GENDER IN PHYSICS WORKING GROUP • INDIAN PHYSICS ASSOCIATION
& TATA INSTITUTE OF FUNDAMENTAL RESEARCH

10-14 JULY 2023

INTERNATIONAL CONFERENCE ON WOMEN IN PHYSICS

e-Brochure

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Plenary Sessions

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Karen Hallberg
Principal Researcher CONICET and Professor at the Instituto Balseiro
Centro Atómico Bariloche, CNEA, Argentina

Karen Hallberg holds a PhD in Physics from the Balseiro Institute in Bariloche, Argentina, where she is now an Associate Professor of Physics. She is Principal Researcher of the Argentina Council for Science and Technology working at the Bariloche Atomic Center.

Her research topics include the development of state-of-the-art computational approaches based on quantum information to investigate the physics of quantum matter and nanoscopic systems.

She is actively committed to reducing the gender and social gap in science, to increasing awareness of ethical considerations in research and to nuclear disarmament.

She was awarded the 2019 L'Oreal-UNESCO International Award For Women in Science (for Latin America), honorary doctorates, the 2005 Guggenheim Fellowship and was an Aspen Ideas Festival Scholar, among others.

Quantum Condensed Matter: A Playground for Emergent Phenomena and Complexity and why I am passionate about this field

When atoms combine to form a solid, new physical phenomena might arise and which cannot be predicted by the knowledge of the physical properties of the individual components. This is known as emergent behavior which is particularly relevant in materials with strongly interacting electrons. Examples are superconductivity, colossal magnetoresistance, metal-insulator transitions and the presence of quasiparticles.

Due to the exponentially large number of states involved it becomes necessary to resort to computational techniques that optimize information. I will describe the path we took to develop very precise numerical tools based on quantum information concepts that allow the most relevant states to be extracted, together with recent results obtained with these techniques.

I will describe my research in the context in which I worked, hoping to inspire young women to pursue a career in the fascinating world of Physics.

Cherkaoui El Moursli Rajaa
Faculty of Science, Mohammed V University in Rabat,
Rabat, Morocco

Rajaâ Cherkaoui El Moursli received her Ph.D. in Nuclear Physics, France in 1982. She joined the University Mohammed V, Rabat. Later in 1996, she served as the head of the Laboratory of Nuclear Physics. She was Vice-President of UM5 (2013-2017). She was part of official Morocco's forerunners participants in the ATLAS collaboration at CERN in Geneva in 1996. She is a member of the board of trustees of the Moroccan Agency for Safety and Nuclear Security, of the National Centre for Nuclear Energy, Science and Technology and of the National Centre for Scientific and Technical Research.

In 2015, she received the L'Oréal-UNESCO award for "Women in Science" and she was also assigned as a resident member at the Hassan II Academy of Sciences and Technology and a Fellow of the African Academy of Sciences. In 2018, she was elected a Fellow of TWAS. In 2019, she was elected Vice-President of the board of NASAC. In 2022, she was nominated as a member of the European Academy of Science and Art.

My research journey: my challenges and achievements in the field of physics

In 1996, Morocco officially became a member of the ATLAS collaboration, the first Arabic and African country at this moment. This achievement was possible thanks to the efforts of a small group of physicists that recognised the potential benefits of collaborating with large accelerator centres. I am a part of this group and the only woman. Since then, I have evolved a lot in my career In this talk, I will present some challenges (Moroccan traditions and customs, the balance between family and work, more demands on women in the workplace, be part of international collaboration). I faced while pursuing a career in Physics. Learning to adapt to different situations and research environments was a necessity for success. To realize many achievements, you need courage and perseverance. It's essential to seek mentorship, to have a role model, to build professional networks, and actively take part in conferences and scientific events. Addressing and challenging any gender-based biases or inequalities that may arise in the field is also crucial. In the end, the prizes and recognitions make all the efforts and sacrifices forgotten. My example aims to show how one can innovate in one's country at the level of research and teaching and change mentalities.

Brown, Nathanial
Department of Mathematics, Penn State University, State College, PA, USA

Nathanial Brown is Professor of Mathematics at Penn State University (PSU), after holding research positions at Institut Henri Poincaré, University of California at Berkeley, Mathematical Sciences Research Institute, Michigan State University, and University of Tokyo.

His teaching has been recognized by PSU's highest honor, the Eisenhower Teaching Award. His equity work earned a Robinson Equal Opportunity Award and TEDx talk on "The Math People Myth." An Affiliate at the Institute for Quantitative Study of Inclusion, Diversity and Equity (QSIDE) and Research Associate in PSU's Center for the Study of Higher Education, his research now focuses on (in)equity in STEM education.

Institutional Racism and Sexism in Science

I'll discuss a representative sample of the vast body of research demonstrating institutional racism and sexism in science. We will look at ways inequity impacts women, particularly women of color, and spend time critically analyzing some institutional structures that enable inequity and the institutional inertia that prevents change.

Ghosh, Rupamanjari

Former Vice-Chancellor, Shiv Nadar University, Delhi-NCR, India

Former Professor of Physics & Dean of School of Physical Sciences, JNU, New Delhi

Rupmanjari Ghosh served as the Vice-Chancellor of Shiv Nadar University Delhi-NCR (SNU) for two terms till January 2022. She was the Founding Director of the School of Natural Science and the Founding Dean, Graduate Studies and Research at SNU. SNU became an 'Institution of Eminence' within a few years of its existence under her leadership. She is a former Professor of Physics and Dean of School of Physical Sciences at Jawaharlal Nehru University, New Delhi. She has a very well-recognized PhD from the University of Rochester, NY, USA, where she worked as a Rush Rhees Fellow, chosen for "Outstanding scholarly ability and the promise of exceptional contributions to scholarship and teaching". Besides her contribution to science research and training from university to school level, she is also well known for her stand and efforts to bring in gender justice, environment consciousness and sustainability in the higher education system.

My Journey in Physics… along the 'Second' Quantum Revolution

In the exciting context of the 2022 Nobel Prize in Physics to Aspect, Clauser and Zeilinger, and the recent launch of the National Quantum Mission by the Indian Government, I will recount one main strand of my research journey in Quantum Optics & Quantum Information, starting with the discovery in the mid-1980s of a new source of entangled photons using parametric down-conversion, and the first experimental demonstration of two-photon interference exhibiting nonlocality of quantum mechanics.

These studies have been at the heart of what is called the 'second' quantum revolution, which aims to control quantum systems. Quantum technologies today seek to use quantum phenomena in computing, communication, sensing and metrology to go beyond what classical systems can do.

It has been a challenge to control and make practical use of some of the wonderfully counterintuitive and immensely powerful features of the quantum world. The main issue has been decoherence – quantum states disappear in the presence of environmental noise, and error corrections are difficult. In specific systems of interest, we have examined how decoherence can be controlled and/or tested experimentally, and these should stimulate more work in this direction.

A quantum information system may use 'photonic channels' for quantum communication over distance, and 'atomic nodes' as quantum memories. Our group has worked on the phenomenon of electromagnetically-induced transparency (EIT), which turns an opaque medium into a transparent one for resonant light in the presence of a 'control' light. EIT is associated with steep dispersion, which can be utilized to slow down or stop light (of non-zero rest mass) in the EIT medium, and retrieve it later at will. I will give a brief overview of EIT-based quantum memory, and the current status of research on quantum processors.

Karve, Priyadarshini
Samuchit Enviro Tech, 6, Ekta Park, Law College Road, Pune 411004, India.
Indian Network on Ethics and Climate Change, Laya Resource Centre, Visakhapatnam

Priyadarshini Karve (Ph.D. Physics, University of Pune, 1998) works on rural cooking energy solutions, decentralised organic waste to fuel technologies, and strategies for low carbon, sustainable urbanisation. She developed an easy-to-use Samuchit Carbon Footprint Calculator for Urban Indians, and conducts workshops focused on climate change literacy. She is the Founder Director of Samuchit Enviro Tech and a Co-Founder of OrjaBox LLP. She is currently the National Convener of Indian Network on Ethics and Climate Change (INECC). She serves on the Governing and Advisory Bodies of several national and international organisations. Her work has been honoured by national and international awards and recognitions.

Climate Change Education in Developing Countries

Climate change is the biggest crisis facing humanity and yet we do not see it occupying centre stage in public discourse. Incorporating climate concerns in curricula at all levels is urgently needed. While reducing greenhouse gas emissions is a universal concern, the impacts of climate change are very location specific. But most of the educational discourse around climate change in India relies on information easily available from non-Indian sources. It is quite possibly the same situation in other developing countries too. The paper will describe the author's experiments in climate change education in urban Indian context. These include: Targeted at individuals and neighbourhood communities: Personal carbon footprinting and climate vulnerability assessment for urban Indians and a workshop on climate-friendly lifestyle. Targeted at educational institutions (management, teachers, students): Carbon Neutral Campus with a participatory approach. Targeted at present and potential drivers of local and national economy: Basic carbon accounting online course The talk will highlight how the physics of climate change needs to be contextualised with the local and international climate politics as well as local ecosystem considerations to make it less hypothetical and more relevant to day-to-day lives of people in the developing world. Climate change will impact different population groups differently but women and LGBTQIA+ in all population groups will be most impacted for a variety of socio-economic reasons. Climate change education therefore must be part of any gender empowerment programme and women in physics should lead from the front.

