The 4th State

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

Issue 149, December 2025

Commemorating 150 years of the Rashtriya Geet "*Vande Mataram*"

As per the directives of the Ministry of Home Affairs, Government of India to commemorate 150 years of the Rashtriya Geet, "Vande Mataram", through a year-long programme from 7th November 2025 to 7th November 2026, IPR staff members enthusiastically participated in a collective recitation of Vande Mataram on 13 Nov 2025. The sound of our National pride echoed throughout the campus.

Listen to the rendition.

IPR Staff members singing the Rashtriya Geet "Vande Mataram" on 13 Nov 2025

Development of a sensitive flowmeter for electrically conducting liquids

Molten metals (e.g. Pb-Li) are being proposed as a tritium breeder and/or coolant in blankets for nuclear fusion reactor. Volumetric flowrate is one of the important process parameter to be measured for ensuring safe and optimum operation of the coolant/breeder circuit. A flowmeter (FM) has been designed using Halbach magnet arrangement that provides high sensitivity. The FM is calibrated in a novel high temperature experimental set up using first principles. In the experiment, the mass of molten Pb-Li (at 300°C-310°C) transferred through the FM per unit time has been measured and this information is used to calibrate the flowmeter against the voltage signal obtained in the FM. Accurate Pb-Li mass measurement is made possible by using a novel design of EWBA (Edge Welded Bellow Assembly). The dry calibration has been performed using numerical MHD computations and compared with experimental results.

The published work titled "**Development of a sensitive flowmeter for electrically conducting liquids and its calibration using first principles in a novel high temperature set up**" is authored by Srikanta Sahu, Hardik Tailor, Ahsok K. Prajapati, Sandeep Gupta, Shrikant Y. Verma, Vijay Vasava, Rajendraprasad Bhattacharyay, published in *IEEE Transactions on Instrumentation and Measurement*, Vol. 74, 1014609 (2025)

Full-Text: https://ieeexplore.ieee.org/document/11131307

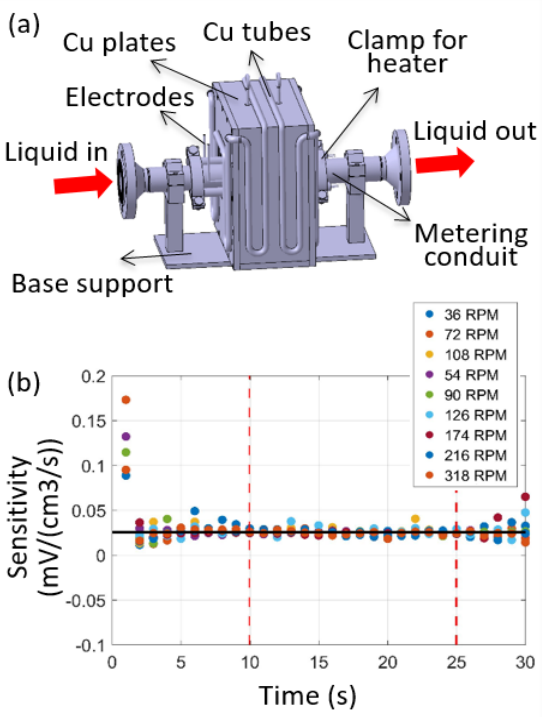


Figure: (a) CAD drawing of newly designed flowmeter using Halbach magnet and (b) Sensitivity estimation of the flowmeter in the novel experimental set up using first principles

Non-inductive current drive at zero loop voltage using LHCD PAM launcher on ADITYA-U

For the first time, the ADITYA-U tokamak experiment has been able to keep a plasma current running without using its usual electrical drive system. Instead, it used special radio waves called lower hybrid waves, sent into the plasma through a newly installed antenna (Passive Active Multijunction antenna acronym as PAM) system. Normally, the plasma current fades away after a short time, but with these waves the discharge could be sustained for much longer duration.

The waves were efficiently absorbed by the plasma, and measurements of high-energy radiation showed that the energy was successfully transferred to fast-moving electrons, which helped maintain the current.

These results demonstrate that the new antenna system works well and that radio-wave–driven current can be a practical way to support longer tokamak plasma operations in ADITYA-U.

