

Issue 133
August 2024

The 4th State

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



DAE “Certificate of Excellence” for Swachhata Pakhwada

Swachhata Pakhwada was organized in all DAE units during 16 February—28 February 2024. The committee constituted for the evaluation of “**Swachhata Pakhwada Awards 2024**” have assessed the activities carried out by various DAE units. IPR has been awarded the ‘**Certificate of Excellence**’ (consolation prize) as an appreciation for its innovative practices undertaken during the Swachhata Pakhwada. The award sets a new benchmark and a motivation to do even better and contribute towards keeping the surroundings clean, and also sensitize our society by raising awareness through such Swachhata Campaigns!

IPR Newsletter has published various activities carried out during the Swachhata Pakhwada 2024 (Refer [Newsletter Issue 129, April 2024](#) (p.4-7))



The Certificate of Excellence signed by Dr. Ajit Kumar Mohanty, Chairman AEC & Secretary DAE

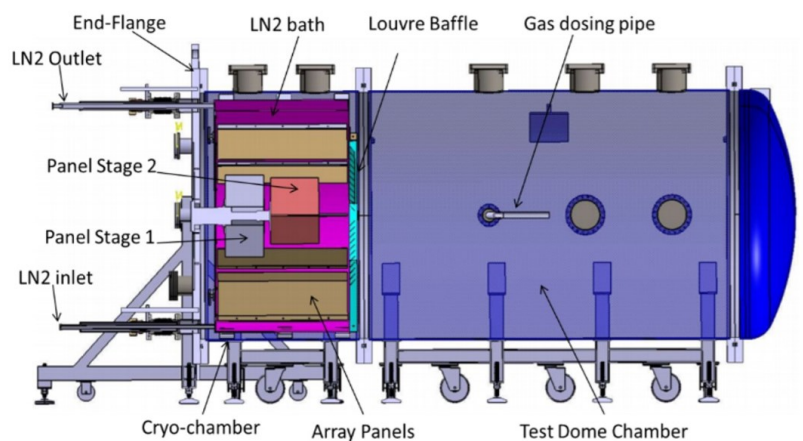
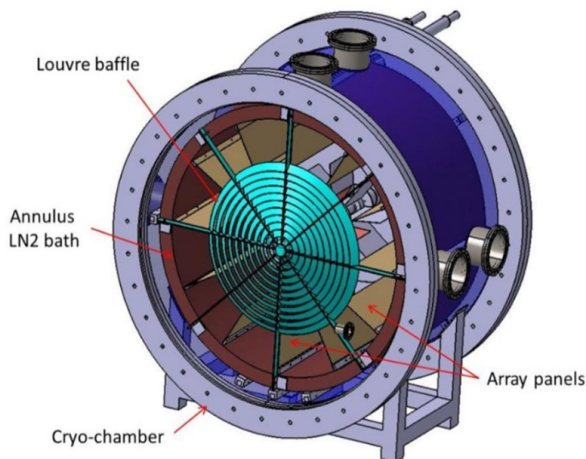
IPR has developed an indigenous Cryopumping Technology to cater to the need for achieving High to Ultra-High vacuum for medium to large scale vacuum system applications. Several liquid helium cooled cryopumps were developed and tested for their performances to provide customized solutions for cryopumping hydrogen and helium gases for fusion applications.

Liquid Nitrogen (LN_2) cooled cryopump technology has been patented (Indian Patent # 504062). These cryopumps are modular, for the ease of assembly, integration and manufacturing suitability. In the recent years, 250mm, 400mm and 500mm opening cryopumps were developed for the application in High Heat Flux Test (HHFT) Facility, SST-1 Tokamak at IPR, Cryovac chambers for SAC, ISRO.

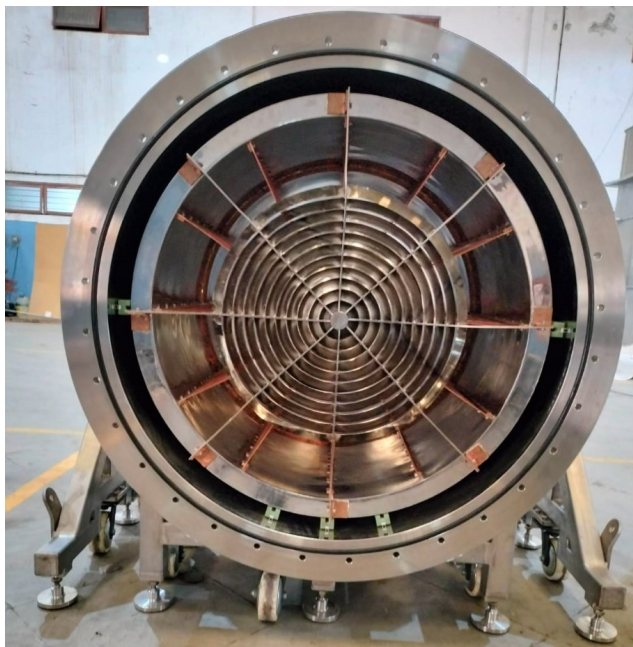
The need for large vacuum chamber is increasing over time as the application related to fusion technologies, space and accelerator research activities in India is progressing. Vacuum pumps with high pumping speed and a vacuum characterization test facility is an important aspect and to achieve that, a Large Cryopumping Test Facility (LCTF) is under development at IPR. This includes a performance test stand for the 1250 mm diameter sized cryopumps with a pumping speed of $\sim 50,000$ l/s for nitrogen.

