderabad
She graduated from Panjab University and received her Ph.D in Theoretical Physics from The University of Chicago under the guidance of the Nobel Laureate Prof. Y. Nambu. She works on the interrelations between Particle physics, Fluid Dynamics, Quantum Optics and Cosmology. She was joint faculty in the Center for Women's Studies, working on factors that affect gender equality in Physics. She is a co-author of the Hyderabad Charter for Gender equity in Physics. She received the UNESCO Young Scientists Award for South Asia in 1991 and the Mother Teresa Award for Sciences.

**“Promoting physics across borders:
Some women who opened the doors for others”
Prof. Bindu A Eambah**

PAVINARI (पविनारी)
Lecture Series on Women Physicists

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PAVINARI-4 Overlooked for the Nobel: Lise Meitner and the discovery of fission
The fourth lecture of PAVINARI series will give a glimpse of the inspiring journey of Lise Meitner, a pioneer behind the discovery of nuclear fission. Her commendable grit and passion to Physics overcame prejudice, misogyny and lack of opportunities in establishing herself as one of the great scientists of the 20th Century.

Speaker: Prof. Amit Roy
(Joint IPA GIPWG PAVINARI - ASET Colloquium, TIFR)
Online event
YouTube live: <https://youtube.com/live/nDRN1EmCyWc?feature=share>
📅 4 PM, March 28, 2023 ✉ gipwg.ipa@gmail.com

PAVINARI (पविनारी) Lecture 4
Lecture Series on Women Physicists

Overlooked for the Nobel: Lise Meitner and the discovery of fission
Discovery of phenomenon of fission was a momentous discovery that certainly deserved the Nobel Prize. Despite being a central character in this discovery, Lise Meitner was overlooked for the Nobel and it was awarded to her collaborator Otto Hahn alone.
The journey of Lise Meitner from her early childhood to one of the great scientists of the 20th Century is a testimony to her grit and single minded devotion to Physics in overcoming prejudices, misogyny and lack of opportunities. In this talk I shall try to give a glimpse of her epic and awe inspiring journey.

Speaker: Prof. Amit Roy
Amit Roy, a former Director of Inter-University Accelerator Centre, got his Ph.D. from TIFR, Mumbai. After continuing his research in experimental nuclear physics at TIFR till 1990, he shifted to IUAC where he led the building the Superconducting Linac at IUAC and pioneered the development of Niobium superconducting cavity for accelerators in India. He is a Fellow of the National Academy of Sciences, India and has received many accolades. His research interests are in Nuclear Physics, Accelerator Physics and Atomic Physics and he enjoys communicating science.

**“Overlooked for the Nobel:
Lise Meitner and the discovery of fission”
Prof. Amit Roy**

Role models in HEP

Suman Beri – Higgs Boson, Top Quark and Single Top Quark
The Story of a Punjabi Woman Scientist

- The biography of Prof. Suman Beri titled “**Suman Beri – Higgs Boson, Top Quark and Single Top Quark – The Story of a Punjabi Woman Scientist**” was released on (April 30, 2023)
- Prof Beri was the **first woman professor** of the Physics Department of Punjab University, Chandigarh and the **first woman professor emeritus**.

INSPIRE Science Camp-XXXII
October 2018

Coordinated By: Shooliji
Sponsored By: DST.

Rajinder Singh

- **Being among the top scientists in the country, her big contributions include:** observation of the top quark in 1995, observation of single top quark production in 2009, observation of the Higgs boson in 2012

The Way Forward!

- Implementation of proposed gender equity policies & recommendations at institutional level
- Continued efforts for addressing biases
- Inclusion of social scientists in the discourses
- Mandatory gender sensitization, nationwide surveys and statistics
- Career development & mentoring programs for young students
- Wider involvement of men in gender equity programs
- Moving beyond gender as a binary

Thank you for the kind attention!