The published work titled "**Non-inductive current drive at zero loop voltage using LHCD PAM launcher on ADITYA-U**" is authored by Jagabandhu Kumar, et. al., published in *Nuclear Fusion*, 65, 116029 (2025)

Full-Text: https://iopscience.iop.org/article/10.1088/1741-4326/ae1049

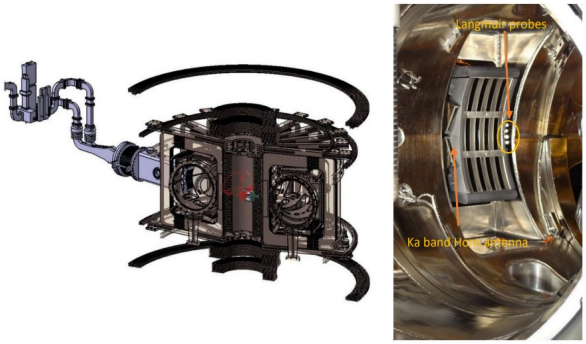


Fig 1 (a) PAM Antenna Installed on ADITYA-U port-5 (b) PAM Antenna inside ADITYA-U vessel

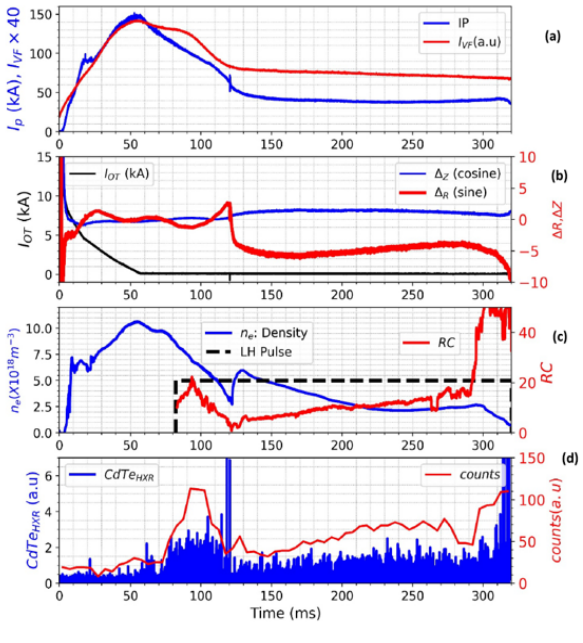


Figure 2 shows the time evolution of key plasma parameters for shot #38781. The first panel displays plasma current (left axis) along with VFPS current (right axis). The second panel presents OT current (left axis) and the horizontal (red) and vertical (blue) plasma column positions (right axis). The third panel shows line-averaged density (left axis) and reflection co-efficient (RC) signals (right axis). The fourth panel illustrates the bremsstrahlung emission measured by the CdTe detector in the 20–200 keV range.

Doctoral Research Spotlight

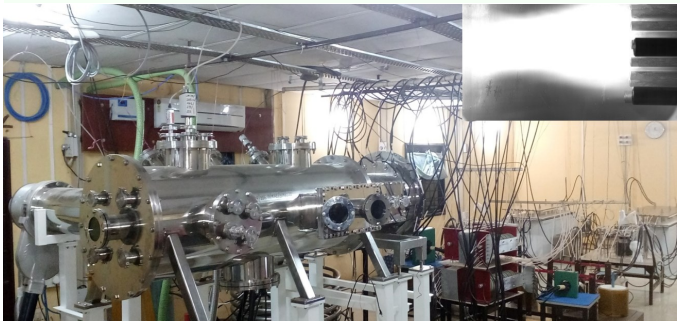
Studies on the dynamics of plasma beam of pulsed plasma accelerator using optical methods and its interaction with fusion relevant material by Azmirah Ahmed

Edge Localized Modes (ELMs) observed during high confinement mode (H-mode) of plasma in fusion reactors are periodic outbursts of plasma. These transient events releases energy and particles on reactor wall material that causes significant damage to the wall material. This material damage by plasma interaction is a critical issue and needs further research to understand the effects. This thesis discusses the study of plasma stream in a pulsed plasma accelerator (PPA), developed at CPPIPR, that is one of the potential heat sources to investigate this interaction of plasma with fusion-relevant material.

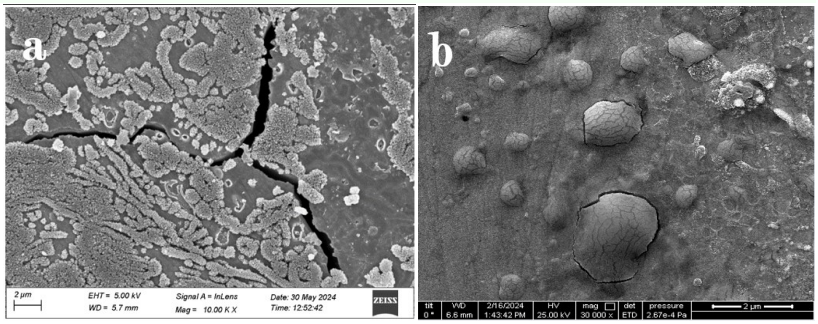
Initial optimization is done by investigating the behavior of neutral and ionized species excitations, plasma density, plasma velocity, electron excitation temperature, and electron temperature both in absence and presence of an external longitudinal magnetic field using OES. High-speed imaging of the plasma stream provides insights about its shape, size, observable length, diameter, and uniformity. An energy density of 0.22 MJ/m^2 for hydrogen plasma has been achieved in PPA by the optimization. This replicates the heat loading of single ELM event in the lower energy range (0.2 – 2.5 MJ/m^2) of mitigated ELMs. In this work, the fusion-relevant material considered is tungsten (W) and the plasma irradiated W samples are studied by different characterization techniques.

