

Issue 137  
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# The 4<sup>th</sup> State

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



## DAE's Special Campaign 4.0 highlights IPR's 'Waste to Best' initiative

The institute takes pride that DAE's Special Campaign 4.0 highlights the institute's **'Waste to Best'** initiative. Institute's Civil Maintenance Section (CMS) has taken the initiative and made fencing using old dried bamboos and other scrap materials such as MS pipes, available inside the campus to build fences that protect plants and shrubs from predators like Blue Bull (Nilgai) and other animals.

The full PIB report is available [here](#)



The CMS Team behind the fencing

(Standing L-R) Mr. Vijay Bedakhale, Mr. J K Gohil, Mr. Shakir Mojibi and Mr. Rajan Mahato with the gardeners (front row)



The reactor relevant, indigenously developed passive-active-multijunction (PAM) launcher, designed to launch up to 250kW of  $\mu$ -wave power at 3.7 GHz, for one second, is successfully installed and commissioned on radial port#5 of the ADITYA-U tokamak and has successfully cleared all the qualification tests, like ultra-high vacuum, baking and  $\mu$ -wave tests. A typical vacuum performance of PAM launcher during baking cycle is shown in figure-1. The 2 MW-CW high power RF source system, comprising of four klystrons are shown in figure-2, located in SST1 hall, is used to power the PAM launcher of ADITYA-U tokamak. One of the klystron from SST1 hall is connected to PAM launcher (placed in ADITYA hall) through ~100 meter long WR284 based rectangular transmission line.

During tokamak operation, the high power RF conditioning of the PAM launcher is conducted till acceptable reflection coefficient is observed. The LH experiments are carried out by launching RF power up to ~100kW in to 100-175 kA Ohmic target plasmas formed with positive and negative convertor operation. Good coupling of PAM launcher with plasma has been demonstrated and low reflection coefficient (~5-7%) is achieved even when launcher is placed around 20-25mm behind limiter and matches well with predicted simulation results from ALOHA code, shown in figure-3. The simulated results for two limiting cases are plotted using continuous lines whereas experimental observations are shown with bunch of open circles. The non-inductive current drive with LH power was observed in the both the configuration operations, i.e. positive and negative convertor operation. A typical shot during negative configuration operation is shown in figure-4 which clearly establishes the elongation of plasma current up to ~430ms even with nearly zero loop voltage towards the end of the pulse, which otherwise could sustain for ~300ms without LH power. The interaction of LHWs with plasma, in both the cases is confirmed, with diagnostics like 2<sup>nd</sup> ECE and CdTe detector signals which shows immediate response when LHCD power is injected in to the plasma.

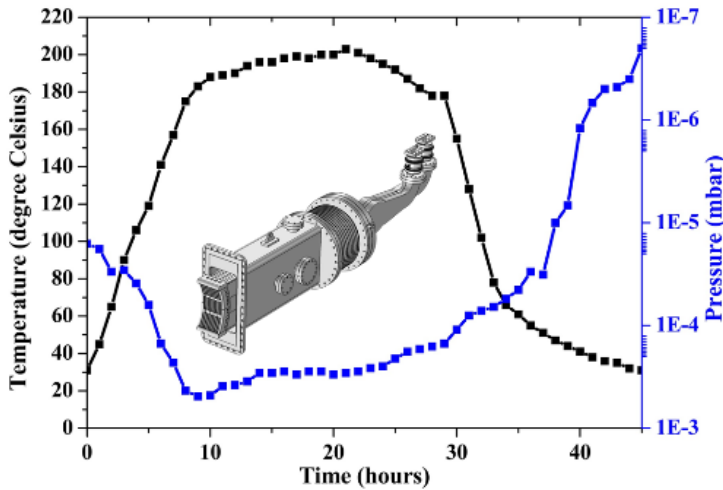


Figure-1: A typical vacuum performance of PAM launcher during baking cycle of PAM launcher is shown



Figure-2: HP LHCD source system, comprising of four klystrons, each rated for 0.5MW-CW RF power at 3.7 GHz

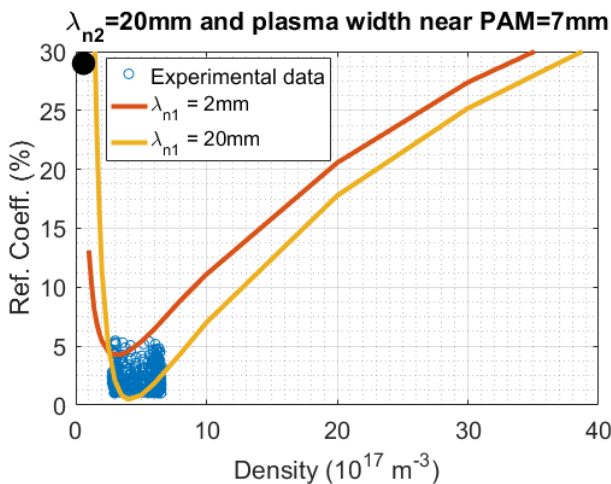


Figure-3: The reflection coefficient (RC) obtained experimentally with edge density is compared with simulated results from ALOHA code. The black circle shows the RC in absence of plasma