The cryopump within LCTF is designed to pump the atmospheric gases including Tokamak exhaust gases such as helium and hydrogen. Pumping is achieved by using different set of cryopanel (80 K array cryopanel, 40 K and 10 K cryopanel) and shields. This is a hybrid type of cryopumps that contains a closed cycle cryocooler as well as LN_2 annulus bath that results in low running and maintenance cost.

LCTF is conceptualized and designed by IPR. Fabrication of the Cryopumping Test Chamber (CTC) is completed and successfully tested in factory. During the testing, vacuum level of $1.02\text{E}-7$ mbar pressure achieved in 1 hour of LN_2 filling. The above pressure was maintained for 3 hours with continuous LN_2 filling and ultimate vacuum achieved was $9.3\text{E}-8$ mbar.



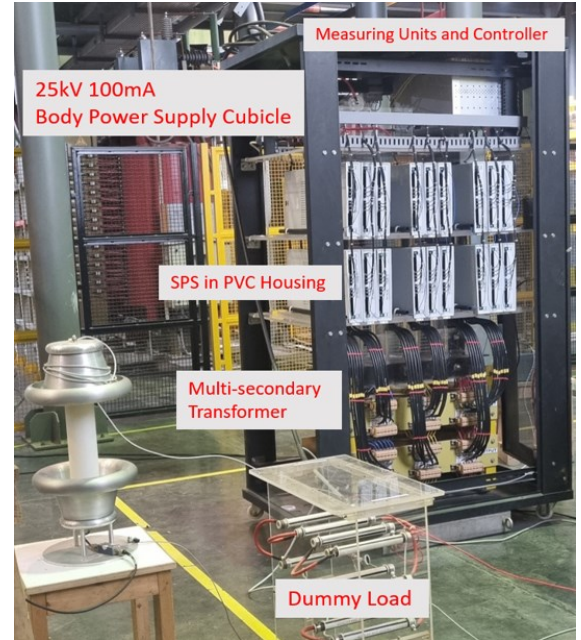
Concept of the 1250 mm Cryopump and LCTF



(L) Fabricated Cryopump showing internal geometries (R) Assembly of the LCTF at Factory

An indigenous 25kV-100mA power supply has been developed for use in Electron Cyclotron Resonance Heating (ECRH) systems at IPR. This advanced power supply operates in both pulsed and Continuous Wave (CW) modes. Based on Pulse Step Modulation (PSM) technology, it is optimized for ECRH systems, offering high voltage and low current capabilities. Housed within a 0.8×1.5×2m cubicle, the power supply consists of a multi-secondary transformer, 72 switched power supply modules, a controller, and measuring/protection units. Utilizing PSM technology and a modular design, this power supply enhances reliability and minimizes downtime. It provides precise control over a voltage range of 10-25 kV with an accuracy and repeatability of $\pm 1.25\%$. Additionally, it offers programmable rise/fall times (1-5 millisecc) and voltage modulation capabilities from 0% to 100% of the set voltage.

The switched power supply modules, rated for 400V and 100mA, are housed in PVC enclosures and installed with progressive isolation, enabling high-voltage DC (HVDC) testing up to 30kV. The controller, which is CE-certified, operates in an optically isolated manner, and reduced channel count is achieved through passive fiber optic splitters.



Anode Power supply for Gyrotron

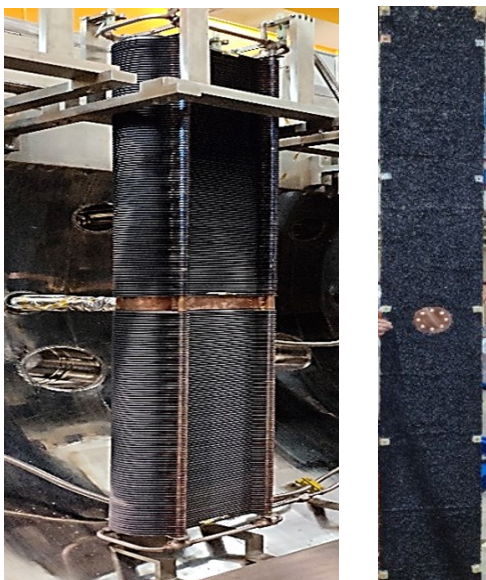
This power supply has been successfully tested up to 25kV for a duration of 1 second, and its modulation capabilities have been tested at various frequencies. It represents a unique and advanced development in high-voltage low-current power supplies, offering improved stability and accuracy.