Azmirah Ahmed

FESEM gives the surface morphology of plasma irradiated W samples that shows appearance of blisters, crack formation and propagation, impurity deposition and agglomeration. XRD and EDAX indicates tungsten semi-carbide (W_2C) layer formation on the W surface. GIXRD technique shows strain propagation to depth of the material and accumulation of tensile residual stress that contributes to crack formation.



Pulsed Plasma Accelerator Facility. [Inset: Image of plasma beam



FESEM Images of plasma irradiated W surfaces showing a) crack formation and impurity deposition, b) Blisters

Publications:

1] A. Ahmed, S. Singha, S. Borthakur, N. K. Neog, T. K. Borthakur, and J. Ghosh, 'Characteristics of plasma stream evolution in a pulsed plasma accelerator', Phys. Plasmas 28, 023109 (2021)

2] A. Ahmed, S. Singha, N. K. Neog, and T. K. Borthakur, 'Effect of external longitudinal magnetic field on the dynamics of pulsed plasma stream', Phys. Scr, 98, 035601 (2023)

3] A. Ahmed, S. Singha, N. K. Neog and T. K. Borthakur, 'Study of the evolution of pulsed plasma under an external longitudinal magnetic field', J. Appl. Phys. 134, 023301 (2023)

4] A. Ahmed, S. Singha, N. K. Neog, and T. K. Borthakur, (2024) 'Hydrogen Plasma Stream Heat Source from Pulsed Plasma Accelerator at CPPIPR' In: Sharma, A. (eds) HV-ESCA 2023. Lecture Notes in Electrical Engineering, vol 1143. Springer, Singapore.

5] A. Ahmed, S. Singha, P. Baruah, P. P. Kalita, N. K. Neog, and T. K. Borthakur, 'Impact of heat load on tungsten material by hydrogen plasma stream of PPA', Vacuum 240, 114473 (2025)

6] A. Ahmed, S. Singha, S. Borthakur, N. Talukdar, N. K. Neog, and T. K. Borthakur, 'Formation of lobe structures in rotating pulsed plasma under a non-uniform magnetic field', (Under Review) (2025)

Unveiling of product developed by incubated startup at AIC-IPR Plasmatech Innovation Foundation

Coldray Plasma Labs, a startup incubated with IPR's incubation center AIC-IPR Plasmatech Innovation Foundation has unveiled its product **Coldray** for treatment of chronic wound and diabetic foot ulcer. The product is developed using the platform of IPR's proprietary technology named Atmospheric Pressure Plasma Jet. This innovation marks an important step towards providing advanced, non-invasive treatment options for diabetic wound care — a critical need in the healthcare sector.

On this occasion, Director, IPR, Dr. Tapas Ganguli, Dean (Admin), Dr. S. Mukherjee and the members of the development team Dr. Alphonsa Joseph, Dr. Ramakrishna Rane, Mr. Akshay Vaid and Mr. Anand Vasani shared how APPJ enables controlled delivery of reactive plasma species at room temperature, offering a safe and effective method for accelerating wound healing, reducing infection, and improving patient outcomes. The Director, IPR also emphasized on the need of such translational activities wherein a research idea from the lab can be developed with the help of the industry and be brought to the public as affordable products.

Mr. Vrushal Phadnis, founder of the startup also addressed the gathering and reflected on the journey of developing the product from concept to prototype and finally to a market-ready medical device. He spoke about overcoming the technical challenges during the developmental stages, the importance of collaborative support from IPR, and the motivation to create a solution that can make a meaningful difference in the lives of patients.

M/s Coldray Plasma Labs have also showcased this product at the Emerging Science, Technology and Innovation Conclave (ESTIC) 2025 held during 3-5 Nov 2025, New Delhi organized by Department of Science and Technology (DST), India.