Gogoi, Rupjyoti
Department of Physics, Tezpur University, Napaam, India

Rupjyoti Gogoi is an Assistant Professor in the Department of Physics, Tezpur University, Assam. She is Visiting Associate of IUCAA, Pune since 2013 and an Executive Council member of Astronomical Society of India for the triennium 2022-2025. She is actively involved in organizing different astronomy related activities for promoting astronomy research and education in North East India. Her current research interest includes exploring interstellar dust, AGNs and galaxies using observational data at different wavebands. She is a GSAT member of DST Gender Advancement for Transforming Institutions (GATI) pilot project at Tezpur University.

Investigating the origin of diffuse FUV emission in galaxies

The diffuse far ultraviolet (FUV) background serves as a predominant tracer of the interstellar dust in galaxies. Stellar emission at shorter wavelengths like the ultraviolet (UV) is attenuated by intervening interstellar dust grains, which absorb and re-radiate the absorbed energy in the infrared (IR). Therefore, the diffuse UV and IR emissions across various environments in galaxies have always been studied in a complementary manner. A combined study of the duo is preferred to extract important information about properties of interstellar dust. The advent of high-resolution space telescopes like NASA's GALEX and Spitzer, opened up tremendous opportunities in the exploration of the diffuse UV-IR background in an unprecedented way. This also provided the opportunity to explore the properties of dust grains in different environments in the local Universe. Although the scattering of starlight by dust grains is the primary source of the FUV background, light from other galaxies and other known and unknown extragalactic components are thought to contribute in the FUV for regions containing negligible amounts of dust. Therefore, using archival UV-IR data for different regions of our own Galaxy as well as other nearby galaxies, we can probe the contribution of dust scattering towards the observed diffuse FUV emission with the help of dust radiative transfer models. From our earlier studies, we have observed that in case of star forming regions, dust scattering can significantly account for the diffuse FUV emission. In this talk, the speaker will demonstrate how appropriate dust radiative transfer models have been utilised to account for the observed diffuse FUV emission and to extract the dust scattering properties for selected regions.

MEHMANI, Bahar
Global STM Journals, Institution, Elsevier, Amsterdam, The Netherlands

Bahar (https://orcid.org/0000-0003-4038-4531) oversees the peer review strategy of Elsevier journals and is the chair of the recently launched Peer Review Workbench hosting a unique manuscript and peer review dataset allowing for running research on research evaluation. She received her PhD in Theoretical Physics from the University of Amsterdam. and moved to the Max Planck Institute for the Science of Light to pursue her academic career as a postdoc. She joined Elsevier in 2013 as a managing editor with the goal of improving the peer review process and since then has studied peer review as a scientific research topic. Bahar is the chair of EASE peer review committee, she also serves as an advisor for NISO's IEDA board.

The impact of COVID-19 on the scientific ecosystem

The World Health Organization recently declared an end to COVID-19 as a global health emergency. The havoc wreaked by the pandemic has been multifaceted. Although studies have shown that women were more affected than men, discussion is still necessary to address the impacts and their solutions. The purpose of this panel is to contribute to this analysis and generate suggestions to address the devastations on the scientific ecosystem, particularly those regarding female physicists. An overview of how the pandemic disproportionally burdened women and girls will be presented. Gendered experiences of the pandemic were shaped by the intersection of inequalities in the labor markets, in healthcare facilities, in intra-household relations, and in public, social, and political spaces. The differential impact of COVID-19 infection and resultant mortality and morbidity rates are influenced by gender, caste, ethnicity, and class.

Furthermore, changes in scientific productivity were observed through manuscript submissions and review in Elsevier journals. During the early months of the pandemic, there was an unusually high submission rate of scholarly articles. To see if home-schooling and other care duties were holding women back, a study looked at manuscripts and peer review activities between February 2018 and May 2020, including data on over 5 million authors and referees. Results suggest that the first wave of the pandemic created potentially cumulative advantages for men. Finally, the key findings of report of research on women in the Asia–Pacific area conducted by the Australian Academy of Science will be presented. The report explores the impacts on STEM careers and individual well-being and identifies the ways organizations and individuals within the STEM system can support gender equity. A fruitful dialogue with the attendees is expected to guide our community to ameliorate the gender gap in science exacerbated by the pandemic.

SEPAROVIC, Francesa
School of Chemistry., Bio21 Institute, University of Melbourne, VIC 3010, Australia

Distinguished Professor Emeritus Frances Separovic is a Biophysical Chemist and deputy director of the Bio21 Institute, University of Melbourne, Australia. Frances became the first woman professor of chemistry (2005) and Head of School (2010) at the University and the first female chemist elected to the Australian Academy of Science (2012) of which she is now Foreign Secretary. She was inducted into the Victorian Honour Roll of Women (2018) and appointed an Officer of the Order of Australia (2019). Frances is past president of the Biophysical Society (USA) and president-elect of Division I of International Union of Pure & Applied Chemistry (IUPAC).

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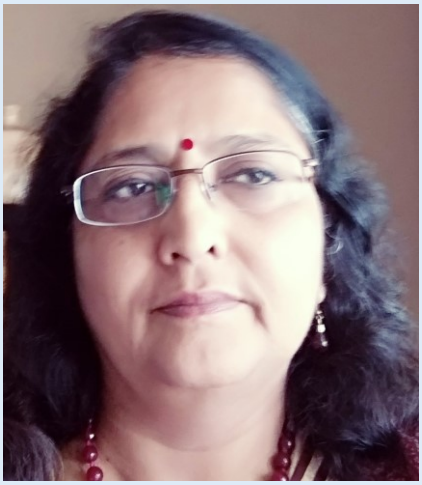
PATEL, Vibhuti
Tata Institute of Social Sciences, Mumbai, India



Vibhuti Patel is Retired Professor of TISS and SNDT Women's University, Mumbai and currently, Vice President of Indian Association for Women's Studies and Hon. Distinguished Faculty at Impact and Policy Research Institute (IMPRI), Delhi. She is co-editor of Gendered Inequalities in Paid and Unpaid Work of Women, Springer, 2022. She has authored Women's Challenges of the New Millennium (2002) & An Intersectional Gendered Discourse On Empowerment During Pre And Post Covid-19 Pandemic, IMPRI (2022). She has co-authored of Indian Women: Change and Challenge (1985) & Reaching for Half the Sky (1985).She is editor of two volumes, Discourse on Women and Empowerment (2006) and Girls and Girlhoods at the Threshold of Youth and Gender (2009). She is co-editor of Gendered Inequalities in Paid and Unpaid Work of Women in India, Springer (2022). She is Editor of a peer-reviewed quarterly journal Quest in Education and co-editor of an Interdisciplinary Women's Studies Annual Journal, Urdhva Mula.

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Foley, Catherine
Australian Government, 10 Binara Street, Canberra, ACT 2601, Australia.

Cathy Foley AO PSM became Australia's ninth Chief Scientist in January 2021 after an extensive career at Australia's national science agency, the CSIRO, including as the agency's Chief Scientist. She is an internationally recognised physicist with major research achievements in superconductors and sensors which lead to the development of the LANDTEM sensor system to locate valuable deposits of minerals deep underground.

Her scientific excellence and influential leadership have been recognised with numerous awards and fellowships, including election to the Australian Academy of Science in 2020, and an Order of Australia for service to research science and to the advancement of women in physics. She received the Australian Institute of Physics Medal for Outstanding Service to Physics in 2016. She is a Fellow of Australian Academy of Technological Science and Engineering (2008) and an honorary Fellow of the Australian Institute of Physics (2019). She is an inspiration to women in STEM across the globe and focused strongly on equality and diversity in the science sector.

The Importance of the Country Papers from ICWIP and How Best to Prepare Them: A Masterclass

Each of the International Conferences of Women in Physics (ICWIP) has had country papers in the proceedings. These papers provide a critical record of the status of women in physics for each country that participated in the conference. Over the years, we can see the changes, positive and negative, and use them to provide the data and evidence of what works and what does not to support women in physics. Since the first ICWIP in 2002 in Paris, we have seen progress in some countries from low numbers of women to 30% or more enjoying a career in physics. But in other countries, we see women still fighting to be educated and have the provision of amenities such as toilets for them in their workplace. The improvement of the status and opportunity for women in physics is closely linked to the culture and politics of the country. Where there has been progress, it has been built on the case made to show that support for women in physics is more than an equity issue. It is now an economic and security issue. But it never easy or a simple task to make change.

This master class will consider how we can use these country papers to build the case and have more impact. I will work with the delegates to consider what information may be most useful considering the progress and situation of different countries knowing that for some, women speaking up can have significant impact on their safety. I will also provide some different approaches to writing country papers depending on the country situation and identify what data we should strive to have gathered in preparation for future ICWIP country paper submissions. I will also make suggestions on how to seek the support to gather this data.