Indigenously developed cryorption pumps using cryocooler for hydrogen pumping

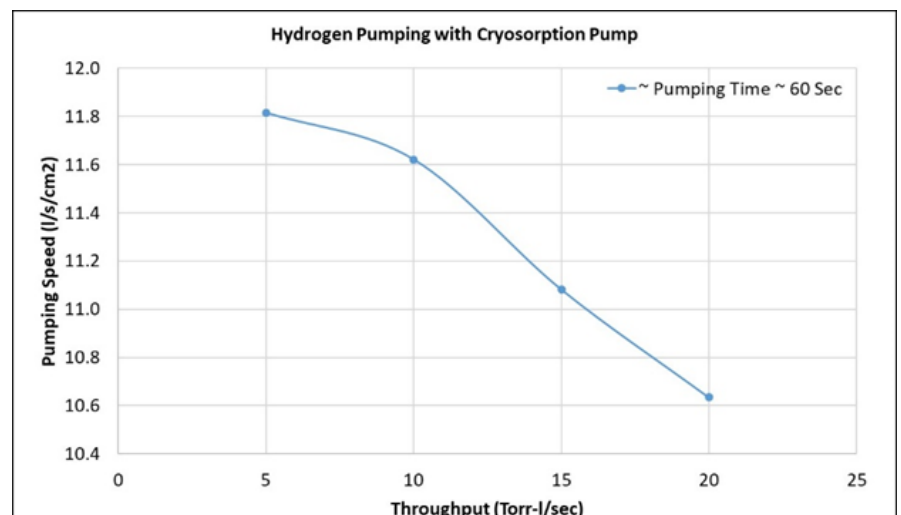
A 2.8 m long Cryosorption pump has been demonstrated to provide a pumping speed of > 105 l/s for Hydrogen over an area of 1.8 m^2 leading to specific pumping speeds of $10.5 \text{ litre/s/cm}^2$ in hydrogen for the first time. This has been done in a 20 m^3 vacuum vessel installed in the positive neutral beam test stand at IPR. The unique feature of this demonstration is of the application of a Cryocooler to cool the Cryosorption panel to temperatures $< 18 \text{ K}$ for incident heat loads up to 20 W .

The experiment established the desired pumping speed of 106 l/s required for operation of the positive ion neutral beam (PNB) system, and also for the much larger Indian Test Facility (INTF) under development for ITER, which uses 10 such pumps.

The demonstration proves the efficacy of charcoal coating developed by IPR, provides an alternative to liquid Helium cooled cryo-condensation pumps and establishes the concept for INTF operations. This low-cost solution also has effective applications in other areas of fusion and accelerators.



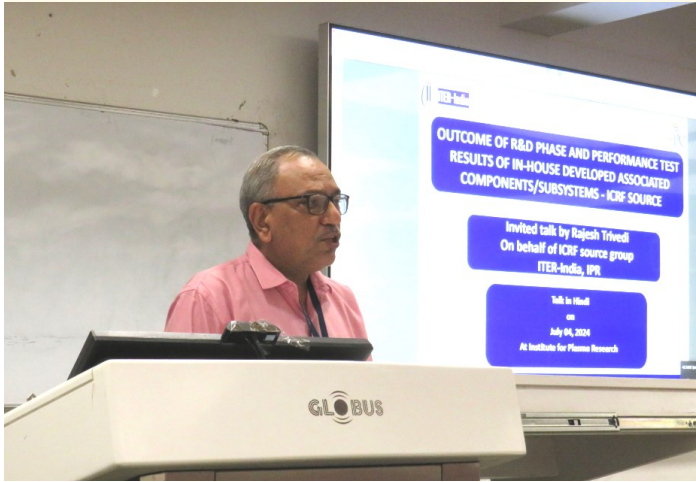
LN2 cooled baffle structure and charcoal coated panel



$\sim 10.5 \text{ l/s/cm}^2$ pumping speed for 20 Torr-l/s throughput of hydrogen established for an indigenously developed 3 m tall cryo-sorption based cryopump

राजभाषा कार्यान्वयन समिति द्वारा "तकनीक के साथ, विज्ञान की बात" श्रृंखला के अंतर्गत दिनांक 04.07.2024 को संस्थान के सेमिनार हॉल में श्री राजेश कुमार त्रिवेदी, परियोजना प्रबन्धक, आईसीआरएच प्रभाग, ईटर-भारत ने "ICRF सोर्स-अनुसंधान एवं विकास चरण के परिणाम एवं स्वदेशी विकसित संबद्ध घटकों/उप-प्रणालियों के प्रदर्शन परीक्षण के परिणाम" विषय पर हिन्दी व्याख्यान दिया। यह व्याख्यान ऑनलाइन एवं ऑफलाइन दोनों माध्यम से संचालित किया गया।

व्याख्यान की शुरुआत करते हुए श्री त्रिवेदी ने ईटर-भारत परियोजना पर चर्चा करते हुए बताया कि फ्रांस के दक्षिण में कडराचे में चल रहे सबसे बड़े प्रायोगिक रिएक्टर ईटर का उद्देश्य असीमित ऊर्जा के स्वच्छ हरित स्रोत के रूप में परमाणु संलयन का प्रदर्शन करना है और इस परियोजना में भारत सहित 7 देश सम्मिलित है। भारत की ओर से ईटर- भारत के योगदान में 9 पैकेजों की सुपुर्दगी शामिल है तथा ईटर परियोजना में शामिल विश्व के अन्य देशों की जिम्मेदारियों के बारे में भी इस व्याख्यान में चर्चा की गई। श्री त्रिवेदी जी ने बताया ईटर संगठन को सुपुर्द किए जाने वाले प्रत्येक पैकेज में फ्रांसीसी नियामक बोर्ड तथा यूरोपियन संघ के मानदंड एवं कड़े परमाणु सुरक्षा मानदंडों को पूरा करना होता है और सामग्री को सुपुर्द करने में आने वाली चुनौतियों का भी उन्होंने उल्लेख किया। उन्होंने ICRF के बारे में विस्तार से चर्चा की और साथ ही विश्व में उपलब्ध विभिन्न टोकामक के बारे में भी जिक्र किया। वर्ष 2011 से शुरू हुई ईटर-भारत परियोजना की यात्रा में टोकामक के लिए विकसित की गई तकनीक/मशीन/घटकों पर भी इस व्याख्यान में चर्चा की गई। ईटर-भारत में उपलब्ध परीक्षण सुविधाओं और विशेष रूप से ICRF से जुड़ी तकनीकी जानकारी को श्री त्रिवेदी जी ने बहुत ही सरल हिन्दी भाषा में समझाया। संस्थान में वैज्ञानिक/तकनीकी अनुसंधान से जुड़े सभी कर्मियों के लिए यह व्याख्यान काफी रोचक एवं ज्ञानवर्धक रहा।