Unveiling of the product "Coldray" by Director, IPR

Dr. Jitendra Singh (2nd from Right), Hon'ble Minister of State (Independent Charge) for Science & Technology, having a glimpse at the Coldray Plasma Labs stall at ESTIC2025

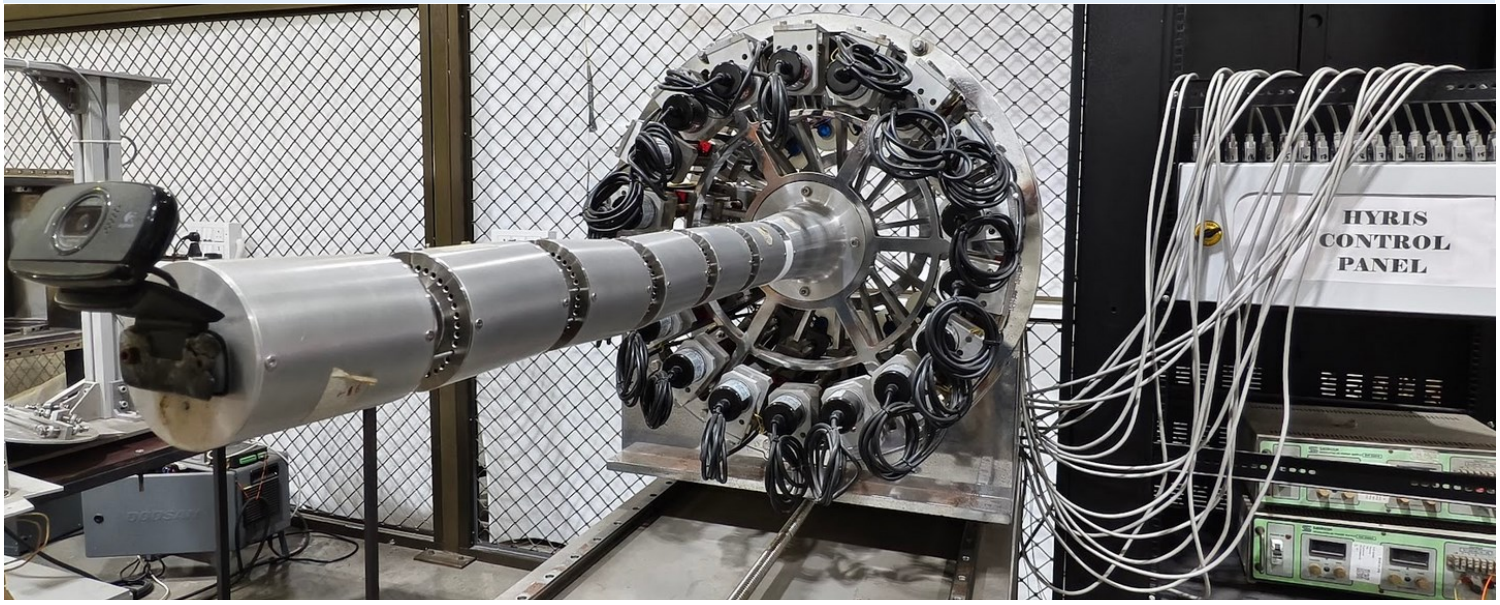
Remote Handling & Robotics Technology Development (RHRTD) Division

The RHRTD Division is involved in technology development of remote handling and robotics equipment for challenging environments such as Tokamaks. Remote Handling is often described as the synergistic combination of technology and engineering management systems to enable operators to perform manipulation safely, reliably and repeatedly of items without being in personal contact. The division has carried out research and development of various RH systems such as In-vessel inspection system compatible to vacuum and high temperature, cable driven hyper redundant inspections systems, 3 sided fully immersive Virtual Reality facility, Dual arm manipulator, Haptic master arms etc.

These are the major systems developed in RHRTD:

Hyper Redundant Inspection System (HyRIS)

The system is a high-dexterity, tendon-driven 18 Degrees of Freedom (DOF) robotic arm—similar to an elephant's trunk-developed for navigating narrow and complex spaces inside tokamaks. All motors and electronics remain outside the working area make it suitable for in-vessel inspection, pipe inspection, and deployment in harsh or confined environments.



Hyper Redundant Inspection System (HyRIS)

Articulated Inspection Robotic Arm (ARIA)

This system is a 6 DOF (5 rotary +1 translation) articulated robotic arm deployable in toroidal vessels during maintenance shutdowns. It is capable of handling payloads up to 50 kg at a 2.2 m reach, making it suitable for demanding in-vessel tasks. Each joint is equipped with both incremental and absolute encoders to ensure precise positional feedback. The arm is having general end effector interface to mount a mechanical gripper, a SCARA end effector enabling handling and manipulation of components.