Mikka Lene Pers
Research Inclusion Officer, IOP Publishing

Dr. Mikka Lene Pers has a background in Psychology and her previous research focuses on diversity and inclusion and digital technologies. She now works as a research inclusion officer at IOP Publishing. This is the publisher of Institute of Physics, the UK Physics Society. In this position, Mikka works to improve equity of opportunity for authors, reviewers, and board members, who contribute to the around 90 journals published by IOP Publishing, and helps ensure that published content is culturally sensitive and fair.

What can scholarly publishing do to promote gender equity? The case of IOP Publishing

There is mounting evidence on systematic prejudice, bias, and discrimination in the global research community. Gender is one of the nonmeritocratic factors that has been proven to play a systematic role for career progression within academic research. Importantly, when other characteristics, such as race and ethnicity, sexual orientation, and disability intersect with gender, attainment gaps grow even wider. The scholarly publishing industry increasingly acknowledges, investigates, and addresses how it contributes to problems of inequality in academia. Scholarly publishers also increasingly invest in initiatives aimed at playing an active part in making academic cultures more equitable. This presentation provides insight into such initiatives focused on gender equity based on data and experiences gathered by IOP Publishing. IOP Publishing is the scientific publisher of the UK-based learned society, The Institute of Physics (IOP), whose portfolio of more than 90 journals accounts for about 10% of all submissions in the field of physical sciences.

VRANIC, Marija
GoLP/IPFN, Instituto Superior Técnico, University of Lisbon, 1049-001 Lisbon, Portugal

Marija Vranic obtained her MSc degree from University of Belgrade, Serbia and her PhD at Instituto Superior Técnico in Lisbon, Portugal. After PhD, she was working in Extreme Light Infrastructure in Prague, Czech Republic, and then returned to Portugal. Her research is focused on plasmas in extreme conditions, where quantum effects can affect the collective plasma dynamics. She combines analytical theory and massively parallel computer simulations to perform the studies relevant for state-of-the-art and near-future laser experiments using intense lasers. Marija is a member of Young Scientists at the Lisbon Academy of Sciences, winner of the international John Dawson PhD thesis prize (best PhD thesis worldwide in the field of plasma-based accelerators), the IBM Scientific Prize, Ada Lovelace PRACE award and IUPAP Early Career Prize for Plasma Physics.

Exotic plasmas in the lab – past and the future

The next generation of lasers will allow creating exotic plasmas that are a mix of electrons, ions, positrons, energetic photons and intense background fields. These plasmas naturally occur in the vicinity of astrophysical objects, such as pulsars, neutron stars and black holes. Studying extreme laser-plasma interactions has consequences for both fundamental research and practical applications. We can form optical traps, create & accelerate particles and produce novel radiation sources. Potential societal impact is very broad, ranging from quality control of critical components and security to medical applications in imaging and cancer therapy. My work is focused on studying such plasmas through theory, massively parallel simulations (on supercomputers) and in collaboration with experiments which aim to probe the extreme regime.

Cabrera Catalán, María Eugenia
Instituto de Investigación en Ciencias Físicas y Matemáticas,
Escuela de Ciencias Físicas y Matemáticas, Universidad de San Carlos de Guatemala

María Eugenia Cabrera Catalán was born in Guatemala. She got the degree in Physics at University of San Carlos of Guatemala, where she is currently a professor, and the PhD at Autonomous University of Madrid. She was postdoc researcher at the GRAPPA Institute of the University of Amsterdam and later at the Physics Institute of the University of Sao Paulo.

Her research is focused on understanding the nature of Dark Matter and the Physics beyond the Standard Model of Particle Physics. In 2021 she was a winner of the 2021 OWSD-Elsevier Foundation Awards in Physical Sciences.

A scientific journey towards an inclusive society

After spending several years abroad studying a PhD in theoretical physics and as postdoctoral fellow I came back to Guatemala, my home country, I was the only woman with a PhD among the Physicists and Mathematicians of the recently created School of Physical Sciences and Mathematics in the only public University. Together with some colleges from Guatemala, Honduras and Costa Rica we created a Central American network of High Energy Physics and Scientific Computing that was launched at the first Central American Meeting on High Energy Physics, Cosmology and High Energy Astrophysics. Although slowly and with some difficulties we are focusing on strengthen research groups and on showing to the society the importance of scientific knowledge.

On 2021 I received the OWSD-Elsevier Foundation Award in Physical Science for the region of Latin America and the Caribbean. That was also the year when I became a mother. Being a physicist woman and a mother in a developing country like Guatemala, surrounded by huge inequalities, corruption and a very fragile democracy, represents an immense challenge that I am still trying to figure out how to face it. This award reinforced my commitment to be part of a worldwide effort to spread and share scientific knowledge, to show the society that the best science is inclusive, to promote and create spaces where we can contribute to build a better world for everybody.

Gordon, Dorothy K.
UNESCO

Dorothy Gordon works on issues relating to the societal impact of technology. She has worked in the field of international development and technology for over thirty years working at increasing levels of responsibility in the UN, government and civil society organisations.

She also works as a management and evaluation consultant on policy, education, technology and gender with a special focus on Africa and South Asia. She serves on a number of Boards and Advisory Groups including with UNESCO, Linux Professional Institute, Creative Commons, the Yidan Prize and the World Summit Awards.

Agency: Implications of stochastic parrots for Women in Physics

In 2021, a seminal paper, " On the dangers of Stochastic Parrots' authored by Bender, Gebru, McMillan-Major and Mitchell examined developments in the design and use of large language models (LLMs) using uncharted and undocumented data sets. The paper argued that these models "overrepresent hegemonic viewpoints and encode biases potentially damaging to marginalised populations". They argued that "AI threatens to deepen the dominance of a way of thinking that is white, male, comparatively affluent and focused on the US and Europe." The publication of the paper had significant and direct impact on the careers of some of the authors. Timnit Gebru says she was fired from Google. The team on the ethics of artificial intelligence where she was a co-lead ceased to exist. This drama passed largely unnoticed globally as had other significant publications on algorithmic bias. Current discussions on generative AI in the media tend not to focus on bias and fairness in machine learning when discussing the ethical dimensions of its societal impact. Meanwhile the use of machine learning and specifically LLM's in physics is increasing. This is despite a paucity of data sets suitable for use in neural networks in a number of sub-fields and inter-disciplinary areas. This paper examines the implications of the current state of LLMs for the work and careers of women in physics. There are myriad potential contributions that women with strong mathematical skills (such as women trained in physics) can make to the complex challenges of addressing data bias and researching its impacts on the marginalised. There are potential new career paths and new business models to explore. It closes with a call for action and a multi-scale and multi-stakeholder approach with a view to influencing policy.

DAWSON, Silvina-Ponce

IUPAP President Designate

Silvina Ponce Dawson received her PhD from the University of Buenos Aires in 1988 in theoretical plasma physics and is known for her work on statistical, nonlinear and biological physics.

She was Director of the Physics Department of the School of Exact and Natural Sciences of the University of Buenos Aires in 2005-2009.
She is currently Full Professor at the University of Buenos Aires in Argentina and Principal Researcher of the Argentinian National Research Council, CONICET.

She is Senior Associate of the Abdus Salam International Centre for Theoretical Physics (ICTP) in Trieste and Associate Member of the ICTP South American Institute for Fundamental Research (ICTP-SAIFR) in São Paulo, Brazil.

She was the Chair of WG5 in 2011-2014. At the 2017 GA she was elected Vice-President at Large with Gender Champion Duties for the period 2017-2020. She is one of the IUPAP representatives on the Executive Committee of the Gender Gap in STEM Project (https://gender-gap-in-science.org/), a project that received one of the 3 large grants given by the International Science Council (then ICSU) in 2016.

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Workshops & Meeting

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Teaching Physics Online: Issues of Access & Equity in the Classroom (SW1)

Coordinators: Ram Ramaswamy and V Madhurima

Abstract: *The theme for the International Women's Day has been given by UN to be DigitAll - Innovation and technology for gender equality. Even before the COVID-19 pandemic hit the globe, education was leaning towards online modes through the use of MOOCs. Post-pandemic, online education is here to stay. In India, this is reflected in the National Education Policy 2020 which has a large online education component. On the one hand there is a noticeable gender inequity in access to digital devices and internet, ad on the other hand, the amount of time available to women teachers (and students) is restricted by societal norms.*

In this workshop, an international panel of speakers will discuss the extent to undergraduate and postgraduate Physics education can be delivered online, in an environment that cannot be accessed equally by all. We will probe the nature of learning in this new environment and the efficacy of evaluation online and the role of academic administrators in ensuring quality online education.

The program will have about six speakers from various parts of the world, discussing these issues, followed by a panel discussion on "Future of Online Physics Education".