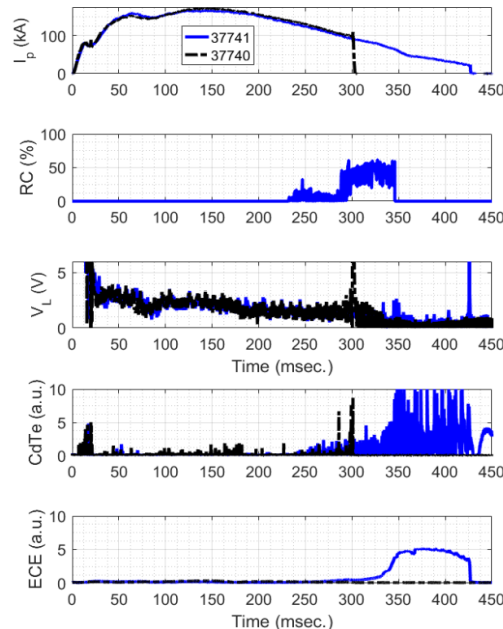


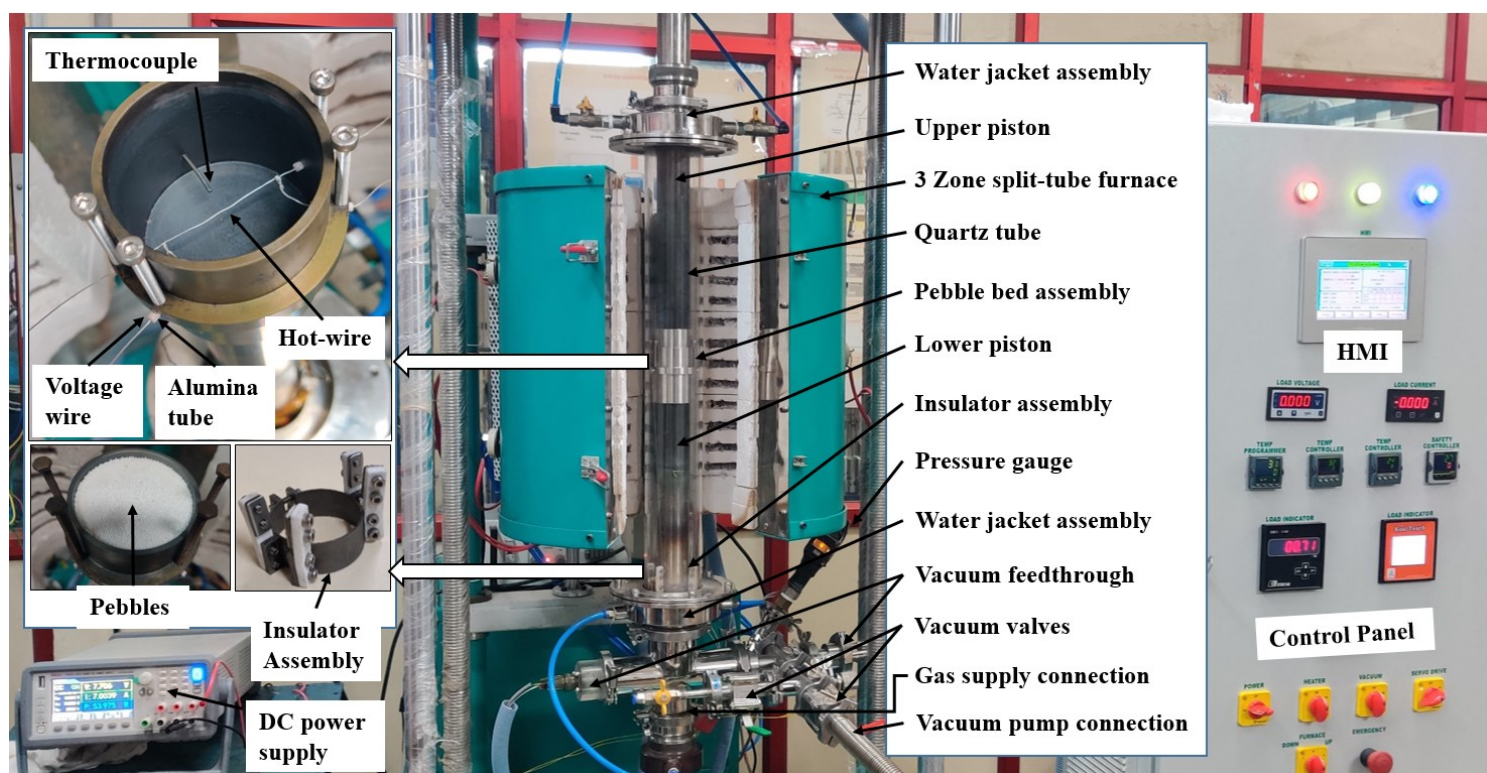
Figure-4: A typical result from negative convertor configuration is shown where black (blue) curve shows the results without (with) LHCD. The plasma current (top plot) is elongated up to ~430ms with LH power (second plot) and is driven with nearly zero loop voltage (third plot). The response of CdTe and ECE with LH power is evident from fourth and fifth plot respectively.

## Effective thermal conductivity measurements of compressed lithium metatitanate pebble beds at high temperature <sup>3</sup>

An experimental setup has been indigenously developed to determine the effective thermal conductivity of ceramic pebble beds at the institute. The measurements can be obtained as a function of uniaxial compressive stress, temperature and filling gas pressure. The functioning of the setup is based on the principle of transient hot-wire techniques. The temperature of the hot-wire was obtained using four-wire technique.

Several experiments were conducted on lithium metatitanate and alumina pebbles, with the diameter of lithium metatitanate pebbles measuring  $1\text{ mm} \pm 0.15\text{ mm}$ , while the alumina pebbles had a diameter of  $1\text{ mm} \pm 0.2\text{ mm}$ . The measurements were conducted under compressive stress of up to 6 MPa, and within a temperature range of 50 to 800 °C. The pebble beds are surrounded by a helium gas atmosphere with a pressure of up to 1 bar (gauge).

This technique offers numerous benefits compared to temperature measurement using thermocouple. It estimates the temperature instantly, delivers an average temperature reading along the length of hot-wire, and precisely measures the heat provided as it is probed inside the pebble bed. The removal of thermocouple eliminates the necessity for any electrical isolation between hot-wire and thermocouple. This enables the utilization of a bare hot-wire with the smallest feasible diameter.



Electrodeposited Grid segment (as deposited condition)

## Happy Retirement

**Ms. Aparajita Mukerjee** superannuated from services on 31st October 2024 after a service spanning 30 years. On the occasion of her retirement, she gave a talk "**Reflections on my three decades at IPR: A journey from BETA lab to ITER**", reminiscing her professional journey, on 25th October 2024.

A farewell function was organised by the IPR Staff Club on 25th October 2024. IPR newsletter wishes her a Happy and Healthy retired life.