व्याख्यान देते हुए श्री राजेश त्रिवेदी



श्री त्रिवेदी को स्मृति चिह्न भेंट करते हुए श्री अशोक मनकानी



व्याख्यान में भाग लेते हुए श्रोतागण

Groundbreaking Ceremony (Bhoomi Poojan)

On 5th July, 2024 "Groundbreaking Ceremony" (Bhoomi Poojan) was held to commence the construction of "Reception building and Store Shed Building". The building is coming up near second gate and will serve as office reception and to house security turnstile. The building will also accommodate rooms which are proposed to house Bank, Doctor's cabin, Dispatch and a few committee rooms. The Ground Breaking ceremony was graced by dignitaries including Shri K.N. Vyas (Former AEC Chairman), Dr. B. Venkataraman (Former Director, IGCAR), Shri K. Mahapatra (Director DCSEM), Dr. Shashank Chaturvedi (Director IPR) and Shri A.K. Jana (Head CQD, DCSEM).



Summer School Program (SSP-2024) - Poster Presentations

The SSP students were engaged in a 4 week project work in their respective field of study, in various labs of the institute. The program concluded with oral presentations on 3rd July 2024 followed by poster presentations by students on 4th July 2024. The poster session was open for IPR staff members. The concluding ceremony was held on 5th July 2024 with prize distribution to the winners of the poster presentation, and certificates and mementoes to the participating students.



SSP-2024 Poster Presentations

SSP-2024 Poster Awards

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Prize Position	Name of the Student & Affiliation	Poster Title	Discipline
1 st	Archana Vellalath, VNIT, Nagpur	Development of power supply using IGBT's and capacitor banks for Aditya tokamak	Engineering
2 nd	Dhrumi Pandya, LDRP-ITR, Gandhinagar	SMS notification system (portal) for IPR	Engineering
1 st	Uttam Kumar Acharya, Central University of Gujarat, Gandhinagar	Pulse compression using Stimulated Brillouin Scattering (SBS)	Physics
2 nd	Raj Kumar Thakur, Sathaya Sai Institute of Higher Learning, Andhra Pradesh	Axial plasma diagnostics of plasma fireball using Langmuir probe	Physics
3 rd (Joint)	Amees Dushyantbhai Mehta, St. Xaviers College, Ahmedabad	Cylindrical Non-neutral plasma experiments	Physics
3 rd (Joint)	Anjni Lalji Gorasiya, St. Xaviers College, Ahmedabad	Excitation of sound waves in dusty plasma medium	Physics

Congratulations to all the Winners!!



Archana Vellalath - 1st Prize
(Engineering)



Dhrumi Pandya– 2nd Prize
(Engineering)



Uttam Kumar Acharya – 1st Prize
(Physics)



Raj Kumar Thakur – 2nd Prize
(Physics)



Anjni Lalji Gorasiya – 3rd Prize (Joint)
(Physics)



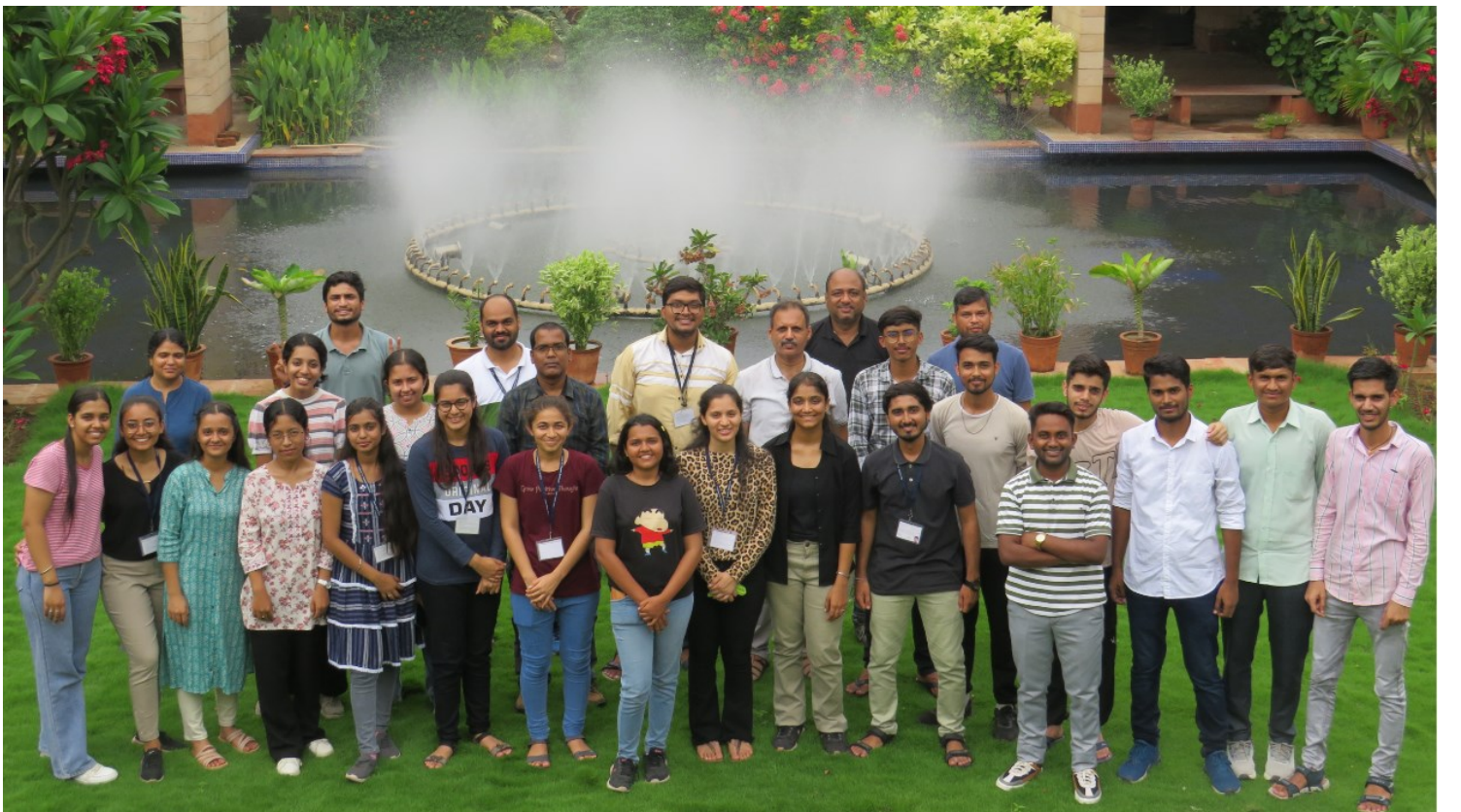
Amees Dushyantbhai Mehta – 3rd Prize
(Joint) (Physics)

