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The 4th State

Newsletter of the Institute For Plasma Research, Gandhinagar, Gujarat (India)



“कंठस्थ 2.0” हिंदी कार्यशाला

प्लाज्मा अनुसंधान संस्थान में दिनांक 06.03.2024 को सेमिनार हॉल में स्मृति आधारित अनुवाद सॉफ्टवेयर/टूल “कंठस्थ 2.0” पर हिंदी कार्यशाला का आयोजन किया गया। इस सॉफ्टवेयर की उपयोगिता को ध्यान में रखते हुए राजभाषा विभाग, गृह मंत्रालय, भारत सरकार द्वारा सभी केंद्र सरकार के कार्यालयों द्वारा इस सॉफ्टवेयर के उपयोग को बढ़ावा देने पर जोर दिया जा रहा है। संस्थान में इस कार्यशाला का आयोजन विशेष रूप से प्रशासनिक कर्मचारियों के लिए किया गया, जिनके द्वारा रोजमर्रा के प्रशासनिक कार्यों में हिन्दी अनुवाद कार्य प्रचुर मात्रा में किया जाता है। संस्थान में इस कार्यशाला का संचालन डॉ. संध्या दवे, हिन्दी अधिकारी द्वारा किया गया। कार्यशाला के आरंभ में कंठस्थ 2.0 सॉफ्टवेयर में उपलब्ध विभिन्न प्रकार के टूल्स पर चर्चा की गई और उपस्थित कर्मिकों को मोबाइल पर कंठस्थ 2.0 ऐप को डाउनलोड कर रजिस्ट्रेशन प्रक्रिया को पूर्ण कराया। कंठस्थ वस्तुतः ट्रांसलेशन मेमोरी (टी.एम.) पर आधारित मशीन अनुवाद प्रणाली है और ट्रांसलेशन मेमोरी मशीन-साधित अनुवाद प्रणाली से अनुवाद की प्रक्रिया में सहायता मिलती है। उन्होंने बताया कि ट्रांसलेशन मेमोरी पर आधारित इस सिस्टम की मुख्य विशेषता यह है कि इसमें कर्मचारी पूर्व में किए गए अनुवाद को किसी नई फाइल के अनुवाद के लिए पुनः-प्रयोग कर सकता है और यदि अनुवाद की नई फाइल का वाक्य टी.एम. के डेटाबेस से पूर्णतः अथवा आंशिक रूप से मिलता है तो यह सिस्टम उस वाक्य के अनुवाद को टी.एम. से लाता है। कंठस्थ सॉफ्टवेयर की अधिक जानकारी के लिए राजभाषा की वेबसाइट पर उपलब्ध एक लघु वीडियो को भी डिस्प्ले किया गया। डॉ. संध्या ने गूगल अनुवाद तथा कंठस्थ की तुलना करते हुए सॉफ्टवेयर की कुछ विशेष लाक्षणिकता के बारे में चर्चा की। उन्होंने बताया कि केंद्र सरकार के कामकाज में नियमित आधार पर किए जाने वाले अनुवाद कार्य में लगने वाले मानव संसाधन और समय को बचाने के उद्देश्य से इस अनुवाद टूल का निर्माण किया गया है। उपस्थित कर्मियों द्वारा कार्यशाला के दौरान नियमित अंतराल पर पूछे गए प्रश्नों एवं शंकाओं का समाधान भी किया गया। इस कार्यशाला से संस्थान के प्रशासनिक कर्मियों का ज्ञान वर्धन हुआ तथा सभी ने इसके उपयोग पर अपनी प्रतिबद्धता दिखाई।



कार्यशाला की कुछ झलकियाँ

A one-day seminar on “Plasma Technologies for Purification and Sterilization” (PTPS2024) was organized at IPR on 1st March 2024. The seminar was graced by the presence of the chief guest Dr. Sunil Shukla, Director General EDII (Entrepreneurship Development Institute of India).

The participants in this seminar were belonging to industries, medical institutions, research organizations, academicians and also students. A demonstration of plasma technologies developed by IPR was also organized for the participants of this seminar during FCIPT tour. In the end, a panel discussion was held with the brainstorming discussion on the bridging of gap for acceptance of promising plasma technologies by the medical institutions within India through mandatory certifications and approach for the same. The seminar was also in line with the “Make in India” program of Government of India in which the role of researchers in building indigenous technologies is paramount.