Ms. Aparajita Mukherjee giving talk (L). Audience during the talk (R)



## Vigilance Awareness Week at IPR

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The Institute observed Vigilance Awareness Week -2024 during 28 Oct - 3 Nov 2024. It started with the Integrity pledge, administered by the Director and Chief Vigilance Officer (CVO) on 28th October 2024. A talk was delivered by the CVO detailing the functions and responsibilities of the CVO along with Do's and Don'ts and hence the importance of vigilance clearance. The various events and programmes were conducted during the VAW 2024 and it was extended till 15th November 2024 to accommodate the festival holidays in between. Competitions like Quiz, Cartoon making, Debate (along with experience sharing about corruption), Slogan writing etc. were also conducted to sensitize and bring awareness about Vigilance among the employees. A talk by Mr. G.Venkatesan (ex-director, ATI, DAE) was arranged on CCS conduct rules on 14th Nov 2024. Finally, a Nukkad Natak "*Yam pe Bhari - Ghapla lal ki Anokhi kahani*" was performed by IPR Staff in the porch area on 14th Nov 2024, which was well received by the audience.



IPR Staff (L) taking Integrity Pledge administered by Director and CVO (R)



IPR Staff attending talk (L) by the CVO (R)



Participants of the debate competition



Participants of the debate competition





IPR Staff (L) attending the talk by Mr. G.Venkatesan (R)

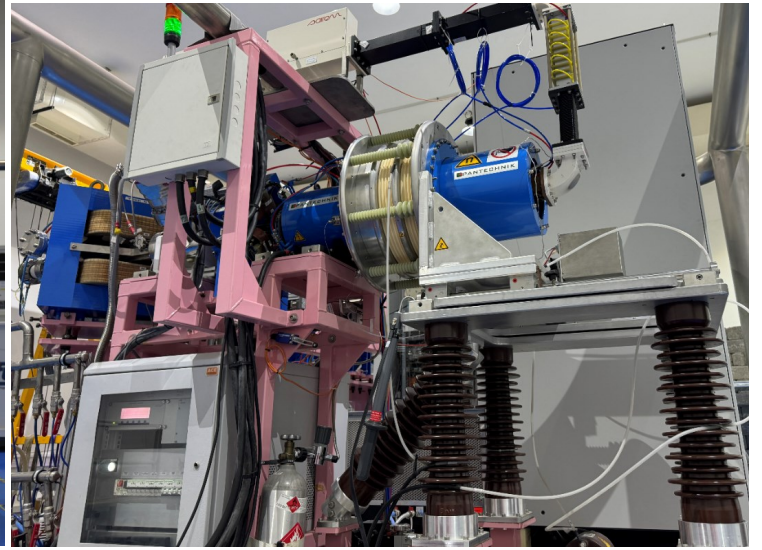
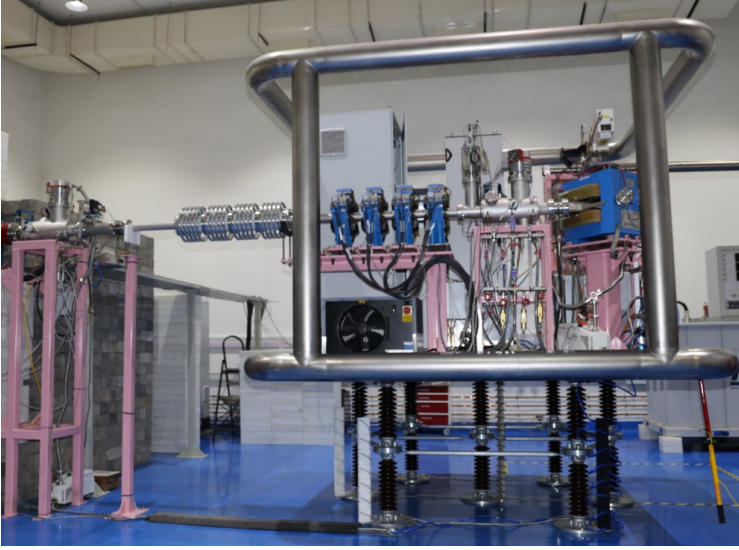


Glimpses of the Nukkad Natak "Yam pe Bhari - Ghapla lal ki Anokhi kahani"



The Institute has set up a 14-MeV neutron generator facility. The stability, quality, and repeatability of the D<sup>+</sup> ion beam are critical parameters for ensuring the reliable operation of the neutron generator. Hence, a 2.45 GHz ECR ion source has been installed to produce the deuterium beam.

The primary D beam characteristics are assessed by varying extraction voltage, microwave power, gas flow, and solenoid current of the ECRIS. By optimizing these parameters, the maximum design beam current is achieved. The D ion beam contains various species, including D<sup>+</sup>, D<sub>2</sub><sup>+</sup>, D<sub>3</sub><sup>+</sup>, and impurities. Accurate measurement of the D<sup>+</sup> content within the D ion beam is the key parameter for a neutron generator. Multiple experiments were conducted to determine the D<sup>+</sup> species and optimize the ECRIS parameters for maximum production of D<sup>+</sup> species. Two beam current measurement devices, the DCCT and the Faraday Cup, were installed in the beamline to measure the total deuterium beam current and D<sup>+</sup> beam current, respectively. Especially, the variation in the D<sup>+</sup> fraction primarily depends on the operating parameters of the ECRIS, such as extraction voltage, microwave power and gas flow. Understanding and characterizing the D<sup>+</sup> species are essential steps toward achieving stable and efficient neutron production in fusion applications.



Actual Picture of 14-MeV neutron generator at IPR

### STPI में हिंदी व्याख्यान

गांधीनगर में स्थित सॉफ्टवेयर टेक्नोलॉजी पार्क ऑफ़ इंडिया (STPI) इलेक्ट्रॉनिक्स और सूचना प्रौद्योगिकी मंत्रालय (MeitY) के तहत एक प्रमुख विज्ञान एवं प्रौद्योगिकी संगठन है। दिनांक 25 सितंबर 2024 को इस संगठन में हिंदी कार्यशाला का आयोजन किया गया था, जिसमें संस्थान की हिंदी अधिकारी डॉ. संध्या दवे ने “कंप्यूटर पर हिंदी प्रयोग हेतु सॉफ्टवेयर/टूल्स” पर व्याख्यान दिया। अपने व्याख्यान में उन्होंने पर कंप्यूटर पर उपलब्ध वॉइस टाइपिंग टूल्स, टेक्स्ट टू स्पीच, कंठस्थ अनुवाद 2.0 वर्जन, अनुवादिनी ऐप, मोबाइल पर हिंदी का प्रयोग संबंधी उपयोगी टूल्स की विस्तृत जानकारी प्रदान की एवं कार्यशाला के प्रतिभागियों के संदेहों को दूर किया।



डॉ. संध्या दवे व्याख्यान देते हुए



## Celebrating Scientific Excellence: DAE Hosts Inaugural Conclave as Part of Platinum Jubilee Celebrations

The Department of Atomic Energy (DAE) has significantly contributed to numerous national and international programs over the past seven decades. To honor these achievements and chart a course for future advancements, DAE organized its inaugural Conclave from October 22-26, 2024, at National Institute of Science Education and Research (NISER) Bhubaneswar as part of its Platinum Jubilee Celebrations.