Articulated Inspection Robotic Arm (ARIA)

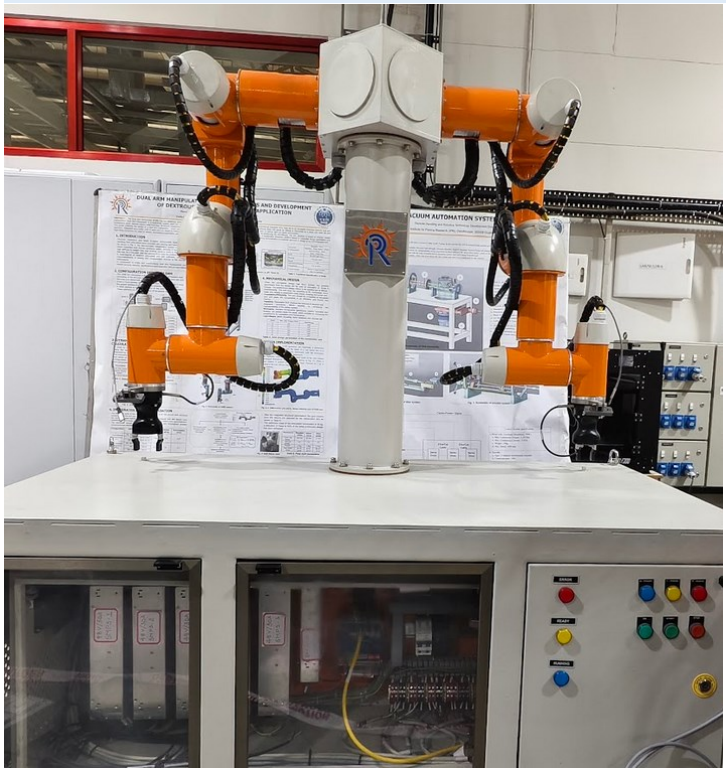
Remote Handling & Robotics Technology Development (RHRTD) Division

Dual Arm Manipulator (DAM)

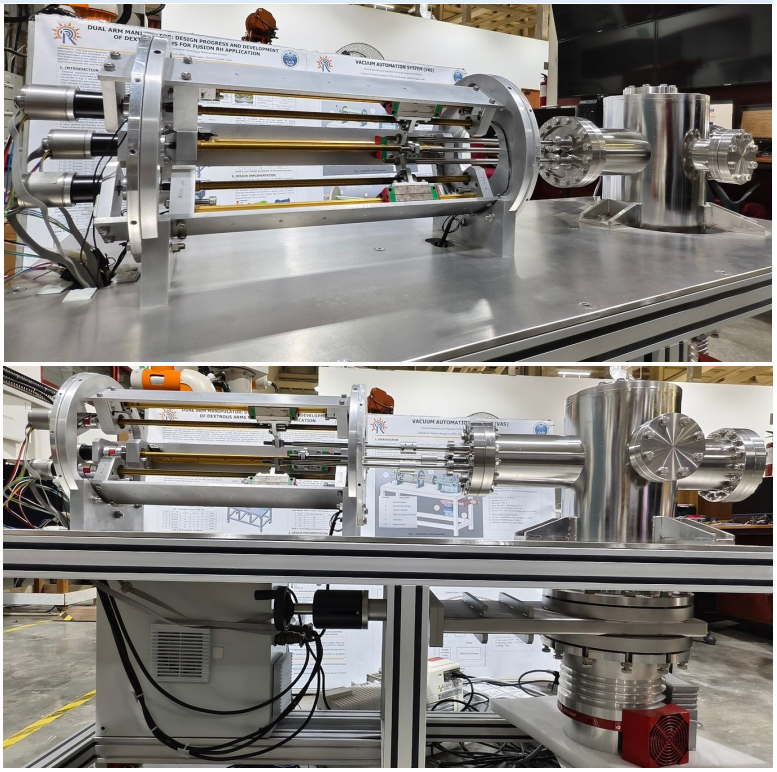
A dual-arm robotic manipulator has been developed for in-vessel RH tasks, featuring 6 joints per arm having BLDC motors equipped with both incremental and absolute encoders for high-precision control. Each arm can handle up to 5 kg payload, supported by a 25 kg central winch, and is equipped with head and hand cameras for accurate visual feedback.

Vacuum Actuation System (VAS)

A vacuum-compatible cable-driven actuation system has been developed to rotate and reposition sample tiles inside an UHV vessel (up to 1 × 10^{-7} mbar) for diagnostic applications. The system has been successfully tested for smooth and accurate operation under UHV conditions.



Dual Arm Manipulator (DAM)



Vacuum Actuation System (VAS)

3 sided fully immersive ‘AABHAS’ Virtual Reality (VR) facility

A Virtual Reality (VR) facility has been developed to provide operators with an immersive and accurate perception of remote and dynamic environments, as if they were physically present on-site. The setup includes three-sided projection screens, a 6 -DOF optical hand and head tracking system, and a haptic force-feedback arm for realistic interaction. It is supported by a dedicated 3D middleware application for seamless visualization and control. The facility is fully established and operational for remote handling and training tasks.