Inauguration of PTPS-2024



(L) Dr. Shashank Chaturvedi, Director IPR (M) Dr. Sunil Shukla, Director General EDII and (R) Dr. Sudhir Nema, IPR, addressing the gathering



(L-R) Dr. Kaushik Choudhury (CCAMP), Dr. Shital Butani (Nirma University), Shri Prateek Arora (Persapien Innovation) and Ms. Purvi Dave (IPR) delivering their lectures



(L-R) Dr. R. Mahendran (NIFTEM), Mr. Kushagra Nigam (IPR) and Mr. Akshay Vaid (IPR) delivering their lectures. Event compering being done by Ms. Nisha Chandwani (IPR)



Participants of PTPS-2024 during their visit to FCIPT



(L) Panel Discussion in progress (M) View of the audience (R) Vote of thanks being proposed by Dr. Vishal Jain



Participants of PTPS-2024

Swachhata Pakhwada was held during 16-29 February 2024 at Institute for Plasma Research, Bhat Campus, FCIPT-IPR, ITER-India and Centre of Plasma Physics, Guwahati campuses. Over the fortnight, several programs focused on cleanliness were carried out at these campuses. Competitive events like quiz, slogan writing were conducted for staff members. In addition to cleaning of the campuses, events like, popular talks, tree planting, Swachhata walk with plogging etc were conducted. A Swachhata Pledge was administered to staff members at all the campuses.



Display of Swachhata Pakhwada 2024 Banner at the gates of (Clockwise from top left) IPR, FCIPT, ITER-India and CPP-IPR campuses

On and off-campus cleanup efforts focused on collecting waste, particularly single-use plastic (SUP), polystyrene (thermocool) etc. The participants were also made aware of the management of single-use plastics and subsequently reduce their use with an emphasis on substituting sustainable alternatives.



Cleanliness drive in IPR and CPP-IPR campuses

Swachhata Pakhwada - 2024



Swachhata Pledge being administered at (Clockwise from top left) IPR, FCIPT, ITER-India and CPP-IPR campuses



Swachhata Slogan Writing competition underway at (L) IPR and (R) ITER-India



Shri Alok Nachiketa delivering his talk on "Role of Sewage Treatment Plant -STP, towards a Green and Clean Environment"



Swachhata photo booth at IPR



(L) Talk on “Relation between Swachhata and Quality” being delivered by Shri Pranab Gogoi (CPP-IPR) (R) Talk on “Plastic waste management and circular economy” by Dr. Neha Upadhayay, AMU, Ahmedabad at IPR.



Swachhata Walk and plogging at (L) IPR and (R) CPP-IPR campuses



The Swachhata Pakhwada team of IPR



Winners of the various competitive events organized as part of the Swachhata Pakhwada



Swachhata Pakhwada signature campaign

Institute for Plasma Research (IPR), Gandhinagar (Gujarat), in association with the Vallabh Government College, Mandi (H.P.), organized an exhibition on Plasma, the fourth state of matter during 16-20 October, 2023. This program is part of IPR's rural scientific outreach activity in various states of India. This is the second outreach activity of IPR to be held in the state of Himachal Pradesh. The programme consisted of an exhibition on plasma, its applications as well as introductory talks on plasma for visiting students as well as training program for teachers of VGC. The event was inaugurated by Prof. Lalit Malhotra, former Deputy Director, IIT Delhi. For this exhibition, 48 students of BSc Physics and Chemistry from VGC as well as S. P. University, Mandi were trained by IPR team to explain the exhibits to visiting students in their local language. A training program for teachers on plasma, its applications and fusion was also arranged as part of this event. A fun filled competition for the student volunteers in assembling the TokoToy model was also organized as part of the event. Over 2500 students and general public visited the exhibition at the Vallabh Government College. The event was coordinated by Dr. Vikas Thankur and Dr. Jitender Kumar of VGC. Click [HERE](#) to read more.