Combating Biases & Improving Institutional Culture (SW2)

Coordinators: Deepa Chari and Vandana Nanal

Abstract: *Worldwide, physics continues to remain one of the least gender-balanced domains, with the underrepresentation being more significant at higher education levels. The overall picture in India is broadly similar to that on a global level. Research studies have connected the underrepresentation to a chilly environment, less belonging, feeling of inadequacy, less recognition, biases- amongst many others. Certain students, teachers, and professional demographics are known to disproportionately experience many of these issues, which could leave enervating effects in their lives, and the choices they make for the future. To thrive in physics communities at every level, it is important to a) sensitize the community members about these issues, and b) identify and combat these issues personally and institutionally.*

The combating bias workshop design draws from socio-cultural theories of self-identity, mindset theories, and theories of social dominance. In the past 3 years the facilitators have interacted with a large group of postgraduate and graduate physics community in India through this activity-based workshop, and now aim to share the design and past workshop experiences with broader community. In this workshop, we aim to identify and discuss the impact of imposter syndrome and implicit bias, and develop strategies to confront those at the individual, peer, and institutional levels along with participants. Using these workshop activities, further avenues for professional and academic support will be brainstormed.

Presentation skills for career advancement (SW3)

Coordinators: Sarita Vig and Tripta Bhatia

***Description**: The workshop is aimed at acquainting young students, aspiring to pursue a research career. The discussions will cover topics like identifying positions to apply, preparing an application, writing a statement of purpose and/ or proposals, preparation and presentation of the project report, etc.*

The workshop is open only to registered student participants of ICWIP2023.

Workshop 1: Physics Education (W1)

Organizers: Tetyana Antimirova, Gillian Butcher, Ruwen Peng, Manjula Sharma, Pratibha Jolly

***Workshop description**: In the Physics Education Workshop we will be focussing on two different themes in the two sessions. The first focuses on the higher education institutions and how to transform them for gender equity. Initiatives such as Project Juno in the UK, SAGE in Australia and GATI in India, all aim to encourage institutes to assess themselves in terms of gender equity. The self-reflection allows the institutes to ascertain their own gaps and weaknesses and hence to come up with their own action plans to address those issues. How effective have these initiatives been, how have they evolved and how can they be transferred to other systems and countries?*

The second theme will look at curriculum, technology (both teaching of and utilising for teaching) and effective pedagogy. Each of these strands is important on its own but we will consider the overlap of the three strands and how they can be combined to improve gender equity in the classroom and how they can attract girls into physics. What is the research telling us, what good practice can we share and what can we improve further?

A variety of speakers will help set the scene for each theme, with plenty of time for workshop attendees to discuss the issues, share experiences and good practice and develop strategies to move the gender equity agenda forward in education.

Workshop 2: Social Science Data Analysis for Physicists (W2)

Organizers: Apriel Hodari, Deepa Chari

Workshop description: *ICWIP 2023 provides opportunities to understand the worldwide physics communities that contribute to shaping and driving the agenda of physics. Sharing of empirical as well as anecdotal data on the status of physics is common on this platform, while participants' expertise using social science data analysis methodologies varies widely. This workshop will offer participants opportunities to practice and learn social science approaches for data collection, analysis, and discussion. The hands-on examples cover a wide spectrum of data including physics learning materials/resources, lived-experiences within physics contexts, departmental gender statistics, to big data on diversity representation. The workshop leaders will demonstrate applying social science data analysis methods in physics and will facilitate discussions. Participants will explore social science data analysis examples in small groups. The workshop concludes by distilling emergent recommendations to IUPAP WG5 and the General Assembly, about synergizing physics with social science to understand physics communities in context.*

Workshop 3: Interrogating Physics Practice with an Intersectionality Lens (W3)

Organisers: Prajval Shastri & Shohini Ghose
Additional Resource person: Chayanika Shah

The goal of the workshop is to build our understanding of how intersectionality plays out in our physics practice, in order to design interventions and formulate policy prescriptions that will transform the physics enterprise into a welcoming one for everyone. The workshop will be conducted across two interactive sessions of 2 hours each. The sessions will cover understanding gender as a marginalisation, and understanding discrimination and intersectionality, which are essential to address the root causes of gender inequity in physics. We will then explore pathways at multiple levels, viz., classroom, departmental, institutional, organisational, and also for funding agencies and leadership, in order to transform our enterprise for the better. The workshop will culminate in collective reflections on what was learnt, in order to arrive at recommendations for the physics profession via IUPAP and also for the IUPAP Women in Physics Working Group 5 moving forward.

Workshop 4: Women's Leadership in Physics (W4)

Organizers: Anisa Qamar, Anitha Kurup, Meza-Montes Lilia

Workshop description: *Despite the progress made by women globally during the past decades, they constitute a minuscule number in top management and leadership roles. Countries worldwide have made concerted efforts to increase the number of women in the STEM disciplines. While the numbers have increased in the student pipeline, this is not translated to the faculty and decision-making roles either in academia or the industry. This pattern is not very different for women in Physics.*

For sustainable development, women's empowerment through equal participation is one of the strategic challenges. Although the number of women graduating from universities with higher degrees is increasing daily, they are still grossly underrepresented in STEM education. Several barriers like gender disparities in employment at the entry-level, and career progression in academia and industries have prevented women from pursuing research-oriented careers. Worldwide, women are underrepresented in first and last authorship, and in multiple authorship, women represent less than one-third of the authors in publications. Out of the total 934 Nobel Laureates, 58 are women which makes only 1.85 % while the Fields medalists in mathematics, just one out of 60 is a woman. Interestingly, Nobel female laureates in literature make up 13.68 %.

In developing countries, the gender disparity in STEM is complex and multi-faceted. Eventually, lower female scientists' representation in STEM fields interprets in fewer role models for girls and limited mentoring opportunities. Studies on the number of females in top positions in academic institutions suggest that unintentional and subconscious gender bias is common and can result in barriers for women to being promoted, credited for their achievements, nominated for leadership positions, or viewed as leaders. In this workshop, female leaders in the physics community will share their experiences with the aim to encourage early- and mid-career women for future leadership.

Workshop 5: The role of women in science for development (W5)

Organizers: Amal Amin, Farida Fassi, David Hutchinson

Workshop description: *The role of women in science is crucial for the development of society. Historically, women have made significant contributions to scientific advancements, although their achievements have often been overlooked or undervalued. However, recognizing and supporting the role of women in science is essential for achieving sustainable development. Empowering women in science is not only a matter of gender equality but also a strategic investment for societal progress and sustainable development. By ensuring women's full and equal participation, we can harness their talents, insights, and capabilities to address complex challenges and build a better future for all.*

The workshop will address the following questions: Is there a critical role that women can play in science for development and how can we ensure that the development for which we strive is a just and equitable one? The workshop will begin with short key-note presentations from Professor Amal Amin, of the National Research Centre in Egypt, and Dr Nitsara Karoonuthaisiri, of the National Centre for Genetic Engineering and Biotechnology in Thailand outlining their experience in science for development. We will then explore together our experiences and then attempt to synthesize key recommendations for the IUPAP General Assembly.

For details on Physics for Development, please visit
https://iupap.org/strategic-plan/physics-for-development/

AAPPS-WiP Meeting

Women's participation in physics is by now far behind the other area. Action based on the Watleroo charter should be taken widely to improve the situation. The Association of Asia Pacific Physical Societies (AAPPS), founded in October 1989, is an umbrella organization of physical societies in the Asia Pacific region. AAPPS-women in physics (AAPPS-WIN) activity started in 2005. In this session, we introduce the activity of the AAPPS-WIP and discuss the possible resolution to the AAPPS and member society. Members of physics societies under AAPPS are especially welcome to participate the meeting.

1.Introduction of AAPPS-WIP
2.past activities of AAPPS-WIP
3.Discussion of the resolution

- *need for statistics*
- *improve women's representation*
- *fellowship or other financial support.*

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Pre-Conference Events

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Mentoring and networking

Half-day workshop on Career Women: Challenges, opportunities & success stories.