3 sided fully immersive ‘AABHAS’ Virtual Reality (VR) facility

Remote Handling & Robotics Technology Development (RHRTD) Division

In-vessel Inspection System (IVIS)

The In-Vessel Inspection System (IVIS) is a remotely operated robotic arm for inspection of Plasma Facing Components (PFCs) inside a tokamak without breaking the ultra-high vacuum (UHV)). It features a 6 DOF (5 rotary +1 translation), 4-meter cantilevered arm mounted on a linear guide and stored in a vacuum storage chamber for seamless insertion and retraction. The system operates at 10^{-7} mbar vacuum and maximum baking temperature of 100 °C, with VR-based remote monitoring and control for precise navigation.

In-vessel Inspection System (IVIS)

Photo of the RHRTD Division (L-R) Kuntal Pakhira, Laxya Savaliya, Ravi Ranjan Kumar, Naveen Rastogi, Krishan Kumar Gotewal (Division Head), Manoah Stephen, Jignesh Chauhan, Sudhanshu Shrivastava, Jayaram Jonnada

Rashtriya Ekta Diwas - Pledge Taking Ceremony

“Rashtriya Ekta Diwas”, also known as National Unity Day, is observed on 31 October every year, to commemorate the birth anniversary of Sardar Vallabhbhai Patel. The year 2025 marks Sardar Patel's 150th Birth Anniversary .

A pledge taking ceremony was organized at IPR as a mark of celebration on 31 October 2025. The pledge was solemnized by IPR staff members lead the Director and the Acting Chief Administrative Officer, both in Hindi and English.

The staff members passionately took the pledge and reinforced their commitment to strengthen the security, unity and integrity of the Nation.

Director, Dr. Tapas Ganguli and ACAO, Ms. Supriya Nair administering the pledge

IPR Staff members taking the Rashtriya Ekta Diwas pledge

Vigilance Awareness Week - Talk by CVO

As a part of the Vigilance Awareness Week (VAW) -2025, on 28th October 2025, a talk titled "**Vigilance Clearance: What and When**" was delivered by the Chief Vigilance Officer, Dr. N. Ramasubramanian. He discussed the concept of Vigilance Clearance applicable to the Institute. The informative talk was attended by a large number of staff members.

CVO, Dr. N. Ramasubramanian delivering his talk (L). Audience attending the talk (R)

Vigilance Awareness Week 2025 - Nukkad Natak

Under the Vigilance Awareness Programme, a Nukkad Natak was organised at the institute on 6 November 2025. The theme of the play was "**Be Alert, Be Cautious – Avoid Digital Fraud**." The street play aimed to create awareness about the increasing incidents of digital fraud and to educate participants on preventive measures in day-to-day digital transactions. The institute staff delivered an impactful and effective performance, highlighting the various forms of digital fraud, their consequences, and the precautions individuals should take to safeguard themselves.


Glimpse of the Nukkad Natak performed by IPR Staff members

Vigilance Awareness Week 2025 - Expert Talk

As a part of the Vigilance Awareness Week (VAW) 2025, Shri C.P. Zinzuvadiya (Retired Deputy Secretary and Visiting Faculty in Vigilance matters) delivered a talk on "**Vigilance- Our Shared Responsibility**" on 30th October at IPR Seminar Hall.

Dr. Anitha V. P. (R) felicitating the speaker

IPR CVO (L) introducing the guest speaker Shri C.P. Zinzuvadiya (R)


Audience attending the Talk

आर्टिफिशियल इंटेलिजेंस पर एक ज्ञानवर्धक व्याख्यान

दिनांक 11 नवंबर, 2025 को श्री मुनाफ हनीफ ने आर्टिफिशियल इंटेलिजेंस (एआई) के दिलचस्प विषय पर एक ज्ञानवर्धक व्याख्यान दिया। उन्होंने बुद्धिमत्ता की नकल करने के मानवता के समग्र प्रयास के बारे में विस्तार से बताया। श्री मुनाफ ने शतरंज में गैरी कास्पारोव को हराने वाले कंप्यूटर 'डीप ब्लू' से लेकर प्रोटीन की संरचना को समझने वाले 'अल्फाफोल्ड' तक एआई की यात्रा का वर्णन किया।

उन्होंने बताया कि कैसे एआई अब जीन एडिटिंग और एडवांस्ड मैटेरियल्स जैसे क्षेत्रों में क्रांति ला रहा है। अपनी बात को आगे बढ़ाते हुए, उन्होंने सीखने की प्रक्रिया, कार्य संस्कृति और हमारे समाज पर एआई के गहरे प्रभाव पर प्रकाश डाला। उन्होंने चैटजीपीटी, गूगल नोटबुकएलएम और गूगल एआई स्टूडियो जैसे उपयोगी एआई उपकरणों का उपयोग भी प्रदर्शित किया।

यह वार्ता सभी के लिए बहुत जानकारीपूर्ण और भविष्य की एक झलक दिखाने वाली थी।

श्री मुनाफ व्याख्यान देते हुए

(बाएं) व्याख्यान में उपस्थित श्रोतागण (दाएं) श्री निलय अध्वर्यु एवं श्री पिनाकितन देवलुक, श्री मुनाफ को भेंट देते हुए