View of the exhibition of Plasma and its applications at Vallabh Government College, Mandi, Himachal Pradesh



Inauguration of the event (L) Prof Lalit Malhotra (M) Prof. Rajesh Kumar Sharma, Dean, S.P. University Mandi (R) Dr. A V Ravi Kumar



Prof Lalit Malhotra visiting the exhibition



Introducing plasma to visiting students



Conducting training program on plasma & its applications for teachers

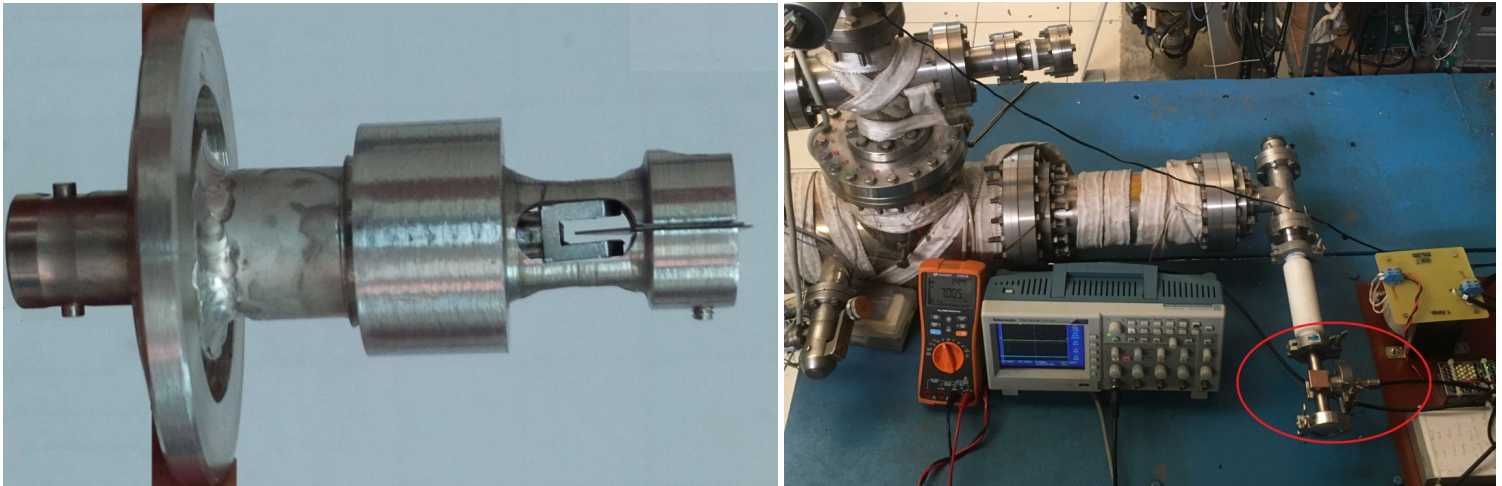


Student volunteers explaining the plasma exhibits and participating in the "Tokamak Assembly" competition

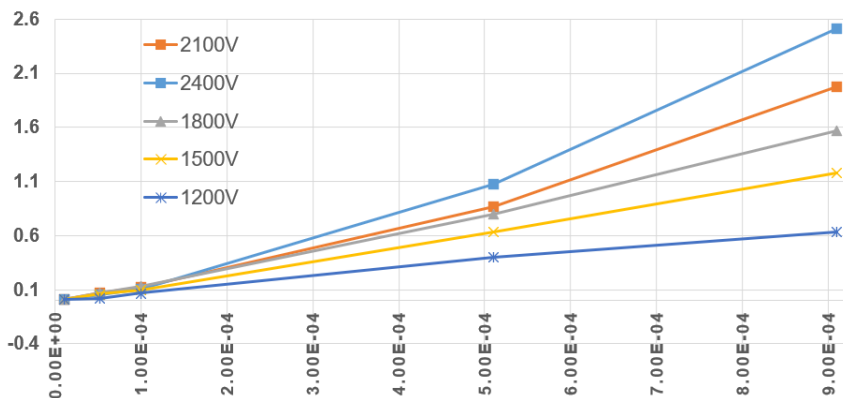
Miniature penning ionisation gauge was indigenously developed at IPR based on the concept of a cold-cathode Penning ionization gauge (CCPIG). However unlike CCPIG, this device relies on intrinsic field which helps in making it miniature. Its robust structure makes it suitable for measuring neutral pressure in presence of high magnetic field (~several Tesla), where the commercially available gauges cannot be used directly.

This gauge has been successfully tested in a laboratory setup in presence of a static magnetic field of ~2800 Gauss, and plasma discharges in the vacuum range of 5×10^{-5} to 9×10^{-4} mBar. Electrical potential up to 2.4KV (negative bias) is applied to cathode using a programmable compact 3KV HV power supply. The results from the calibrations experiments are quite encouraging.