This landmark event brought together experts and participants from all DAE units and its aided institutions, offering a vibrant platform to showcase their scientific and technological accomplishments.

The institute actively participated in the Conclave, presenting its cutting-edge research and developmental activities through five posters and 16 videos, highlighting its contributions to advancing plasma science and technology. Additionally, many models were also presented by the IPR Outreach Division, further enhancing the interactive experience at the event. Director IPR has delivered a comprehensive talk, shedding light on its pioneering work and vision for the future.

The following five posters were presented from IPR:

1. Plasma Pyrolysis Technology for Safe Disposal of Organic Waste
2. AI & High-Performance Computing for Scientific Research & Medical Diagnosis
3. 14 MeV Neutron Generators: Bridging the Gap Between Research
4. Fundamental Plasma Research Activities at IPR
5. TOKAMAK: A Pathway to Nuclear Fusion

This event underscored DAE's enduring legacy and its commitment to fostering innovation and collaboration across its institutions, paving the way for groundbreaking advancements in science and technology.

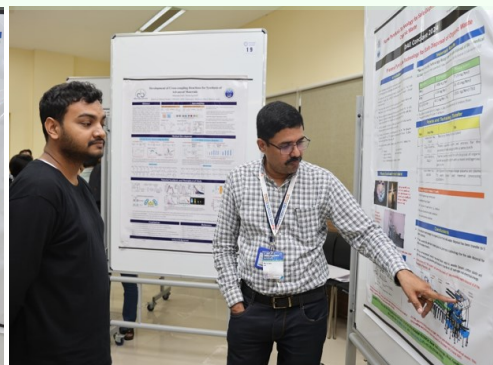
The details of the 1<sup>st</sup> DAE Conclave including the Abstracts and Presentations are available [here](#)



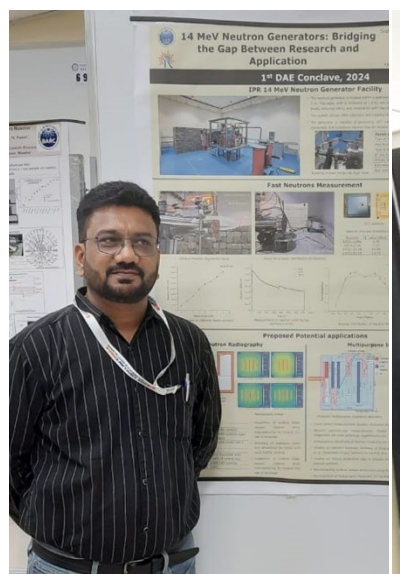
IPR Director delivering his talk



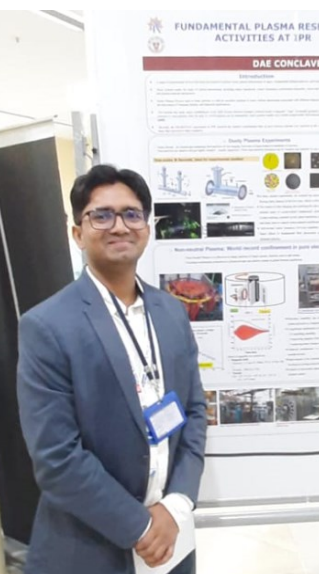
Dr. Vishal Jain presenting his poster



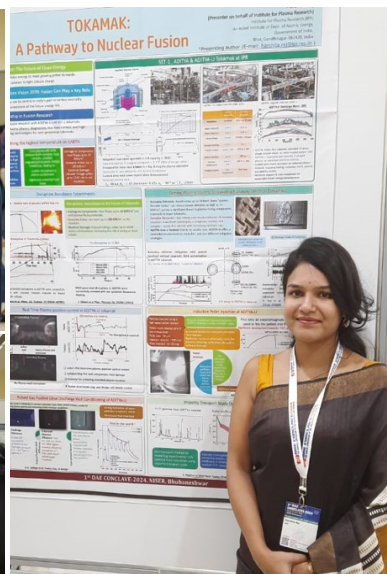
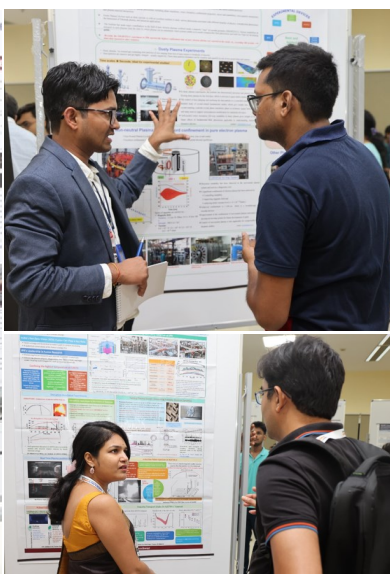
Ms. Manika Sharma presenting her poster



Dr. Sudhirsinh Vala with his poster



Dr. Prabhakar Srivastava (L) & Dr. Harshita Raj (R) presenting their posters





**AIC-IPR Plasmatech Innovation Foundation** (A Section 8 company of DAE and IPR's Atal Incubation Centre) has signed transformative agreements with innovative startups **Exxcarbon Pvt. Ltd.** and **Plasmazen Pvt. Ltd.** The development marks a major milestone in the journey to support cutting-edge technology with real-world impact.

**Exxcarbon Pvt. Ltd.** has joined hands with AIC-IPR to advance the **RAUDRA Plasma Pyrolysis Technology**, a waste-to-energy solution designed to reduce carbon footprints while generating wealth from waste.

**Plasmazen Pvt. Ltd.** has embarked on a new incubation journey, aiming to revolutionize the fabric industry with plasma technology.