आईपीआर का अटल इन्क्यूबेशन सेंटर – विशेष व्याख्यान

संस्थान में दिनांक 13 नवंबर 2025 को प्लाज़्माटेक इनोवेशन फ़ाउंडेशन के संस्थापक निदेशक डॉ. नीरव जामनापरा द्वारा आईपीआर के अटल इन्क्यूबेशन सेंटर (AIC) पर एक विशेष व्याख्यान दिया गया। उन्होंने बताया कि परमाणु ऊर्जा विभाग द्वारा देश में चार इन्क्यूबेशन सेंटर स्थापित किए गए हैं, जिनमें से एक आईपीआर में स्थित है।

भारत के फ्यूज़न कार्यक्रम को आगे बढ़ाने में बाहरी सहयोग की आवश्यकता पर बल देते हुए उन्होंने कहा कि AIC इन्क्यूबेशन सेंटर इस दिशा में एक महत्वपूर्ण सेतु की भूमिका निभाएगा। डॉ. नीरव ने विकसित प्रौद्योगिकियों के संवर्द्धन में AIC की महत्त्वपूर्ण भूमिका को रेखांकित करते हुए इसे संस्थान के लिए अत्यंत लाभप्रद बताया।

व्याख्यान के दौरान उन्होंने स्टार्टअप तंत्र, प्रौद्योगिकी विकास, तथा विकसित तकनीकों के प्रसार एवं उनकी उपयोगिता को प्रभावी बनाने से संबंधित विस्तृत जानकारी प्रदान की। उन्होंने यह भी बताया कि देश के डीपटेक इनोवेशन इकोसिस्टम को मज़बूत बनाने में अटल इन्क्यूबेशन सेंटर किस प्रकार एक महत्वपूर्ण भूमिका निभा सकता है, और इस विषय पर अपने सारगर्भित विचार साझा किए।

डॉ. नीरव जमनापरा व्याख्यान देते हुए

(बाएं) व्याख्यान में उपस्थित श्रोतागण (दाएं) डॉ. सुब्रोतो मुखर्जी द्वारा भेंट प्राप्त करत हुए डॉ. नीरव जमनापरा

Plasma Exhibition at Saintgits College of Engineering, Pathamuttom, Kottayam, Kerala

Institute for Plasma Research (IPR), Gandhinagar (Gujarat) in collaboration with Saintgits College of Engineering, Pathamuttom, Kottayam, Kerala, conducted Plasma Exhibition during 15-19 September 2025.

Glimpse of the Plasma Exhibition at Saintgits College of Engineering, Pathamuttom, Kottayam, Kerala

Plasma Exhibition at Bharata Mata College, Thrikkakara, Kochi, Kerala

Institute for Plasma Research (IPR), Gandhinagar (Gujarat) in collaboration with Bharata Mata College, Thrikkakara, Kochi, Kerala, conducted Plasma Exhibition during 22-26 September 2025.

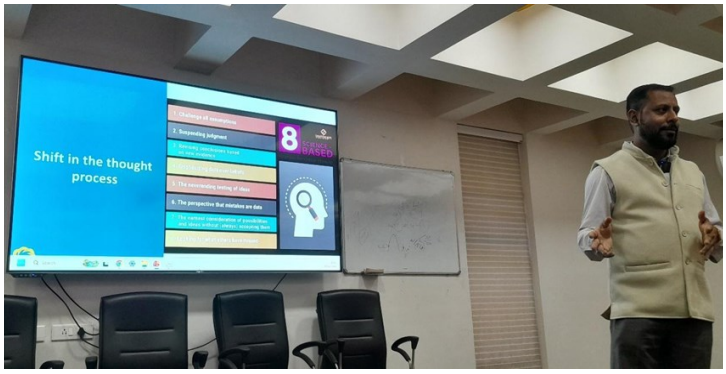
Glimpse of the Plasma Exhibition at Bharata Mata College, Thrikkakara, Kochi, Kerala

Celebration of National Entrepreneurship Day

National Entrepreneurship Day is an opportunity to celebrate India's dynamic entrepreneurial spirit and the country's rapidly expanding start-up ecosystem. Joining the nationwide celebration, a special talk was held for research scholars of IPR on November 10, 2025, by the Institute Innovation Council (IIC) and the AIC-IPR Plasmatech Innovation Foundation.

The session featured an insightful talk titled "Deeptech Plasmapreneurship" delivered by Dr. Kaushik Choudhury, CEO of the Plasmatech Innovation Foundation. Dr. Choudhury spoke about the vital role deep-tech startups play in nation-building and their contribution to the vision of Aatmanirbhar Bharat. He walked the audience through the entire innovation pathway—starting from identifying a creative idea, shaping it into an innovation, and finally transforming it into a commercially viable product.