More validation experiments with varying pressure ranges are currently being carried out. This gauge will then be installed in some plasma devices such as Applied Plasma Physics Experiments in Linear (APPEL) Device and BASIC Experimental Toroidal Assembly (BETA).



(L) The miniature Penning Ionization Gauge (R) The gauge being tested on an experimental stand.



(L) The test results (R) Detailed view of the gauge attached to the experimental system.

Conference Presentations

Dr. Mukesh Ranjan gave a talk entitled “Detection of food adulterants using plasmonic sensor” at the annual research & Innovation Conclave of the Institute of Advance Research (IAR), Gandhinagar on 6-Mar, 2024.

On 13-Mar, 2024, Dr Ranjan gave a talk entitled “Semiconductor processing using Plasma and Ion beam” during India’s Techade-Chips for Viksit Bharat: Breakthroughs in Semiconductor Research, which was hosted by HBNI, Mumbai.

He also gave an online talk entitled “Harnessing Plasma For Societal Application” at the “Vigyan Yatra - 2024” jointly organized by Saurashtra University, Rajkot, Vigyan Gurjari, and GUJCOST held during March 04 – 15, 2024.



Date	Institution	Visitors
5-Mar-2024	Dept of Nano Science, Saurashtra University, Rajkot	34 students of BSc/MSc Applied Phys and 3 faculty
6-Mar-2024	LDRP Institute of Tech. & Research, Gandhinagar	86 students of BE(IT) and 4 faculty



Students and teachers of Saurashtra University, Rajkot, during their visit to IPR



Students and teachers from LDRP Institute of Tech. & Research, Gandhinagar, during their visit to IPR

Outreach Cell of CPP-IPR, in active co-operation of the faculty members, staff and research scholars, celebrated the National Science Day on 1st March, 2024 with day-long programmes. The theme for this year's events was "Indigenous Technologies for Viksit Bharat." D. Jayanta Kumar Sarma, a distinguished environmentalist of national repute and a renowned consultant of Natural Resource Management and Livelihood, delivered a popular talk on this year's theme. Several competitions (essay writing and drawing on the theme, science quiz, extempore speech etc.) were organized among school students on invitation basis as well as on the spot basis. A large number of students and teachers from various schools from Sonapur area visited the campus on the day and participated in various events. In the concluding session in the afternoon, prizes were distributed by Prof. Anurup Gohain Barua, Department of Physics, Gauhati University.



Images from the NSD event organized at CPP-IPR

Academic Visits to CPP-IPR

Date	Institution	Visitors
23-Feb-2024	St. Joseph's College, Jakhama, Nagaland	49 students of BSc Physics + 5 faculty



Students and teachers of St. Joseph's College, Jakhama, Nagaland, during their visit to CPP-IPR

International Women's day (IWD) is celebrated globally on 8th March, every year to celebrate the achievements of women and mark a call to action for gender equality. Abiding by guidelines issued by Government of India, IPR also celebrated "International Women's Day 2024" with all colours and global spirit from 7th March - 15th March, 2024.

Various activities were organized at IPR to create awareness, strength and women empowerment. In order to maximise the participation among all the members of IPR, FCIPT, ITER-India and CPP-IPR, all the activities were conducted in offline as well as online modes. More than 150 staff members participated in the entire celebration. Male colleagues of the Institute also participated as audience as well as speakers, sharing their thoughts on IWD.

7th March, 2024 marked the inaugural function with lighting of lamp, with invited guests Dean Admin (Dr. Subroto Mukherjee), Dean R & D (Dr. Paritosh Chaudhary), Dr. Rajesh Kumar & Dr. Ranjana Gangradey. Dean Admin, Dr. Mukherjee shared encouraging thoughts on Women empowerment and evolution of Women and their recent contributions in Global Industries and Societies. This was followed by an energetic talk delivered by Ms. Shivangi Desai, a certified Health and Nutrition coach from Ahmedabad on "*Healthy lifestyles and Healing with Emotions*". Another important talk was arranged on Finance management (especially for Women) delivered by Ms. Falguni Shah, Accounts Officer, IPR.



Inauguration of the Women's Day event at IPR



(L) Ms. Shivangi Desai delivering her talk (M) Felicitation of Ms Shivangi Desai and Ms. Falguni Shah

Celebration on 8th March, 2024 began with homage to Late Prof. Bimla Buti, followed by cultural events and Hindi poetries. Among the various activities during IWD celebration, a special session was arranged where experienced Women Scientists of IPR shared their personal and professional journey, motivating younger generation to rise beyond difficulties.