These startups are setting a new standard in sustainable and Deep Tech solutions for a smarter, greener future.



Agreement between IPR and Plasmazen Pvt. Ltd.



Agreement between IPR and Exxcarbon Pvt. Ltd.



Team from IPR, AIC-Plasmatech Board members with Dr. Puneet Seth, Founder of Exxcarbon Private Limited



Team from IPR, AIC-Plasmatech Board members with Mr Shubhabroto Mukherjee, co-founder of Plasmazen Pvt Ltd



## नराकास गांधीनगर की 23वीं छमाही बैठक में प्रतिभागिता

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दिनांक 25 सितंबर 2024 को नराकास, गांधीनगर की 23वीं छमाही बैठक का आयोजन बड़ौदा एपेक्स अकादमी गांधीनगर में हुआ जिसमें संस्थान के डॉ. सुब्रतो मुखर्जी, डीन, प्रशासन, श्री राज सिंह, वैज्ञानिक अधिकारी-एच, डॉ. संध्या दवे, हिंदी अधिकारी ने भाग लिया। इस अवसर पर नराकास, गांधीनगर की हिंदी पत्रिका "गांधीनगरी" के तीसरे अंक का विमोचन किया गया।

इस बैठक में नराकास, गांधीनगर के तत्वावधान में आयोजित विभिन्न प्रतियोगिताओं में प्लाज़्मा अनुसंधान संस्थान के निम्नलिखित कर्मचारियों को पुरस्कार प्राप्त हुए हैं:

विजेताओं के नाम	प्रतियोगिता का नाम एवं पुरस्कार
सुश्री प्रतिभा गुप्ता	नराकास, गांधीनगर की पत्रिका गांधीनगरी में लगातार रचनाओं के प्रकाशन हेतु "विशेष सम्मान"
श्री अंकुर जायसवाल	केनरा बैंक द्वारा 30.05.2024 को आयोजित "मुहावरा प्रतियोगिता" में प्रथम पुरस्कार
श्रीमती शिल्पा खंडकर	जनगणना कार्य निदेशालय, गांधीनगर द्वारा 21.06.2024 को आयोजित "हिंदी श्रुत लेखन प्रतियोगिता" में प्रथम पुरस्कार
श्रीमती संध्या दवे	नराकास, गांधीनगर द्वारा 26.07.2024 को आयोजित "राजभाषा प्रश्नोत्तरी प्रतियोगिता" में प्रोत्साहन पुरस्कार



सभागार में उपस्थित नराकास, गांधीनगर के सदस्य कार्यालयों के प्रतिनिधि

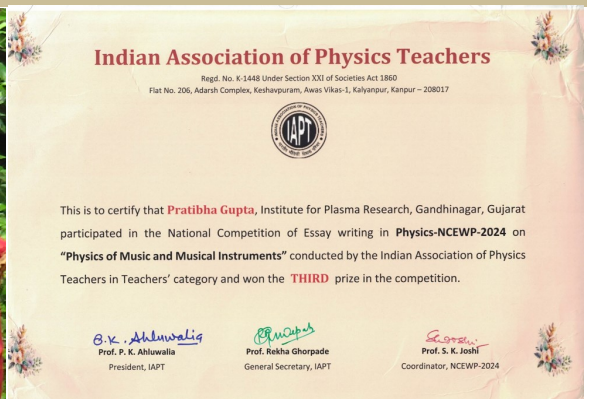


नराकास, गांधीनगर अध्यक्ष एवं बड़ौदा एपेक्स अकादमी, गांधीनगर के प्रमुख श्री सुनील सिन्हा से पुरस्कार प्राप्त करते हुए (L-R) डॉ. संध्या दवे, श्री अंकुर जायसवाल एवं सुश्री प्रतिभा गुप्ता

**Congratulations!!**

**Ms. Pratibha Gupta**, Scientific Officer-F participated in the National Competition of Essay writing in Physics-NCEWP-2024 on the theme "**Physics of Music and Musical Instruments**" conducted by the Indian Association of Physics Teachers (IAPT) in Teacher's category and she has won the **Third prize** in the competition for her essay titled "**The Physics behind melodious music**"

*Many Congratulations to her for this achievement!*





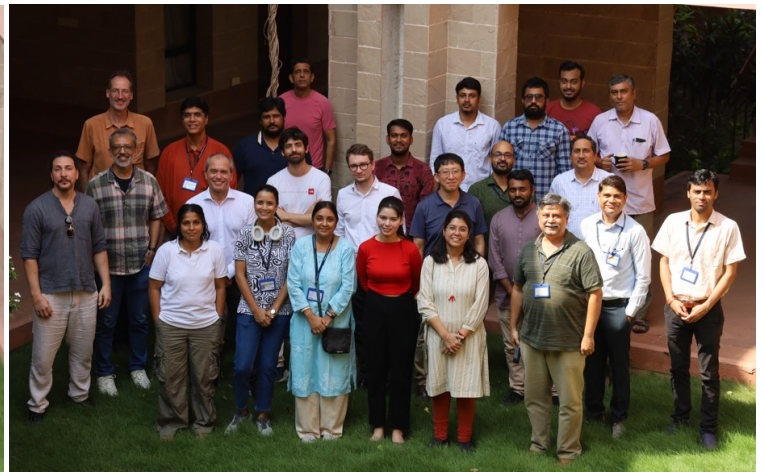
IPR hosted the **44th Meeting of the International Tokamak Physics Activity Magnetohydrodynamics (MHD), Disruption and Control Topical Group (ITPA-MDC TG)** from 22-25 October 2024. The meeting was attended both in-person and remotely through Videoconferencing.

There were a total of 34 in-person participants – 27 from IPR/BARC and 6 from abroad, while 38 participants from all ITER Partners joined remotely through videoconferencing.

There were 42 presentations in total over 3.5 days, that included 3 special sessions – on **VDE and Disruption modeling** (5 presentations), on **Optimization of Shattered Pellet Injection (SPI) for disruption and Runaway Electron (RE) mitigation** (4 presentation) and on **Disruption Prediction and Avoidance** (9 presentations). Apart from these, there were 11 presentations on ITPA-MDC joint experiments and joint activities and 9 contributed presentations, which included 4 presentations from IPR (2 by faculties and 2 by senior Research Scholars) and one presentation from BARC on electromagnetic pellet injector development. All the presentations were of very high quality and there were intense discussions after each session, where local Indian participants also participated actively.