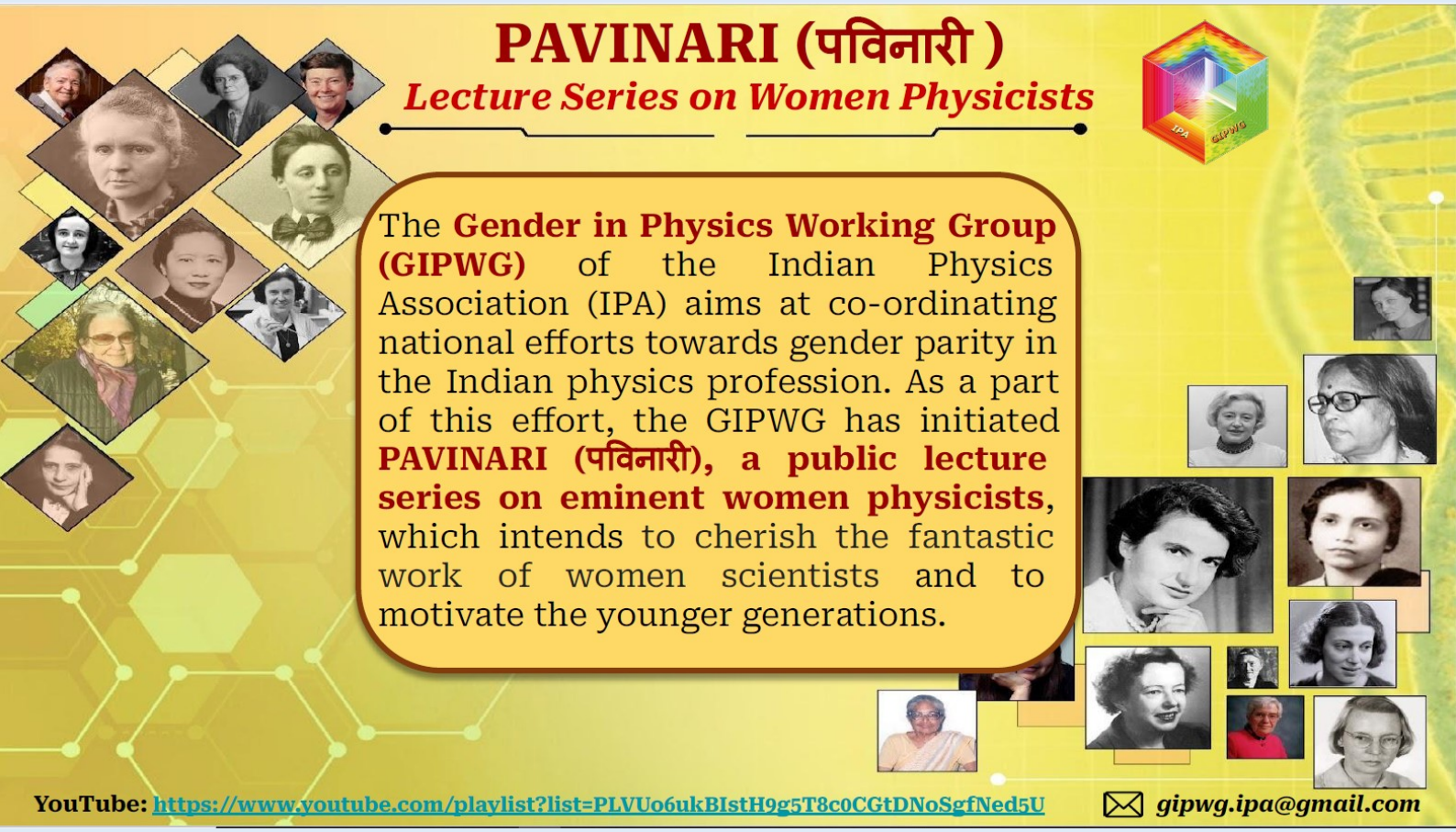
CSIR National Physical Laboratory of India jointly with the Indian Institute of Technology, Delhi and Tata Institute of Fundamental Research (TIFR) organised a half-day workshop on 'Career Women: Challenges, Opportunities & Success Stories' at CSIT National Physical Laboratories of India on 06.03.2023.

Satellite event of ICWIP2023 - drawing competition for school-children

HBCSE-TIFR, Mumbai, February 25, 2023

PAVINARI lecture series

The Gender in Physics Working Group of IPA has initiated a lecture series PAVINARI (PAdarth VIgyan ki NAriyan) showcasing the fantastic work done by women physicists and to motivate the young researchers.

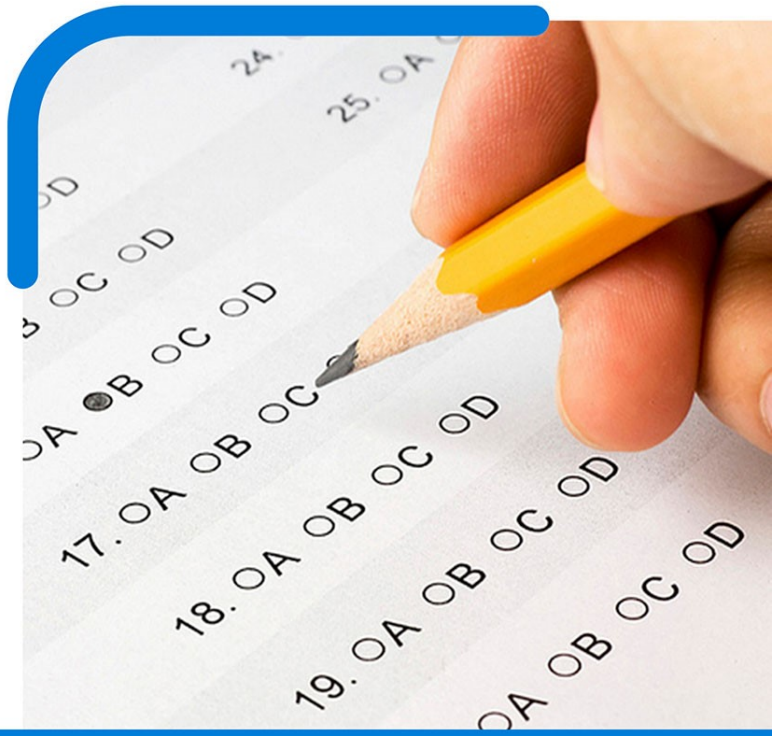


SHIV NADAR
INSTITUTION OF EMINENCE DEEMED TO BE UNIVERSITY
DELHI NCR

Webinar on

Are Multiple Choice Questions (MCQ) tests in STEM gendered?

June 21, 2023 | 3:45-6:00pm IST



PANEL DISCUSSION

Satellite Event of ICWIP 2023

Rupamanjari Ghosh

Former Vice Chancellor of Shiv Nadar University Delhi-NCR, Former Professor of Physics & Dean of School of Physical Sciences at Jawaharlal Nehru University.

Nissim Kanekar

Professor and DST Swarnajayanti Fellow at the National Centre for Radio Astrophysics (NCRA), Tata Institute of Fundamental Research (TIFR), Pune.

Debashis Ghoshal

Professor of Physics, Jawaharlal Nehru University, New Delhi.

Kate Wilson

Associate Professor of Physics, Researcher in Pedagogy, University of New South Wales, Canberra.

Nandini Chatterjee Singh

Senior National Program Officer at UNESCO MGIEP (Mahatma Gandhi Institute of Education for Peace and Sustainable Development), New Delhi.

Chief Patron

Ananya Mukherjee

Vice-Chancellor, Professor, Department of Economics, School of Humanities and Social Sciences, Shiv Nadar Institution of Eminence, Delhi-NCR.

Convenor

Rohini M. Godbole

Padma Shri (2019) Recipient, Honorary Professor, Centre for High Energy Physics Indian Institute of Science, Bangalore.
Distinguished Visiting Faculty, Shiv Nadar IoE, Delhi NCR.

Co-convenor

Moon Moon Devi

Assistant Professor at Tezpur Central University, Assam.
Member of the Gender Group in High Energy Physics in India.
Young Scientist/Innovator Award by ASTEC in 2022.

Co-chairs, LOC-ICWIP 2023:
Prof Vandana Nanal and Srubabati Goswami

Organizing Committee for Panel Discussion:

Prof Vandana Nanal
Prof Srubabati Goswami
Prof Susanta Sinha Roy
Prof Priya Johari
Dr Priyanka Grover
Dr Srijita Banerjee

https://bit.ly/3MEj5F8
Scan here for Registration

bit.ly/3NefDCF
Participants can access a live stream on the GIPWG (IPA) & Shiv Nadar IoE YouTube channels

For any enquiries please contact Dr. Srijita Banerjee (shrijita.banerjee@snu.edu.in)

TPEO Workshop on Teaching Physics Effectively Online and Women in STEM Public Lecture @ GITAM University, Hyderabad

GITAM
(DEEMED TO BE UNIVERSITY)
HYDERABAD
NAAC accredited with A++ Grade

Satellite event of ICWIP2023

Workshop on

Teaching Physics Effectively Online and Women in STEM

8th July 2023

Organized by

Dept. of Physics, School of Science, GITAM – Hyderabad
and Gender In Physics Working Group (GIPWG)

Public Lecture

Imaging Assisting Humankind - Fundamental Science to Application

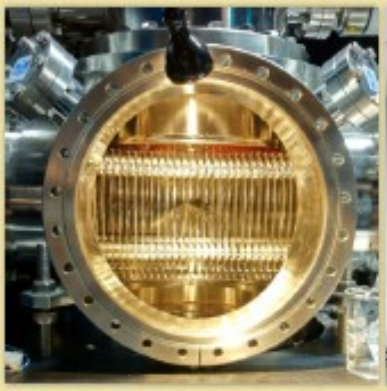
Our group at IIT-Hyderabad has developed a state-of-the art reaction microscope which is employed to study ultrafast dynamics in simple and complex molecules. Using the reaction microscope, we have proved that the internal polarizability of Oxygen molecular ion can be exploited to freeze the molecular ion briefly. In addition, we also established that an intermediate intensity can enhance the ionization rate in CH3I molecules if it hits the resonance. On one hand we image the small atoms/molecules utilizing intense light sources, at the same time we employed the near infra-red (NIR) radiation to 3D image the veins. We have been actively working in developing a novel 3D Vein Viewer module that not only images the peripheral vein mapping underneath the human skin but also determines the depth of the vein vessel from the top of the skin with micro-meter accuracy. My talk will mainly focus on the imaging equipment which we have built in our lab for fundamental and applied research.