On 11th March, 2024 IWD celebration continued with an invited guest, Dr. Moumita Dutta, from Space Application Centre (SAC), Ahmedabad. Her interactive and motivational talk on "Evolution of Dashabhuja': Blending work and family in unison" showcased contribution on Women Scientists in various missions of ISRO. Dr. Moumitta Dutta visited SST-1 and ADITYA and interacted with younger colleagues. A special lunch was organized for all the IPR Women Staff at IPR Guest House.





Dr. Moumita Dutta and Dr. Arti Sarkar from SAC Ahmedabad delivering their talks and being felicitated after their talks

The concluding session of International Women's day was held on 15th March, 2024. The invited speaker was Dr. Arti Sarkar, Group Director, SAC Ahmedabad on "My journey in developing Optical payloads and their significance in Space missions". Apart from IPR Women staff, students as well as IPR male staff also participated attended and interacted with the speaker during the talk. Ms. Anita Patel, Ms. Snehlata Aggarwal and Ms. Shilpa Khandker read inspirational Hindi poetries celebrating the spirit of Women's Day. At the end of the ceremony, Dr. Ranjana Gangradey presented vote of thanks and Memento to the invited speaker from SAC, Ahmedabad. She also shared her experience and association with ISRO while interacting with the speaker on the dais. Dr. Arti Sarkar visited SST-1 and interacted with some of the working group members.



IPR participated in the annual Science Carnival hosted by the Gujarat Science City as part of the Science Day celebrations of the Government of Gujarat. The event was organized during 28-February to 3-March, 2024 at the Gujarat Science City, Ahmedabad. The exhibition was inaugurated by Ms. Mona K. Khandhar, IAS, Principal Secretary, Department of Science & Technology, Government of Gujarat, who also visited the IPR exhibition. IPR outreach exhibited 25 models of plasma, its applications and nuclear fusion at this event. 25 Student scientific volunteers from St Xavier's College, Ahmedabad were trained to explain the models to visitors. Over 5000 people visited the exhibition. Click [HERE](#) for more details.



Ms. Mona K. Khandhar, IAS, Principal Secretary, Dept of Sci. & Tech., Govt of Gujarat, visiting the IPR stall



Images from the Plasma exhibition held at the Ahmedabad Science City as part of the Science Carnival-2024

As part of **DAE Platinum Jubilee Celebrations** the following talks were organized at Institute for Plasma Research

Advanced Materials for Fascinating Applications

Prof. Kantesh Balani

Department of Materials Science and Engineering, IIT-Kanpur

06th March 2024

Abstract: Advanced nanomaterials have fascinated engineers to translate them into useful products that a common person can connect to. Starting from use of ultra-high temperature for survival under extreme thermal, erosive and oxidative conditions translates its damage tolerance and for aerospace application and correlation between processing and performance helps appropriate material selection. The development of damage tolerant thermal barrier coatings have also shown potential to further the performance of turbine blades. Another engineering paradigm is superhydrophobicity in terms of assisting oil/water separation and protecting the environment is not less than fascinating. Extending the occurrence of structural colors in peacock feathers also make an engineer wonder, an insight to the same will also be presented for biomimicking. The practical use of materials in rendering multi-functionality (such as antibacterial efficacy) of superior surface bioactivity to achieving enhanced bulk toughness for bone implants is also of key interest to biomedical engineers. The use of computational tools in quantifying and visualization of various phenomena will also be touched upon. An aspect to interaction at molecular length scale will also be presented. So, this talk will cover various fascinating aspects that will make an engineer wonder and ponder towards designing better materials for mankind.



Catalysts of Change: Functional Materials Steering Green Hydrogen Production

Prof. Sanjay Mathur

University of Cologne, Germany

07th March 2024

Abstract: Advanced ceramic materials are driving innovation across all fields of technology, ranging from construction and mechanical engineering, automotive and electromobility, to medical technology, energy storage and conversion technologies, and microelectronics. Given their technological impact, functional materials represent an essential segment of industrial technologies with significant value creation potential for both established markets and emerging technologies. Especially in the context of sustainable production techniques, substitution of critical raw materials, and energy- and resource-efficient manufacturing, tailored surfaces and interfaces are gaining increasing importance in the future. In this context, plasma-chemical and vapor phase processing of nanostructured ceramics in tuning the functional and interfacial properties for better charge transport, higher corrosion protection and enhanced performance. The examples will include the role of functionalized inorganic surfaces in electrolyzers for hydrogen production, and advances in photon-harvesting technologies for perovskite-based photovoltaics. This talk will emphasize the power of chemical synthesis in designing new materials.