The opening session of the meeting was dedicated to the Memory of Dr. Michael Lehnen, who passed away in June 2024 and was one of the deputy Chairs of the ITPA-MDC-TG. Presently Dr. Indranil Bandyopadhyay from ITER-India, IPR is the Chair of the ITPA-MDC-TG from 2024-2026 and he also chaired this meeting.

One of the main reasons of holding the ITPA MDC meeting in IPR was to facilitate a larger number of local participants from IPR to take part in the deliberations and it succeeded in that objective.



Group photos of the ITPA meeting participants

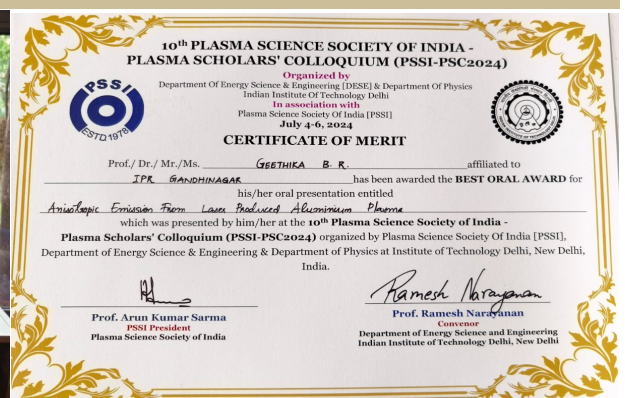
**Background Information:** The **International Tokamak Physics Activity (ITPA)** provides a framework for internationally coordinated fusion research activities. The ITPA operates under the auspices of the ITER Organization, although the activities under the ITPA are voluntary in nature carried out by participants from the ITER Member countries. The ITPA TGs carry out joint experiments and coordinated theory and modeling activities for ITER's urgent R&D needs. The ITPA-MDC-TG works in the fields of MHD stability in tokamaks and other fusion devices, plasma disruptions and their mitigation, control of plasma equilibrium and stability. The work presented at the ITPA meetings are often yet unpublished work and hence participation in the ITPA TG meetings is primarily by TG members/experts and others by invitation only.

IPR members have been actively participating in various ITPA TGs for several years.

## Congratulations!!

**Ms. Geethika B R**, Research Scholar, won the “Best Oral Award” for her presentation on “**Anisotropic Emission from Laser Produced Aluminium Plasma**” at the 10th Plasma Science Society of India - Plasma Scholars Colloquium (PSSI-PSC 2024), Indian Institute of Technology, Delhi held during 4-6 July 2024.

Many Congratulations to her for this achievement!

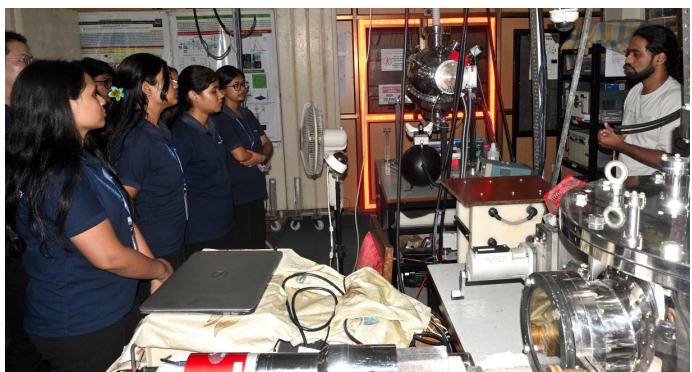




Date	Institution	Visitors
29-October-2024	Department of Mathematics, Royal Global University, Guwahati, Assam	39 students of MSc & BSc and 4 faculty



Students in the outreach exhibition hall



Students visiting the CPP-IPR Labs



Group photograph of students from Royal Global University, Guwahati during their visit to CPP-IPR



Five students from University of Science and Technology Meghalaya, Baridua, visited CPP-IPR from 14 - 25 October 2024. The students were given lectures on plasma physics and visited exhibition hall and laboratories. The students also conducted various experiments with plasma devices in the exhibition hall. The experiments include plotting of Paschen curve, experimental proof of deviations from Paschen law, plotting of I-V characteristics of a gas discharge, measurement of plasma resistance, nanoparticles synthesis using plasma and plasma treatment of dye solutions.



Group photograph of students from USTM



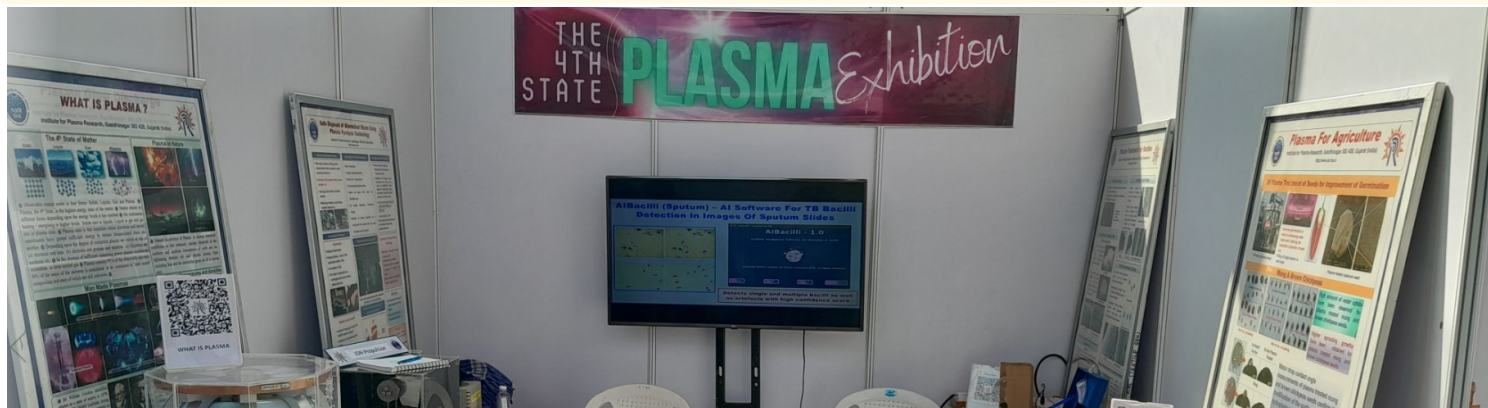
### Plasma Exhibition @ Indian Institute of Technology, Gandhinagar

IPR Gandhinagar participated in "**Amalthea 2024**", Annual Technology exhibition organized by Indian Institute of Technology (IIT), Gandhinagar during 9-10 November 2024. Amalthea is a student-run annual technical summit.