Summer School Program (SSP-2024) - Conclusion

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SSP-2024 Director's Lunch



Group photo of the Students with IPR SSP-2024 Coordinators



Some students expressing their experience of the Summer School Program 2024 at Institute for Plasma Research.

Click the image to Watch the [Video](#)

Speaker: Dr. Dinesh Kumar Aswal, Director, Health Safety and Environment Group (HS&EG), Bhabha Atomic Research Center, Trombay, Mumbai

Date: 13th June 2024

The talk presented how nuclear energy is important to combat climate change as well is important for improving the human development index of a nation. Nuclear energy is low-carbon, clean and reliable source of electricity. In addition, nuclear energy is useful in many beneficial effects related to health, societal and industrial growth. The talk also presented an overview of radiation, which is in an integral part of the civilisation. Review and analysis of the existing radiation protection philosophy, which is based on a linear no-threshold (LNT) model for cancer risk assessment and implies that a single ionising radiation has a risk possibility was also discussed. The LNT model does not consider the adoptive response of biological systems, and has created unnecessary fear of radiation in public. An analysis the past studies, scientific biases, ethical and moral challenges, nuclear fallout, and the development of international policies were also included in the talk. It was emphasized that there is a need to carry out extensive scientific studies (especially at low doses) and to move away from LNT model to a more realistic Hormesis model that considers adoptive responses.



Dr. Dinesh Kumar Aswal delivering his talk



Dr. Dinesh Kumar Aswal felicitated by Shri Ujjwal Baruah, Project Director ITER-IN

Visit of Cotton University students at CPP-IPR

Four students from Cotton University visited CPP-IPR from 25th to 27th June, 2024 and participated in various activities. Dr. Rakesh Moulick, delivered a talk on Basic Plasma Physics and Dr. Ngangom Aomoa on Experimental Plasma Physics. In the newly established outreach exhibition hall of CPP-IPR, the students were shown glow discharge plasma, arc plasma, DBD plasma, Jacob's ladder and a plasma globe. The working principle of these plasmas and their applications were also explained to them. They also conducted experiments on plotting of Paschen curve and I-V characteristics of gas discharge using the glow discharge set up. Finally, they visited various laboratories and interacted with research scholars and scientist of CPP-IPR.



Student from Cotton University visiting CPP-IPR

Academic Visits to IPR

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Date	Institution	Visitors
02-July-2024	Nirma University, Ahmedabad	25 faculty members
18-July-2024	Vidush Somany Institute of Technology and Research	50 students of B.E. and 2 faculty members



Faculties from Nirma University visiting IPR Outreach Division and other facilities



Students and teachers of Vidush Somany Institute of Technology and Research, Kadi during their visit to IPR

Plasma Exhibition @ Smt. P.D.Shroff Sanskardeep Vidhyalaya, Ankleshwar

Institute for Plasma Research (IPR), Gandhinagar (Gujarat), in association with Smt. P. D. Shroff Sanskardeep Vidhyalaya, Ankleshwar (Gujarat) organized an exhibition on Plasma, "The Fourth State of Matter" during 09-11 July, 2024. This program is part of IPR's scientific outreach activity in various states of India under the auspices of "70 Years of DAE" celebrations. The event was inaugurated by the District Collector, Mr. Tushar Sumera.

The programme consisted of an exhibition on plasma, its applications as well as introductory talks on plasma for visiting students and training program on plasma, its applications and nuclear fusion for science teachers. Thirty two students of 9th and 10th standard from the host school were trained by IPR staff to explain the various exhibits to visiting public. Over 1700 students and teachers from over 17 schools and colleges in Ankleshwar and Bharuch visited the exhibition.