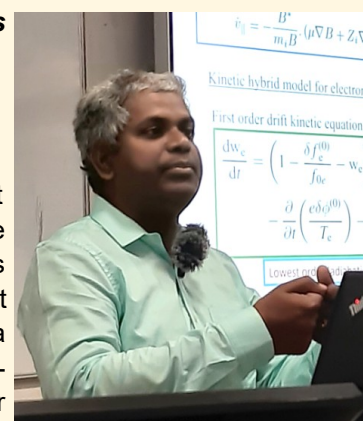
Global Gyrokinetic Simulation to Understand Turbulent Transport in Fusion Plasmas

Dr. Animesh Kuley

Department of Physics, IISc Bangalore

12th March 2024

Abstract: It is widely recognized that the energy supply is one of the most significant challenges that humankind will be facing during this century. Nuclear fusion intends to be one of these sources; its main objective is to transform the energy paradigm: from today's dependence on natural resources and environmental impact into a technology-dependent resource. We have developed the numerical simulation model to understand the plasma transport in the tokamak and stellarators, essential for the steady state operation of the present and future fusion reactors. Also, I will discuss the current simulation models and their drawbacks and solutions to understand the physical processes involved and present results.



In early 2023, ITER realized the necessity to have some technical and configurational improvements such as change of first wall material from Beryllium to Tungsten, modifications in the requirements of heating and current drive mix, additional testing of components (e.g., toroidal field coils), phased installation (starting with an inertially cooled first wall and installing the final actively water-cooled components later), etc. Another important element is the consideration of a staged approach toward nuclear operation and a revised path to nuclear licensing.

In June 2023, a scenario that accelerates the initiation of ITER operation with High Confinement mode (H-mode) and DT operation has been proposed as Augmented First Plasma (AFP) followed by DT-1, DT-2 phases along with associated integrated commissioning phases. The DT-1 operational phase considers a neutron fluence which is 1/100th of the ITER mission mandate and DT-2 phase has been proposed wherein following the experience gathered by DT-1 phase, the machine will be subjected to nuclear operation as per the project plan. This proposed plan was found compelling by the ITER Council Science and Technology Advisory Committee (STAC) in its meeting in September 2023.

Considering that all essential performance matrices of plasma are to be established in AFP and sub-exploited in DT-1 and built up for DT-2, it is essential that ITER Research Plan (IRP) ambits a roadmap that ensures the realization of the important parameters. In this context, experts were nominated from ITER Organization and Domestic Agencies (DA) with a preference for younger contributors, who will have a greater opportunity to be involved in ITER's scientific exploitation, to arrive at a feasible research plan that is executable and also will provide the requisite and full scientific exploitation of ITER.

Following some preparatory online meetings in 2023 and early 2024, the first new IRP development workshop was held at ITER headquarters, Cadarache (France) from 13 to 15 February 2024. Evaluations were carried out by five working groups led by ITER and DA members along with common sessions to conclude and implement the findings. Dr. Joydeep Ghosh, Sh. S. Laxmikanth Rao, Dr. Devendra Sharma and Ms. Bharathi Magesh attended as experts from India in different working groups.

Further intense interactions are expected among the experts before submission of the report for the endorsement of STAC in the coming months.



(L-R) Dr. Devendra Sharma, Ms. Bharathi Magesh, Mr. S. Laxmikanth Rao and Dr. Joydeep Ghosh at ITER, France