The event consisted of several tech exhibitions including robotics, AI and mobility based innovations. Several industry and national R & D institutions participated in the event.

IPR exhibited working and static models related to Tokamak, ITER, Wiggler Experiment, Plasma for Grooming and Ion thruster.

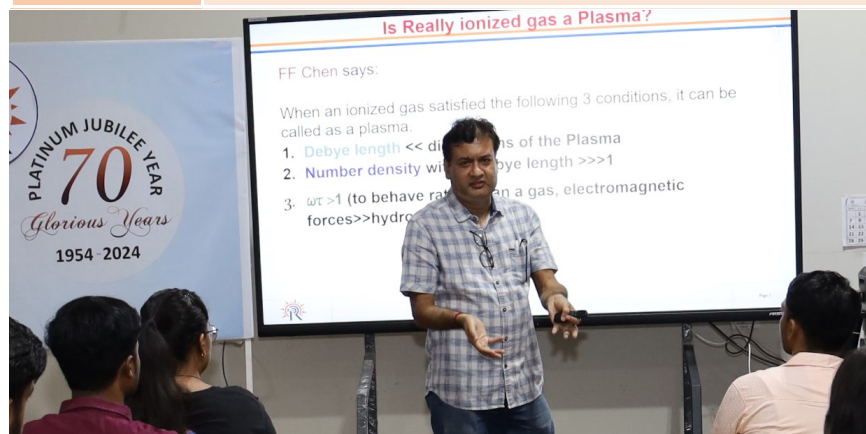
Around 800 visitors from schools, colleges and industry visited IPR exhibition stall during the event.



IPR ORD Team at the Plasma Exhibition



Date	Institution	Visitors
23-Oct-2024	Institute of Infrastructure, Technology, Research and Management, Maninagar, Ahmedabad	33 Students (Electrical Engg.) and 03 Faculty



Outreach members explaining the exhibits at Outreach Hall

Students visiting the 132kV Substation



Group photo of students and faculty of Institute of Infrastructure, Technology, Research and Management, Maninagar



- ◆ **Talks presented at 77th Annual Gaseous Electronics Conference (GEC 2024), San Diego, California, USA, 30 September 2024 - 04 October 2024**
  - **Mr. Ankit Dhaka**, gave a talk on "Spontaneous Convective Patterns in a Dusty Plasma"
  - **Mr. Ramesh Kumar Buddu**, gave a talk on "Experiments and characterization studies of 1 kW RF Helicon plasma thruster with plasma diagnostics techniques"
- ◆ **Talks presented at 66th Annual Meeting of the APS Division of Plasma Physics (APS DPP 2024), Atlanta, USA, 7-11 October 2024**
  - **Dr. Zubin Shaikh**, gave a talk on "On the excitation of nonlinear ion acoustic waves in a two-electron temperature plasmas of Multi-pole line cusp Plasma Device (MPD)"
  - **Mr. Ankit Dhaka**, gave a talk on "Nonlinear Mode Coupling in a 1D Dusty Plasma"
- ◆ **Dr. P. K. Sharma**, gave a talk on "Performance of PAM launcher in ADITYA-U tokamak" at 2nd Technical Meeting on Long Pulse Operation of Fusion Devices, IAEA Headquarters, Vienna, Austria, 14-18 October 2024
- ◆ **Mr. Vivek Joshi**, Rashtriya Raksha University, gave a talk on "Cyber Security Awareness" on 18th October 2024
- ◆ **Mr. Aditya Kumar Verma**, gave a talk on "Engineering Design of a Prototype Center Stack Toroidal Field Coil for Spherical Tokamak" at 22nd International Spherical Torus Workshop (ISTW-2024), Rhodes House, Oxford, 21-24 October 2024
- ◆ **Mr. Suman Dolui**, gave a talk on "Stabilization of sawtooth instability by short gas pulse injection in Aditya-U Tokamak" at 44th ITPA MHD, Disruption and Control (MDC) Topical Group Meeting, Institute for Plasma Research, Gandhinagar, 22-25 October 2024
- ◆ **Dr. Shashank Singh**, Panjab University, Chandigarh, gave a talk on "Fragmentation, multiple ionization and dehydrogenation of PAHs molecules by the impact of swift protons" on 25th October 2024
- ◆ **Dr. Shyamapada Patra**, Indian Institute of Technology, Bhubaneswar, gave a talk on "Ion Beam Induced Modification of Wetting and Optoelectronic Properties of Functional Nanomaterials" on 25th October 2024
- ◆ **Dr. Sharvil Patel**, Pandit Deendayal Energy University (PDEU), Gandhinagar, gave a talk on "Study of Sawtooth Crash Induced Heat Pulse Propagation and Fast Doppler Spectroscopy Diagnostic for ADITYA-U Tokamak" on 07th November 2024
- ◆ **Dr. Vibhuti R Vashi**, M S University Baroda, Vadodara, gave a talk on "Study of Reaction Cross-Sections for Advanced Reactors and Astrophysical Applications" on 08th November 2024
- ◆ **Dr. Rohit Sharma**, gave a talk on "Investigation of Graphene/silver nanoparticle hetrostructure on silicon ripple substrate for SERS application" on 11th November 2024
- ◆ **Dr. Shilpa Singh**, gave a talk on "Study of Plasma Oxidation of Copper Substrates" on 11th November 2024
- ◆ **Mr. Debrup Mukhopadhyay**, gave a talk on "Investigation of negative hydrogen ions by advancing various negative ion diagnostics" on 12th November 2024
- ◆ **Dr. Subhojit Bose**, gave a talk on "Development of a New Filament-Based Pre-Ionization System and Analysis of Observed H $\alpha$  Emission Peaks in Aditya-U Tokamak" on 12th November 2024
- ◆ **Ms. Varsha Siju**, gave a talk on "Study of electron dynamics in tokamak plasma through Electron Cyclotron (EC) emission using Radiometer" on 14th November 2024
- ◆ **Mr. Suruj Jyoti Kalita**, gave a talk on "Molecular Dynamics Study of Subcritical Transition to Turbulence in a 3D Yukawa Liquid" on 18th November 2024
- ◆ **Mr. Anjan Paul**, gave a talk on "Vlasov Maxwell simulations of whistler mode interaction with bulk and beam plasma" on 20th November 2024