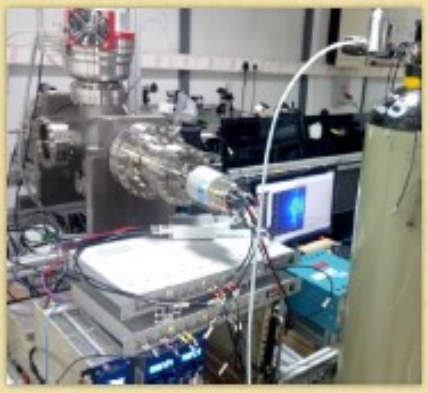
About the speaker

Dr. Vandana Sharma did her Ph.D. from PRL in 2007 with Prof. Bhas Bapat. She worked on Momentum Spectroscopic studies of atomic and molecular ionization during his Ph.D. She moved to JILA, University of Colorado at Boulder followed by Max Planck Institute for Nuclear Physics, Germany for her postdoctoral work. She returned to India and joined Indian Institute of Technology Hyderabad as faculty in 2012. She has worked on Ultrafast dynamics of small molecules along with developing different equipment not only for fundamental studies but also for imaging biological samples. She is in editorial board of Frontier of Physics – Atomic and Molecular Physics Journal. She won Sheldon Young Scientist award and recently awarded Sree Rama Krishna Paramahamsa Research Grant Award. She loves trekking and sheds all here stresses in mountains.

Dr. Vandana Sharma
IIT Hyderabad

HYBRID MODE (03:30 PM to 04:30 PM)
https://youtube.com/live/8vYe_dghrPY?feature=share



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Conference Committees

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Local Organizing Committee

Co-Chairs

Prof. Srubabati Goswami

(FASc, FNA, FNASc , FTWAS)

sruba.goswami@gmail.com

Srubabati is an internationally reputed theoretical particle physicist and a Professor at the Physical Research Laboratory, Ahmedabad. She is a member of the IUPAP C11 commission (2017-). She is the current chair of the GIPWG under IPA. A member of the GIPWG since 2017, she was the co-chair of the PFP2019 conference of GIPWG. She is also a member of the Inter-academy panel of women in STEMM in India (2021-). She has attended ICWIP in 2017 as a country team member and in 2021 as the country team leader and a workshop speaker. She is playing an active role in fostering gender diversity in the Indian physics profession as well as in championing causes of women in general. She took the leading role in the formation of a gender group for High Energy Physics in India. She is the chair of the Women's Cell of her organization as well as a member of the ICC (dealing with workplace sexual harassment).

Prof. Vandana Nanal

nanal@tifr.res.in

Vandana is a Professor, working in experimental nuclear and accelerator physics at TIFR. She is presently a joint chair of BARC-TIFR Pelletron Linac Facility, overseeing operation, management as well R&D aspects of the facility. She is a General Secretary of IPA and has been a member of GIPWG since its inception. She has been a lead organiser for various IPA events in the past two years. She was involved in the organisation of the first IPA national gender conference PFP2019 at Hyderabad in 2019. She has been a joint convener of *Vigyan Vidushi* – a summer program for Women Students pursuing master's in physics, to provide mentoring and guidance for career in physics. She was a co-editor of the all-women-author *Physics News* issue in 2017. She attended ICWIP-2021 as a member of the Indian team. She actively pursues outreach efforts focussed on promoting gender equity in physics and is currently spearheading IPA mentoring workshops aimed at combating biases. She is a member of TIFR academic ethics committee since 2015.

Members

Prof. Aditi Sen-De

aditi.senindia@gmail.com

Aditi is currently a Professor at the Harish-Chandra Research Institute (HRI), Prayagraj, working on quantum information and computation. She is the first woman physicist to receive the *Shanti Swarup Bhatnagar* award. At present she is the Presiding Officer/Chairperson of the ICC /Women's Grievance Cell at HRI. Every year, along with other ICC members, she conducts an awareness program regarding sexual harassment at the workplace as well as gender equality, for young researchers. She is a member of the GIPWG and attended ICWIP-2021 as an observer.

Amita, a theoretical plasma physicist, is a Professor at IIT Delhi. She has mentored a large number of women students and has made conscious efforts towards a congenial work atmosphere for women. She has served as a member of the committee of DST (GOI) for women scientists (2005-2011), which provided project opportunities for bright women having had a break in career for family reasons. She has been a member of the Program Advisory committee on Physical sciences of SERB-POWER Programme to promote opportunities for women in exploratory research.

Prof. Amita Das
(FASc, FNA, FNASc)

amita.iitd@yahoo.com

Prof. Arnab Bhattacharya

director@hbcse.tifr.res.in

Arnab is a Professor and science communicator at TIFR and the Centre Director of the HBCSE. He has broad interests ranging from semiconductor optoelectronics to frugal solutions for global health and education. He pioneered Chai and Why?, Mumbai's popular science café and also coordinates TIFR's public outreach activities. In this role, he has pushed to ensure gender equity in TIFR's outreach activities, and organized science demonstration programmes with a focus on girls in schools in underserved communities. He was awarded the *Indira Gandhi Prize* for the Popularization of Science by INSA in 2017.

Bedangadas is a Professor at National Institute of Science Education and Research (NISER), Jatni, working in high energy. He is a recipient of the *Shanti Swarup Bhatnagar* award and *Infosys* award. As a spokesperson of India-ALICE-STAR Collaboration and a Dean of faculty at NISER, he has been involved in promoting gender equity including increasing awareness and gender sensitization in faculty hiring at NISER, and outreach programs like international masterclass for hands-on particle physics for young girl students. He organised a panel discussion on *Exploring Pathways for achieving Gender Parity in High Energy Physics in India* in the DAE-BRNS national symposium.

Prof. Bedangadas Mohanty
(FASc, FNA, FNASc, FAPS)

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Dr. Deepa Chari

deepu.chari@gmail.com

Deepa is vested in studying gender and race-ethnic underrepresentation in Physics, at HBCSE. Her research in the areas of admissions, STEM identity, support at decision-making junctures, and institutional change, had contributed to identifying gender under-representation issues in India and institutional responsibilities to address those. She is a member of GIPWG and attended ICWIP-2021 as an observer. She conducted a workshop on imposter syndrome and participated in mentoring sessions in *Vigyan Vidushi* summer school for women students. She is one of the three architects of GIPWG mentoring workshops *PAWS*.

Madhurima is an experimental Soft Condensed matter Physicist working at Central University of Tamil Nadu, Thiruvarur. In 2020, she set up *DFOT* with colleagues to help teachers in India discuss pedagogic issues in the transition from the physical classroom to online teaching in higher education. She was the Chairperson of the CASH-GSCU at her university, which has a largely women student population, for nearly six years. She is currently a member of the GIPWG, attended ICWIP-2021 as an observer, and is a facilitator for its mentoring program (*PAWS*). She is currently coordinating the NASI-CUTN outreach program on health and hygiene for women in rural areas.

Prof. V Madhurima

madhurima@cutn.ac.in

Prof. Moon Moon Devi

devi.moonmoon@gmail.com

Moon Moon Devi is an Assistant Professor at Tezpur University, Assam and specialises in Astroparticle and Neutrino Physics. She is actively involved in various gender sensitization programmes, particularly in North Eastern India. She is a member of the GSAT of Tezpur University, which has been set up under *GATI*, and departmental convenor for the Gender Sensitization Programs. She is a member of the gender group in High Energy Physics in India. She is playing a lead role in setting up a gender group in PANE (Physics Academy of North East).

Nishita is a Ramanujan Fellow at TIFR in Mumbai, working in particle Physics phenomenology. She has been involved in various programs aimed at promoting gender equity. As a part of the organising committee for the *Vigyan Vidushi* summer school for women students, she conducted a workshop for career opportunities and participated in mentoring sessions. She coordinated a panel discussion *Towards gender equity: New Directions & Steps*, jointly organised by IPA and APS (2021). She works actively in promoting awareness about issues faced by young (women) researchers.

Dr. Nishita Desai

desai@theory.tifr.res.in

Preeti, working in the area of Astrophysics at National Center for Radio Astrophysics of TIFR, has played a lead role in creation of the WGGE of the ASI in 2015. She is the current Chair of WGGE, member of GIPWG and the Working Group for Equity and Inclusion of the International Astronomical Union (IAU). For gender-sensitization, the WGGE organises *Anna Mani* lectures and sessions at the annual ASI meetings. She has participated as an instructor and a mentor for TIFR's *Vigyan Vidushi* programs. She has served as the chair of NCRA's ICC (2017-2021) and is currently a member of the same.

Prof. Preeti Kharb

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Prof. Rukmani Mohanta

rmsp@uohyd.ac.in

Rukmani is Professor working in high energy physics at University of Hyderabad. She is the current Chair of the HEP-Gender group under GIPWG of IPA. She is actively engaged in mentoring the young M.Sc. and Ph.D. women students to pursue a career in Physics. She has also delivered lectures in *Vigyan-Jyoti* Program of DST for nurturing young girl students to pursue a career in science. She is the recipient of *OWSD* Young Women Scientist Award for Physics/Mathematics for the Asia and Pacific Region.