- ◆ **Dr. Snehlata Aggarwal**, gave a talk on "*Diagnosing Core Ion temperature in Aditya Plasma Discharges Using Charge-Exchange Neutral Particle Analyzer (CX-NPA)*" at 16th International Conference on Plasma Science and Applications (ICPSA 2023), University of Lucknow, Uttar Pradesh, 12-14 December 2023
- ◆ **Mr. Kumar Saurabh**, gave a talk on "*Time-Varying Linear Quadratic Control of Modular Multilevel Converter*" at International Conference on Computer, Electrical and Communication Engineering (ICCECE-2024), Techno India University, Kolkata, 2-3 February 2024
- ◆ **Mr. Upendra Prasad**, gave an invited talk on "*Superconducting Magnet Technology for Fusion Research-R&D update and plan*" at International Conference on Recent Trends in Physics cum Alumni - Teachers Meet 2024, Dept. of Physics, Banaras Hindu University, Varanasi, Uttar Pradesh, 5-7 February 2024
- ◆ **Mr. Alok Nachiketa**, gave a talk on "*Role of Sewage Treatment Plant -STP, towards a Green and Clean Environment*" on 21st February 2024
- ◆ **Mr. Nishikant Handa**, Catch Foundation, Motera, gave a talk on "*General Hygiene Awareness and Waste Segregation Methods*" on 23rd February 2024
- ◆ **Dr. Arpita Singha**, Kalinga Institute of Industrial Technology, Odisha, gave a talk on "*Dielectric and Ferroelectric Properties of Sodium Bismuth Titanate based Lead-free Ternary System*" on 23rd February 2024
- ◆ **Dr. K. A. Jadeja**, gave a talk on "*Synthesis and Studies on Some Surface Conditioning Materials and Techniques for Tokamak and Laboratory Vacuum Systems*" on 27th February 2024
- ◆ **Dr. Ngangom Aomoa**, gave a talk on "*Degradation of methyl red through atmospheric pressure glow discharge plasma*" at International Conference on Frontiers in Pure and Applied Physics, University of Science & Technology, Meghalaya, 29 February 2024 - 02 March 2024
- ◆ **Dr. Pratik Ghosh**, DA-IICT Gandhinagar, gave a talk on "*Deep learning assisted microwave-plasma interaction based technique for plasma density estimation*" on 1st March 2024
- ◆ **P. Vadivel Murugan**, gave an invited talk on "*Thermal Plasma Technologies for Waste Management*" at National Symposium EcoViSun 2024: Advancing Sustainability, Promoting Innovation, Realizing Equity (ASPIRE), Manipal University, Jaipur 5-6 March 2024
- ◆ **Mr. Ram Krushna Mohanta**, gave a talk on "*Investigation of Thermal Plasma Jet for Low - Pressure Plasma Spraying*" on 6th March 2024
- ◆ **Prof. Kantesh Balani**, Department of Materials Science and Engineering, IIT-Kanpur, gave a talk on "*Advanced Materials for Fascinating Applications*" on 06th March 2024 (**Colloquium #333**)
- ◆ **Dr. Gaurav Shukla**, gave a talk on "*Development of a Multi-Anode High Flux Xray Source for X-ray Crystal Spectrometer Calibration*" on 07th March 2024
- ◆ **Prof. Sanjay Mathur**, University of Cologne, Germany, gave a talk on "*Catalysts of Change: Functional Materials Steering Green Hydrogen Production*" on 07th March 2024 (**Colloquium #334**)
- ◆ **Dr. Anil Babu**, Koneru Lakshmaiah Education Foundation (KLEF) Deemed University, Vijayawada, gave a talk on "*Applications of Metasurface to Wearable Antenna: A Solution and Future Aspects*" on 08th March 2024
- ◆ **Mr. Vijay Shankar**, gave a talk on "*Control of Edge and Scrape-off Layer Tokamak Plasma Turbulence*" on 12th March 2024
- ◆ **Dr. Animesh Kuley**, Department of Physics, IISc Bangalore, gave a talk on "*Global Gyrokinetic Simulation to Understand Turbulent Transport in Fusion Plasmas*" on 12th March 2024 (**Colloquium #335**)
- ◆ **Mr. Janmejaya Umeshbhai Buch**, gave a talk on "*Reflectometry studies of plasma electron density profiles for Aditya Upgrade Tokamak*" on 13th March 2024
- ◆ **Dr. Shivam Kumar Mishra**, gave a talk on "*Charged particle dynamics in an elliptically polarized electromagnetic wave and a uniform axial magnetic field*" on 14th March 2024
- ◆ **Dr. Shalok Bharti**, Nirma University, Ahmedabad, gave a talk on "*Enhancing Material Properties through Friction Stir Processing: A Case Study on AA5083/ (SiC-Gr) Hybrid Surface Composite*" on 15th March 2024
- ◆ **Mr. Bharat Singh Rawat**, gave a talk on "*Studies on Extraction of an Ion beam and its Transport from a Multi-Cusp Grid*"