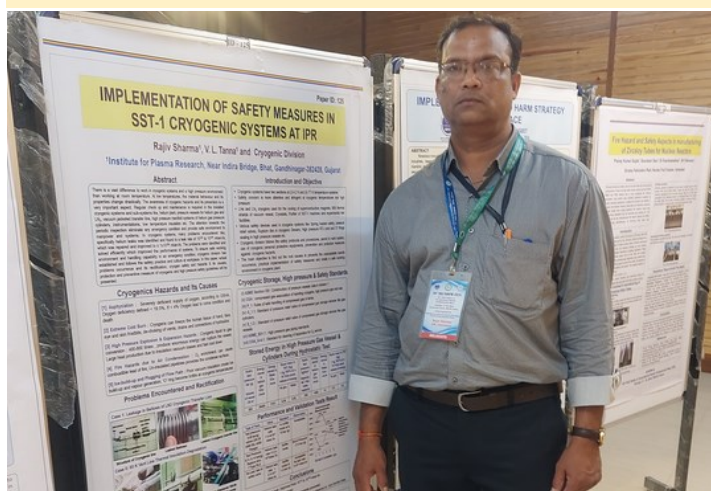


## Upcoming Events

- ◆ Fusion Power Associates: 45th Annual Meeting and Symposium: Fusion Energy: Progress, Challenges and Promise, Washington, United States, 2-3 December 2024; <https://www.fusionpower.org/RegistrationForm.html>
- ◆ 37th International Symposium on Superconductivity (ISS2024), Kanazawa, Japan, 3-5 December 2024; <https://iss2024.jp/>
- ◆ DAE-BRNS: 10th Interdisciplinary Symposium on Materials Chemistry (ISMC-2024), DAE Convention Centre, BARC, Mumbai, 4-7 December 2024; <https://www.smcindia.org/ismc-2024/>
- ◆ 68th DAE Symposium on Nuclear Physics (SNP-2024), Indian Institute of Technology Roorkee, Uttarakhand, 7-11 December 2024; <https://sympnp.org/snp2024/>
- ◆ 13th ITER International School (IIS2024), National Institute for Fusion Science, Nagoya, Japan, 9 -13 December 2024; <https://iis2024.org/>
- ◆ 39th National Symposium on Plasma Science & Technology (PLASMA 2024), Pandit Deendayal Energy University (PDEU) & Plasma Science Society of India (PSSI), Gandhinagar, 16 - 20 December 2024; <https://pdeu.ac.in/plasma2024>
- ◆ 69th Congress of the Indian Society of Theoretical and Applied Mechanics (ISTAM-2024), CHRIST (Deemed to be University), Bengaluru, 19-21 December 2024; <https://istam.iitkgp.ac.in/>
- ◆ 1st International Workshop on Cold-plasma and pulse power technologies for Food, Health and Agriculture (COFHA-2024), Indian Institute of Technology (IIT), Jodhpur, 21-22 December 2024; <https://events.iitj.ac.in/cofha2024/>

## Conference Presentations

**Mr Rajiv Sharma** gave a poster presentation on **"Implementation of Safety Measures in SST-1 Cryogenic Systems at IPR"** at the 40<sup>th</sup> DAE Safety & Occupational Health Professionals Meet, 2024 (DAE-SOHPM) organized at RRCAT, Indore during 17-19 October 2024.



Mr. Rajiv Sharma during poster presentation

**Ms. Geethika B R**, Research Scholar, gave an oral presentation on **"Anisotropic Emission from Laser Produced Aluminium Plasma"** at the 10th Plasma Science Society of India - Plasma Scholars Colloquium (PSSI-PSC 2024), Indian Institute of Technology, Delhi, 4-6 July 2024.



Ms. Geethika presenting oral talk

**Dr. Mukesh Ranjan** gave an invited talk titled **"Ion beam-induced nanoripples patterns for SERS based saliva analysis to detect oral cavity cancer"** in a Indo-French meeting focused on "Perspective and challenges of clinical Vibrational spectroscopy in point of care use" organized by ACTREC, Mumbai from 28-30 Oct 2024.

Dr. Mukesh Ranjan giving the presentations



**Dr. Mukesh Ranjan** gave an invited talk titled **"Sequential growth of metal nanoparticles on low energy ion produced ripple patterns for the isotropic plasmonic response and wettability studies"** in the The National Conference on Frontiers of Ion Beam Science (FIBS-2024) from 4-7 Nov 2024 at Institute of Physics (IoP), Bhubaneswar.





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### Know Your Colleague



**Mr. Sunil Bassi** joined IPR as a Scientific Officer-C in 2016 through the Technical Training Program (TTP) 2015 batch. He has completed his M.Sc (Physics) from Dr. B. R. Ambedkar National Institute of Technology, Jalandhar in the year 2015. Currently, he is working in the Multidisciplinary Research Division as Scientific Officer-E. His work involves numerical simulations of reactive flows. He has been working for in-house modification of Computational Fluid Dynamics (CFD) codes and their application to study the systems of interest such as combustion of fuel-mixtures in gaseous/liquid states. Sunil completed his M.Tech from Homi Bhabha National Institute (HBNI) in the year 2018. He has guided Summer School Project (SSP) student and has been involved in outreach activities by guiding science day student project. Sunil likes to play football and also participates in various IPR sports activities.

### IPR Team at the 1<sup>st</sup> DAE Conclave 2024



IPR Team at the 1<sup>st</sup> DAE Conclave 2024 at NISER Bhubaneswar

### Quote of the Month

*"Remember, teamwork begins by building trust. And the only way to do that is to overcome our need for invulnerability."*

--Patrick Lencioni

### The IPR Newsletter Team

B. J. Saikia	Dharmesh Purohit	Harsha Machchhar	Pratibha Gupta	Priyanka Patel	Ramasubramanian N.	
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