Satyanarayana working at TIFR Mumbai, is a coordinator of the Indian Neutrino Observatory Project and also the Chair, IEEE Bombay Section. He is passionate about outreach activities of science and engineering students and played a major role in *Vigyan Samagam*- a multi-venue mega-science exhibition, a unique initiative of the Government of India. He was honoured with the *Homi Bhabha Award* in Science Education in 2020. He is actively involved in gender sensitization programs and facilitated IPA-IEEE joint webinar on the occasion of international women's day in 2020. He is a member of the TIFR Committee for Gender Harmony.

Prof. B. Satyanarayana
(FIETE, FIE)

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Prof. Savita Ladage

savitaladage@gmail.com

Savita is working in chemistry education at HBCSE. She is associated with the Indian National Chemistry Olympiad programme for more than two decades. She is a member of the National Steering Committee that oversees the Science Olympiad programme in India. She has also been a member of the International Steering Committee for International Chemistry Olympiad on several occasions. She is the national coordinator for the NIUS programme and the academic coordinator for NIUS chemistry programme of HBCSE. She is actively involved in mentoring young female students.

Shobhana, Professor in the JNCASR, Bengaluru, works in computational nanoscience. She has been actively working to bridge the gender gap in science from her student days and her suggestion led to the *WIPHYS* bulletin board of APS. Since 2013, she has been co-organizing Career Development Workshops for Women in Physics at ICTP, Trieste, Italy and ICTP-EAIFR, Kigali, Rwanda, which have helped hundreds of women from developing countries. She has also written research papers on the gender gap in science, and given several outreach talks on gender and science. She was a member of WG5 and has been an active participant in ICWIP in the past.

Prof. Shobhana Narasimhan
(FASc, FNASc, Int. Hon. Mem. AAAS)
Shobhananarasimhan@gmail.com

Prof. Suchetana Chatterjee

suchetana.chatterjee@gmail.com

Suchetana, an Assistant Professor at Presidency University, Kolkata, works in theoretical Astrophysics. She has been a member of the GIPWG 2017-2020 and was the India team member for ICWIP-2017. She was a panellist at the Indo-French women in science meet in 2018 and the APS-IPA joint-webinar conducted in 2021. She has given invited talks on diversity issues at the WGGE sessions of the ASI and at faculty induction programs at various organisations, and is currently the presiding officer of the SNBNCBS ICC.

Sugra, former dean at HBCSE, has worked on gender issues in education, with emphasis on school education and in socio-scientific issues that include gender aspects. She played a leading role in *Gender, Science and Schooling: illustrations in science textbooks*, project of DST-GOI 2009. She developed an exhibition on the theme of *Gender, Science and Schooling: illustrations in science textbooks and students' and teachers' ideas related to gender,* highlighting the contributions of women scientists and focused on the historical disjunction between women, science and technology. She was a member of the focus group that wrote Gender Issues in the curriculum of NCERT (2005) and has contributed to several books.

Prof. Sugra Chunawala

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Local Advisory Committee

Prof. Bindu Bambah

bbambah@gmail.com

Bindu, Professor at University of Hyderabad, pursues research in theoretical Particle Physics. She is also the only physicist to be a founder member of a women's studies department in a university in India, where she now is a joint Professor and introduced the topic of "Women in Science" in the curriculum. She has worked to devise methods of inducting and training women to assume leadership roles in the physical sciences, with focus on the importance of role models, advisory support, gender congeniality and confidence in choosing and sustaining a successful career in science. She facilitated the first ever gender in physics conference "Pressing for Progress", on Women in Physics at the University of Hyderabad.

Gautam is currently a Professor at Ashoka University, working in theoretical physics and computational biology. The modelling of infectious disease and its implications for public policy is his long-standing interest and he has written extensively for the general public on the COVID-19 pandemic. Apart from his scientific work, he is interested in making science accessible to the public. He is a member of the GIPWG and participated in ICWIP-2021 as a member of the Indian team. His efforts for promoting gender equity in science are focussed on making hiring policies women-friendly.

Prof. Gautam Menon
(FNASc)

menon@imsc.res.in

Prof. Neelima Gupte

neelima.gupte@gmail.com

Neelima is a Professor in theoretical condensed matter physics at IIT Madras. She participated in the first two ICWIP conferences in Paris (2002) and Rio (2005). She also took part in the IUPAP meeting at Berlin as a member of the WIPG. She has initiated WIP discussions in many conferences such as the Statphys conferences in Bangalore (2004) and Genoa (2007), the Dynamics Days Asia Pacific (Chennai), PANIIT (Chennai) 2007 etc. She was one of the editors of the Current Science section on Women in Science in 2017. She has been an organiser and speaker at several of the activities of the Women in Science group of the Indian Academy of Sciences.

Prajval, formerly with the Indian Institute of Astrophysics, specialises in the physics of giant black holes. A gender equity advocate in institutional spaces for over 15 years, she was twice India's team leader at ICWIP, is a founder member of the Astronomical Society of India's Working Group for Gender Equity, founder and past-Chair of IPA's Gender in Physics Working Group, and vice-chair designate of the WG5 of IUPAP. As chair, GIPWG, she led the design, funding and organisation of the first ever inter-disciplinary national conference on gender equity in physics - PFP 2019, was its Co-chair, and played a lead role in formulating the landmark Hyderabad Charter for Gender Equity in Physics. In addition to astrophysics research publications and popular articles, her published writings cover gender inequity as well as science and society.

Prof. Prajval Shastri

prajval.shastri@gmail.com

Prof. Pratibha Jolly

pratibha.jolly@gmail.com

Pratibha is a former Principal of Miranda House, College for women at the University of Delhi, ranked as one of the top colleges in the country. She is leading the development of the framework for a novel pilot program titled *GATI*, launched in 2020 by the DST (GOI). She was Chair of IUPAP Commission on Physics Education (ICPE) from 2005 to 2011; and Vice President IUPAP (elected from amongst commission chairs) from 2005 to 2008. She participated in ICWIP-2005 and 2008 as an Indian team member and was plenary speaker in ICWIP-2008. She was recently awarded the *IUPAP-ICPE* 2019 Medal for long and distinguished service to physics teaching.

Prof. Ramakrishna Ramaswamy
(FASc, FNA, FTWAS)

r.ramaswamy@gmail.com

Ram, formerly a Professor at the JNU, New Delhi is currently at IIT Delhi in the Department of Chemistry. He has been a strong supporter of gender equity in science. He co-edited *Lilavati's Daughters: The Women Scientists of India (2008)*. He has participated in ICWIP-2010 as a member of the Indian team and has been a part of the Women in Science panels of the IAS and the INSA. He recently co-edited *Fragmented Feminism: The Life and Letters of Anandibai Joshee*, a biography of the first Indian woman physician written by the feminist scholar Meera Kosambi. *DFOT* was set up by him and colleagues in mid-2020 to help teachers in India discuss pedagogic issues in the transition from the physical classroom to online teaching in higher education.

Prof. S Ramakrishnan
(FASc)

director@tifr.res.in

Ramakrishnan is a distinguished professor at TIFR and specialises in low temperature physics. Presently, he is the Director of TIFR and the president of IPA. He has supported a multipronged approach for promoting gender equity in science and physics in particular. Under his leadership, GIPWG has been able to expand its activities. This includes special IPA webinars – with APS (Nov. 2021) and with IEEE (March 2021), focussed on gender status and efforts to improve gender parity. At TIFR, he has supported *Vigyan Vidushi* – a summer program for Women Students pursuing master's in physics, to provide mentoring and guidance for career in physics.

Prof. Rohini Godbole
(FASc, FNA, FNASc, FTWAS)

godbolerm@gmail.com

Rohini, a renowned high energy physicist, is currently an honorary professor at IISc, Bengaluru. She is a recipient of *Padma Shri* award (GOI) and *Ordre National du Merite* (France). She was instrumental in setting up Women in Science panels of IASc and INSA. She is editor/author of several reports on women in science in India, a member of the Inter Academy Panel for Women in STEMM, and the Standing Committee for Women in Science of the GOI. She has pioneered a variety of programs to raise awareness about Women's issues in Science. She was also the chair of the drafting committee for *Equity and Inclusion* in India's Science, Technology and Innovation policy of 2020. She co-edited a book *Lilavati's Daughters: Women Scientists of India* and also wrote a book *The Girl's Guide to a Life in Science* .

Prof. Shikha Verma

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Shikha, an experimental condensed matter physicist at Institute of Physics (Bhubaneswar), is presently a member of governing board of Inter University Accelerator Center, New Delhi. She has been actively involved in mentoring and promoting women students for undergraduate and graduate studies in STEM. She has served as a chairperson of women cell and ICC (dealing with sexual harassment at work place) chairperson. She is a member of many national funding committees which recognize the challenges faced by women researchers.

Sulabha, formerly a professor at University of Pune and presently an INSA Senior Scientist, Centre for Materials for Electronics Technology (CMET), Pune, has worked in Surface Science and nanotechnology. She has been actively involved in various initiatives of DST (GOI) for women scientists and has mentored many women Physicists. She has given motivational lectures in several schools, colleges and Universities on role model scientists. She also wrote a book based on the struggle of 26 international female scientists of the past. She was a member of the Standing Committee for Promoting Women in Science of the Ministry for Science & Technology, GOI from April 2016-2019.