Inauguration of the event (Top Left)
District Collector, Sri Tushar Sumera

(Right) Ms. Harsha Machchhar from IPR,



(Bottom Left) Other Guests on Dias,
Mr. Nareshbhai Patel, Mr. Jitendrabhai Patel,
Mr. Chandubhai Koladia and
Sri Jasubhai Chaudhari



IPR Outreach Team introducing plasma to visiting students



Student volunteers enthusiastically demonstrating IPR exhibits to the guests attending the event





Student and Teacher volunteers from Sanskardeep Vidhyalaya with IPR Outreach Team

Conference Presentations

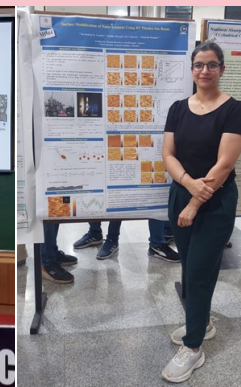
Presentations at the **10th Plasma Science Society of India - Plasma Scholars Colloquium 2024 (PSSI-PSC 2024)** held during 4 - 6 July 2024 at Indian Institute of Technology, Delhi

Dr. Mukesh Ranjan gave an Invited Tutorial Talk on **"Plasma for Material Processing and Industrial Applications"**

Ms. Tarundeep Kaur presented a poster on **"Surface Modification to form Nano-features Using RF Plasma Ion Beam Source"**



Dr. Mukesh Ranjan giving the Talk



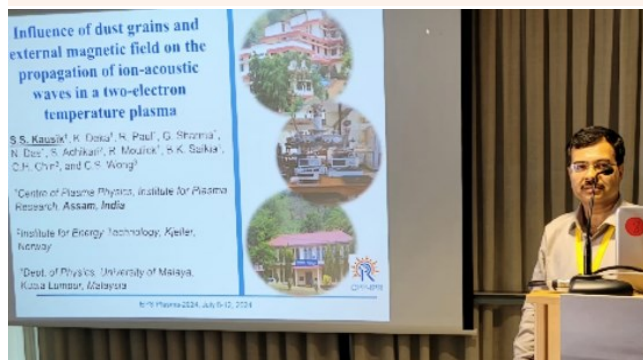
Ms. Tarundeep Kaur presenting poster

Presentations at the **50th European Physical Society (EPS) 2024 Conference on Plasma Physics** held at **Palacio de Congresos, Salamanca, Spain** from 8-12 July, 2024

Dr. S.S. Kausik from CPP-IPR delivered an Oral Presentation on **"Influence of dust grains and external magnetic field on the propagation of ion-acoustic waves in a two-electron temperature plasma"**

Ms. Kalyani Swain presented a Poster on **"Emergence of a conical-spiral weakly relativistic electron beam (REB) from laser-cluster interaction in an ambient magnetic field"**

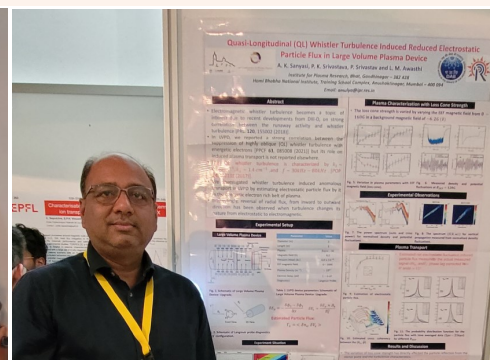
Dr. Amulya K Sanyasi presented a Poster on **"Quasi-Longitudinal (QL) whistler turbulence induced reduced electrostatic particle flux in large volume plasma device"**



Dr. S. S. Kaushik giving the Talk



Ms. K Swain presenting poster



Dr. Amulya Sanyasi presenting poster

Water Polishing System (WPS) at ITER-IN



ITER-IN infrastructure team during the WPS commencement ceremony

The Water Polishing System (WPS) will be installed in the existing water-cooling plant room to enhance water quality. It will treat a portion of circulating water from each cooling loop, ensuring high-quality output for re-introduction into the respective cooling loop pipelines. The water treatment process begins with raw water passing through a multi-grade filter and activated carbon filter via feed pumps, followed by cation and anion units before storage in a DM water tank. A transfer pump routes water through mixed bed units into an MB storage tank. For ongoing maintenance, 5% of flows from Cooling Loops 1, 2, and 3 passes through a WPS for polishing before returning. Loops 4 and 5 are initially filled with DM water, cycled until conductivity rises, prompting full replacement with fresh DM water from storage. Loops 2 and 3 rely on a WPS system with cartridge filters, mixed beds, EDI, and DO units in sequence, aiming for pH 7-8, DO 0.1 ppm, and conductivity 0.05-0.09 $\mu\text{S}/\text{cm}$. A feedback signal system linked to SCADA will provide real-time monitoring and control capabilities for the WPS, ensuring parameters are maintained within required limits across all cooling water system loops.