Upcoming Events

- ◆ 2024 ANS Student Conference, University Park, The Pennsylvania State University, Pennsylvania, 4-6 April 2024; <https://www.ans.org/meetings/student2024/>
- ◆ International Conference on Advances in Aerospace and Energy Systems (IAES-2024), Liquid Propulsion Systems Centre (LPSC), Thiruvananthapuram, Kerala, 4-6 April 2024; <https://www.iaes2024.com/>
- ◆ 15th ITER Neutronics meeting and fusion Neutronics Workshop-2024, ITER Organization, France, 8-10 April 2024; <https://indico.iter.org/event/117/>
- ◆ Summer School - Karlsruhe International School on Fusion Technologies, Karlsruhe, Germany, 10-18 April 2024; <https://summerschool.fusion.kit.edu/>
- ◆ Plasma Communication & Engagement Workshop, Los Angeles, California, USA, 12-14 April 2024; <https://sites.google.com/view/plasmanetus/conferences-workshops/pnet-2024>
- ◆ 2024 MagNetUS Workshop, Lake Arrowhead, California, 14-17 April 2024; <https://magnetus-2024.pa.ucla.edu/>
- ◆ 15th Inverted CERN School of Computing, Geneva, Switzerland, 15-18 April 2024; <https://indico.cern.ch/event/1334738/>
- ◆ International Conference on Enhancing the Operational Safety of Nuclear Power Plants, Beijing, China, 15-19 April 2024; <https://www.iaea.org/events/os2024>
- ◆ Plasma Processing and Technology International Conference (Plasma Tech 2024), Vienna, Austria, 17-19 April 2024; <https://www.setcor.org/conferences/plasma-tech-2024>
- ◆ International Conference on Physics of Reactors (PHYSOR 2024), San Francisco, CA, 21-24 April 2024; <https://www.ans.org/meetings/physor2024/>
- ◆ The European Research Reactor Conference (RRFM), Warsaw, Poland, 21-25 April 2024; <https://www.euronuclear.org/european-research-reactor-conference-2024-rrfm/>
- ◆ 26th World Energy Congress, Rotterdam, Netherlands, 22-25 April 2024; <https://www.worldenergy.org/experiences-events/events/entry/26th-world-energy-congress-rotterdam-netherlands>
- ◆ 24th IEEE Real Time Conference, ICISE, Quy Nhon, Vietnam, 22-26 April 2024; <https://indico.cern.ch/event/940112/>
- ◆ Joint ICTP-IAEA International School on Nuclear Security, ICTP, Trieste, Italy, 22 April - 3 May 2024; <https://indico.ictp.it/event/10469>
- ◆ 15th Frontiers in Low Temperature Plasma Diagnostics (FLTPD XV), Conference Centre of the Academy of Science of the Czech Republic, Czech Republic, 28 April - 2 May 2024; <https://www.fltpd2024.cz/>

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Know Your Colleague



Mr. Ranjith Kumar S joined IPR in 2011 after completion of his B.Tech in Mechanical from Lal Bahadur Shastri LBS College of Engineering, Kannur University, Kerala in 2005. His first posting was in the Test Blanket Module division (TBM). Later, he joined the Spherical Tokamak Section of the Advanced Tokamak Division. He has been involved in design and analysis using Finite Element Method, preparation of engineering drawings of components using 3D and 2D modeling/draughting packages. He has successfully completed the conceptual design phase of Test Blanket Module at ITER, and also in the design and testing of the First Wall at HELOKA facility in Karlsruhe, Germany. He has also worked in the design of components of Small Scale - Spherical Tokamak (SS-ST) and involved in the fabrication and assembly of the machine, including the preparation of layout of all the components in SS-ST lab. He was deputed to ITER for 3 months as a part of call for expertise in 2013 to work on the design of a shutter for Charge eXchange Recombination Spectroscopy, CXRS diagnostic system and design of closure plate attached to X-ray core spectrometer. Ranjith Kumar S has taken classes for Technical Training Program, TTP students on TBM in 2015 and 2016. He has been a volunteer for the NSD events in 2016 and 2017.

Plasma Exhibition @ Mandi (Himachal Pradesh)



IPR team with the scientific volunteers from Vallabh Government College, Mandi (HP)

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