Prof. Sulabha Kulkarni
(FASc, FNA, FNASc)

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Prof. Sumathi Rao
(FASc, FNASc)

sumathirao1999@gmail.com

Sumathi, a condensed matter physicist, formerly a Professor at the Harish-Chandra Research Institute and presently at the International Centre for Theoretical Sciences (TIFR), has been one of the initiators of women in physics programmes in India. She was a member of the first working group of women in physics of the IUPAP that initiated the ICWIP and was the leader of the Indian delegation to ICWIP - 2002, 2005, and a member in 2008. She, along with a few others, initiated the collection of the gender break- up data of faculty/students in India. She has worked extensively to create awareness about women's issues and presented talks at several conferences and panels. She has also served as the chairperson of the women's cell in her institute for many years.

Tanusri works in the area of computational condensed matter/materials physics. She is currently a Professor and Director of S.N. Bose National Centre for Basic Sciences, and vice-president of IPA. She has been a part of the GIPWG and attended ICWIP-2021 as the Indian team member. She has co-authored an article on *Ethical Issues Associated with Gender-Bias* in the monogram published by Indian National Science Academy. She was also a co-organizer of the Indo-French conference on *Gender in Science* (2018). She served as a member of ICC at her institute, and works proactively towards generating awareness regarding sexual harassment at work place.

Prof. Tanusri Saha-Dasgupta
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  12. Cathy Foley, Australia
- **Administrative Support**
  Leah Bullis

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Programme Outline

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8th International Conference on Women in Physics (ICWIP 2023)

Sunday 09 July 2023 - Friday 14 July 2023

Programme

All times are in IST (GMT+5:30)

Sunday 09 July 2023

Satellite Workshops: Workshop 2: Combating Biases & Improving Institutional Culture (14:30-16:30)

- Conveners: Prof. Nanal, Vandana; Dr. Chari, Deepa

Satellite Workshops: Workshop 1: Teaching Physics Online: Issues of Access & Equity in the Classroom (14:30-16:30)

- Conveners: Prof. Ramaswamy, Ram; Prof. V, Madhurima

Icebreaker/ Social Event (16:45-20:00)

- Conveners: GOSWAMI, Srubabati

Monday 10 July 2023

Inauguration (15:15-16:30)

- Conveners: Prof. Chari, Deepa

time	[id] title	presenter
15:15	[0] Opening remarks	Prof. NANAL, Vandana
15:20	[1] Introduction to ICWIP	Prof. MONTES, Lilia Meza
15:25	[2] Overview of WiP in India	Prof. GODBOLE, Rohini
15:35	[3] Remarks	Prof. SOOD, A.K.
15:40	[168] Remarks	Prof. CHENGALUR, Jayaram
15:45	[29] Remarks	Prof. DAWSON, Silvina-Ponce
15:50	[169] Remarks	Dr. YUSUF, S.M.
15:55	[97] A glance at ICWIP2023	Prof. GOSWAMI, Srubabati
16:00	[5] Vote of Thanks	Prof. V, Madhurima

Keynote talk (K1) (16:45-17:45)

- Conveners: Prof. Shastri, Prajval

time	[id] title	presenter
16:45	[88] Quantum Condensed Matter: A Playground for Emergent Phenomena and Complexity and why I am passionate about this field	Prof. HALLBERG, Karen

Workshop 1-1: Physics Education (18:00-20:00)

- Conveners: Prof. Antimirova, Tetyana; Prof. Butcher, Gillian; Prof. Peng, Ruwen; Prof. Sharma, Manjula; Prof. Jolly, Pratibha

Workshop 2-1: Social Science Data Analysis for Physicists (18:00-20:00)

- Conveners: Prof. Hodari, Apriel; Prof. Chari, Deepa

Workshop 3-1: Interrogating Physics Practice with an Intersectionality Lens (18:00-20:00)

- Conveners: Prof. Shastri, Prajval; Prof. Ghose, Shohini

Tuesday 11 July 2023

Satellite workshops: Workshop 3: Presentation skills for career advancement (10:00-11:30)

- Conveners: Prof. Vig, Sarita; Prof. Bhatia, Tripta

Plenary 1 - Marietta Blau hall (12:00-14:00)

- Conveners: Prof. Okeke, Fransica

time	[id] title	presenter
12:00	[89] Invited talk 1: H15 My research journey: my challenges and achievements in the field of physics	Prof. CHERJAOUI EL MOURSLI, Rajaâ
13:00	[90] Invited talk 2: Institutional Racism and Sexism in Science	Prof. BROWN, Nathanial

Poster-11: (Please ignore session and time assignment of individual posters. All poster presenters will be present during entire poster sessions (2:30pm to 4:30pm IST on July 11-14). - (14:30-16:30)

Networking/Social events - Minaxi Narain Hall (16:45-17:45)

Workshop 1-2: Physical Education (18:00-20:00)

- Conveners: Prof. Antimirova, Tetyana; Prof. Butcher, Gillian; Prof. Peng, Ruwen; Prof. Sharma, Manjula; Prof. Jolly, Pratibha

Workshop 2-2: Social Science Data Analysis for Physicists (18:00-20:00)

- Conveners: Prof. Hodari, Apriel; Prof. Chari, Deepa

Workshop 3-2: Interrogating Physics Practice with an Intersectionality Lens (18:00-20:00)

- Conveners: Prof. Shastri, Prajval; Prof. Ghose, Shohini

Wednesday 12 July 2023

AAPPS-WIP meeting (10:00-11:30)

Plenary 2 - Anna Mani Hall (12:00-14:00)

- Conveners: Prof. Sinha, Sudeshna

time	[id] title	presenter
12:00	[32] Invited talk 3: My Journey in Physics... along the 'Second' Quantum Revolution	Prof. GHOSH, Roopmanjari
12:40	[33] Invited talk 4: Climate Change Education in Developing Countries	Prof. KARVE, Priyadarshini
13:20	[34] Invited talk 5: Investing the origin of diffuse FUV emission in galaxies	Prof. GOGOI, R

Poster-12: (Please ignore session and time assignment of individual posters. All poster presenters will be present during entire poster sessions (2:30pm to 4:30pm IST on July 11-14). (14:30-16:30)

Cultural program - Mrinalini Sarabhai Hall (16:45-17:45)

Workshop 4-1: Women's Leadership in Physics (18:00-20:00)

- Conveners: Prof. Qamar, Anisa; Prof. Kurup, Anitha

Workshop 5-1: The role of women in science for development (18:00-20:00)

- Conveners: Prof. Hutchinson, David

Thursday 13 July 2023

Documentary show (10:00-11:30)

Plenary 3: Panel Discussion: The impact of COVID-19 on the scientific ecosystem - Iravati karve hall (12:00-14:00)

- Conveners: Prof. Meza Montes, Lilia

time	[id] title	presenter
12:00	[94] TBA	Prof. MEHMANI, Bahar
12:30	[95] TBA	Prof. SEPAROVIC, Francesa
13:00	[164] TBA	Prof. PATEL, Vibhuti
13:30	[96] Q&A	

Poster-13: (Please ignore session and time assignment of individual posters. All poster presenters will be present during entire poster sessions (2:30pm to 4:30pm IST on July 11-14). (14:30-16:30)

Special session on "Publishing" - Susan Solomon hall (16:45-17:45)

- Conveners: Prof. Ladge, Savita

time	[id] title	presenter
16:45	[165] Master Class: Preparing a contribution for ICWIP Proceedings	Prof. FOLEY, Cathy
17:30	[166] Physics publishers' perspective of gender equity in the physical sciences	Prof. PERS, Mikka

Workshop 4-2: Women's Leadership in Physics (18:00-20:00)

- Conveners: Prof. Qamar, Anisa; Prof. Kurup, Anitha

Workshop 5-2: The role of women in science for development (18:00-20:00)

- Conveners: Prof. Hutchinson, David; Prof. Fassi, Farida; Prof. Amin, Amal

Friday 14 July 2023

Networking/Social events (10:00-11:30)

Plenary 4 - Lise Meitner hall (12:00-14:00)

- Conveners: Prof. Butcher, Gillian

time	[id] title	presenter
12:00	[91] Invited talk 6: Exotic plasmas in the lab - past and the future	Prof. VRANIC, Marija
12:30	[92] Invited talk 7: A scientific journey towards an inclusive society	Prof. CATALÁN, María Eugenia Cabrera
13:00	[93] Invited talk 8: Implications of stochastic parrots for Women in Physics	Prof. GORDON, Dorothy

Poster-14: (Please ignore session and time assignment of individual posters. All poster presenters will be present during entire poster sessions (2:30pm to 4:30pm IST on July 11-14). - (14:30-16:30)

Session on Resolutions - Roslyn Sussman Yalow hall (16:45-18:45)

- Conveners: Prof. Montes, Lilia Meza

time	[id] title	presenter
16:45	[167] The impact on IUPAP of the Working Group on Women in Physics	Prof. DAWSON, Silvina-Ponce
17:10	[239] Discussion on resolutions	

Closing remarks - Roslyn Sussman Yalow hall (18:45-19:00)

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