- ◆ **Mr. Srikanta Sahu**, gave a talk on "Development of a highly sensitive electromagnetic flowmeter for high temperature liquid metals" at 4th International Workshop on Measurement Techniques for Liquid Metals (MTLM2024), Dresden, Germany, 27-29 May 2024
- ◆ **Talks presented at DAE-BRNS National Conference on Development of RF Components for Accelerators (DRCA-2024), Anushakti Nagar, Mumbai, 20-22 June 2024**
 - **Dr. P. K. Sharma**, gave an invited talk on "RF Technologies for klystron based Lower Hybrid Current Drive (LHCD) system at IPR"
 - **Ms. Dipalkumari Soni**, gave a talk on "Development of CE certified Signal Conditioning Module for Control & Instrumentation of High-Power RF System"
 - **Mr. Manojkumar Patel**, gave a talk on "Development of wideband 10 kW Solid State Power Amplifier - Challenges, Remedies and Test results"
 - **Mr. Kartik Mohan**, gave a talk on "Development of fast protection circuits for tube based high power RF amplifier"
 - **Mr. Akhil Jha**, gave a talk on "Fabrication and RF test results of 120 kW amplifier manufactured through Indian industry challenges, remedies and performance"
- ◆ **Dr. Amba Sankar K N**, PSG College of Arts and Science, Coimbatore, gave a talk on "Carbon-based Nanomaterials for Applications in Energy Generation & Storage" on 21st June 2024
- ◆ **Dr. Vishwa Bandhu Pathak**, School for Advanced Sciences, VIT, Vellore, gave a talk on "All-optical control on acceleration length to optimize laser wakefield acceleration" on 25th June 2024 (**Colloquium #337**)
- ◆ **Mr. Anand Prakash**, Raman Research Institute, Bangalore, gave a talk on "End-Cap Type Paul Trap for Precision Spectroscopy and Ion-crystal Experiments" on 28th June 2024
- ◆ **Dr. Depanshu Varshney**, Aligarh Muslim University, Aligarh, gave a talk on "Effect of nanomaterials on the dielectric and electro-optical properties of liquid crystals and their applications" on 02nd July 2024
- ◆ **Dr. Mukesh Ranjan**, gave an invited talk on "Plasma for Material Processing and Industrial Applications" at 10th Plasma Science Society of India-Plasma Scholar's Colloquium (PSSI-PSC2024), Indian Institute of Technology, Delhi, 4-6 July 2024
- ◆ **Mr. Shrish Raj**, gave a talk on "Effect of impurity gas seeding on the boundary region of a tokamak" on 05th July 2024
- ◆ **Dr. Vineet Kumar Shukla**, University of Allahabad, Prayagraj, Uttar Pradesh, gave a talk on "Relative abundance of elements in geological material using Spectroscopic Techniques" on 05th July 2024
- ◆ **Mr. Pawandeep Singh**, gave a talk on "Sheath Effects on the Resonance Hairpin Probe in Negative Ion Diagnostics" on 10th July 2024
- ◆ **Dr. P. Chandrakanta Singh**, gave a talk on "A comparative study of LIBS signals for untextured and laser induced textured brass sample" on 10th July 2024
- ◆ **Mr. Kirankumar G. Patel**, gave a talk on "FPGA based real time density feedback control system for ADITYA-U Tokamak" on 12th July 2024
- ◆ **Dr. Satish Kumar**, Indian Institute of Technology, Kanpur, gave a talk on "High strength and ductile mixed phase steels from Modified 9Cr1Mo steel with enhanced wear and corrosion resistance" on 12th July 2024
- ◆ **Prof. Sanat Kumar Tiwari**, Indian Institute of Technology, Jammu, gave a talk on "Turbulent vortex flow in dusty plasma" on 16th July 2024
- ◆ **Shri. P R Dani**, Member-Secretary, DAE Intellectual Property Rights Cell, gave a talk on "Overview on Intellectual Property & HBNI IP Policy" on 18 July 2024
- ◆ **Mr. Nitin Bairagi**, gave a talk on "Study of MgB₂ based Superconducting Current Feeders System for Fusion Devices" on 19th July 2024
- ◆ **Prof. Archana Lakhani**, UGC-DAE Consortium For Scientific Research (UGC-DAE-CSR), Indore, gave a talk on "Introduction to Quantum Materials at the Interface of Physics and Technology: A Magneto-transport study" on 19th July 2024

- ◆ AVS 24th International Conference on Atomic Layer Deposition (ALD 2024) featuring the 11th International Atomic Layer Etching Workshop (ALE 2024), Helsinki, Finland, 4-7 August 2024; <https://ald2024.avs.org/>
- ◆ 31st International Conference on Nuclear Engineering (ICONE 2024), Prague, Czech Republic, 4-8 August 2024; <https://event.asme.org/ICONE>
- ◆ UKAEA School on Open-Source Software for Fusion Engineering Simulation, Culham Campus, United Kingdom, 5-9 August 2024; <https://ukaeaevents.com/open-source-software-for-fusion-engineering-simulation/>
- ◆ 5th International Conference on Data-Driven Plasma Science (ICDDPS-5), University of California, Berkeley, 12 - 16 August 2024; <https://na.eventscloud.com/website/63026/>
- ◆ 14th International Conference on Nucleus-Nucleus Collisions (NN 2024), Whistler, BC Canada, 18-23 August 2024; <https://nn2024.triumf.ca/>
- ◆ 14th International Topical Meeting on Nuclear Reactor Thermal Hydraulics, Operation and Safety (NUTHOS-14), Vancouver, British Columbia, Canada, 25-28 August 2024; <https://www.ans.org/meetings/view-413/>
- ◆ 10th International Conference on Nuclear and Radiochemistry (NRC10), Brighton, United Kingdom, 25-30 August 2024; <https://www.rsc.org/events/detail/38385/10th-international-conference-on-nuclear-and-radiochemistry-nrc10>
- ◆ 32nd Summer School and International Symposium on the Physics of Ionized Gases (SPIG 2024), Belgrade, Serbia, 26-30 August 2024; <https://www.spig2024.ipb.ac.rs/>
- ◆ 1st International Workshop on Materials and Mechanics for Fusion Energy, Institute of Physics, London, 29-30 August 2024; <https://www.iop.org/events/first-international-workshop-materials-and-mechanics-fusion-energy>

Talk on "Overview on Intellectual Property & HBNI IP Policy"

A Talk on "Overview on Intellectual Property & HBNI IP Policy" by Shri Dani Rajiah, Member-Secretary, DAE IPR Cell, was organized on 18 July 2024. The speaker gave an overview on IP and highlighted the importance of protecting inventions through Patenting. He also discussed the HBNI IP Policy. More that 60 participants attended the interactive session.



Dr Nirav Jamnapara giving and introduction of the event and the speaker



Shri Dani Rajiah giving the talk



Dr Rajesh Kumar conveying the Vote of Thanks



Audience attending the Talk at IPR Seminar Hall

Title	Page No	Title	Page No
DAE "Certificate of Excellence" for Swachhata Pakhwada	01	Talk on Radiation, Nuclear Energy and Environment	08
Large Cryopumping Test Facility (LCTF) development at IPR	02	Visit of Cotton University students at CPP-IPR	08
Development of Anode Power Supply for Gyrotron	03	Academic Visits to IPR and FCIPT	09-10, 16
Indigenously developed cryorption pumps using cryocooler for hydrogen pumping	03	Plasma Exhibition @ Ankleshwar	10-12
तकनीक के साथ, विज्ञान की बात	04	Conference Presentations	13
Groundbreaking Ceremony (Bhoomi Poojan)	04	Past Events @ IPR/Upcoming Events	14-15
SSP-2024 - Poster Presentation & Awards	05-07	Talk on "Overview on Intellectual Property & HBNI IP Policy"	15
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Know Your Colleague

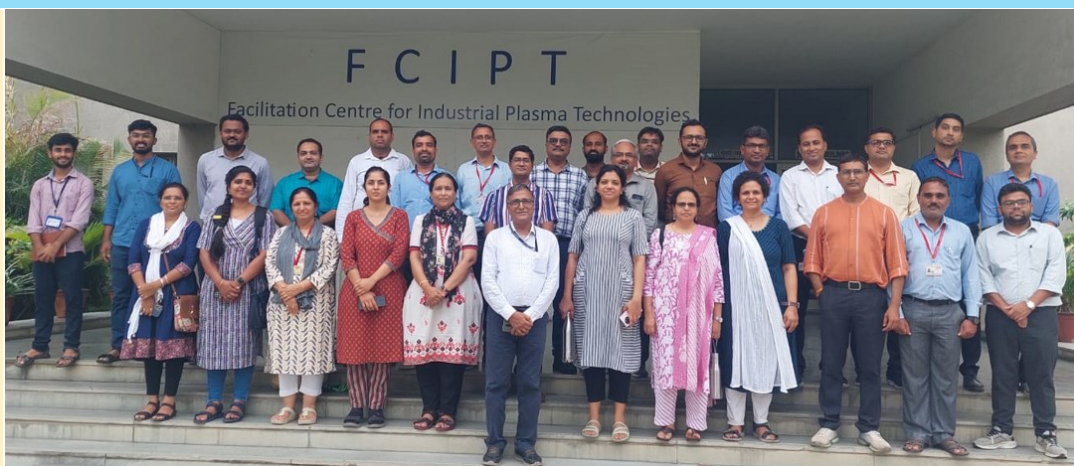


Mr. Prasada Rao P

Mr. Prasada Rao P joined IPR as a Engineer-SC through the Technical Training Pro16gram TTP-2014 batch. He has done his BE, in Electrical from SSR Institute of Engineering & Technology, Hyderabad. Initially he worked in the Test Blanket Module (TBM) Division and mainly contributed in the In-house production of Lead-Lithium alloy, development and testing of Conductivity based Li-sensor, and Pb-Li Cold-trap loop operation. Also, he had proposed and completed High temperature mutual inductance based Pb-Li level sensor through BRNS project. Since 2018, Prasada Rao has been in the Magnetism and Dynamics Section. He has been contributing in design, simulation, development and testing of In-house Lab-scale Linear Induction Motors (LIMs), Alternators, Electro-Magnetic (EM) stirrer for Sn-Li alloy, Prototype Center Stack, 8kN Double sided Linear Induction Motor (DLIM) EM Launcher for 100kg payload and Hybrid Electro-Magnetic and Permanent Magnet based breaking system (soft catch). Additionally, Prasada Rao had also developed and demonstrated rail-gun for IPR Science Day in the year 2019.

Academic Visit to FCIPT

Electronics and Instrumentation Engineering and Electronics and Communication Engineering Departments of Nirma University have organized a unique Short Term Training Programme, "STTP on Wheels: Industrial Automation" during 1st-12th July 2024. A visit to IPR and FCIPT was arranged for the participants on 02/07/24



Quote of the Month

"Individual commitment to a group effort--that is what makes a team work, a company work, a society work, a civilization work."

--Vince Lombardi

The IPR Newsletter Team

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