Dr. Choudhury highlighted the inherently multidisciplinary nature of deep-tech product development, especially for plasma-based technologies. He discussed several key aspects of the innovation journey, including problem identification, intellectual property protection and patenting, forming the right team, securing funding, and assessing technology readiness levels. To inspire young innovators, he also shared real-world examples of plasma technology-based products that have successfully transitioned from research laboratories to industry. The seminar concluded with an engaging Q&A session, reflecting the keen interest of the audience. Overall, the event served as a motivating and insightful experience for students, researchers, and aspiring entrepreneurs at IPR.



Dr. Kaushik Choudhury presenting journey of a Deeptech startups during the talk

Student audience with scientific staff and faculty during the talk

IPR at Amalthea-2025, IIT Gandhinagar

IPR and AIC-Plasmatech Innovation Foundation participated in Amalthea-2025, the annual technical summit hosted by IIT Gandhinagar during 08 – 09 Nov 2025. The event brought together innovators, researchers, industry leaders, and technology enthusiasts from across the country, offering a vibrant platform for showcasing emerging deep-tech solutions and fostering meaningful collaborations.

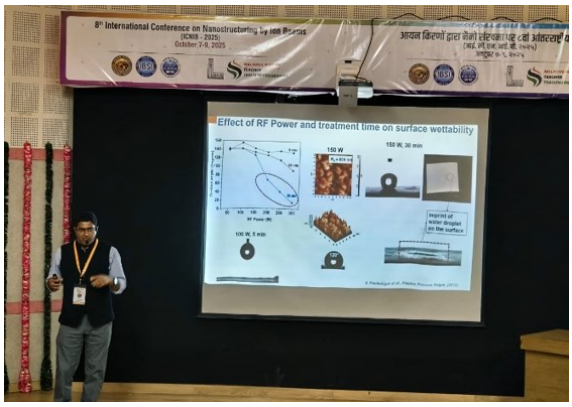
At Amalthea-2025, IPR Outreach Division (ORD) and AIC-Plasmatech presented the information about IPR's technologies, infrastructure capabilities and the opportunities available at IPR for deeptech innovations. This generated enthusiastic interest from students, faculty, and industry visitors alike. Many attendees engaged in discussions about the technology, its development journey, and its potential applications in real-world scenarios. The event provided an excellent opportunity for the startup team to network, gain visibility, and receive valuable feedback from experts and innovators.

AIC-Plasmatech CEO, Dr. Kaushik Choudhury (Top) and IPR ORD team (Bottom) presenting information about IPR Technologies at Amalthea-2025

Conference Presentations

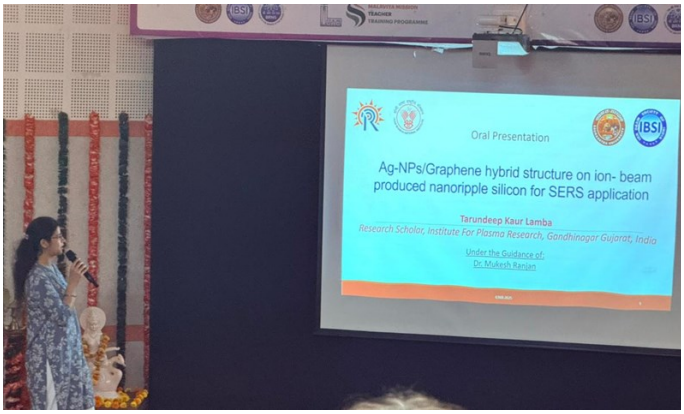
The 8th International Conference on Nanostructuring by Ion Beams (ICNIB-25) was held at Saurashtra University, Rajkot (Gujarat) during 7-9 October 2025. Dr. Mukesh Ranjan from IPR was the co-convener of the conference which was collaboratively organized with Saurashtra University, Rajkot (Gujarat) and Inter University Accelerator Centre (IUAC), New Delhi. Around 200 researcher from India and abroad participated in the Conference.

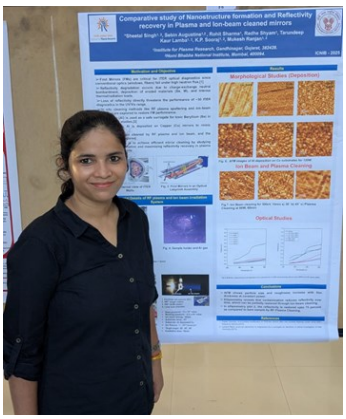
Dr. Mukesh Ranjan gave a talk and chaired the session. Dr. Sejal Shah, Dr. Radhe Shyam, Dr. Sebine Augustine, Dr. Rakhi, Dr. Sanju Rani, Dr. Kamal Kanan, Dr. Shyamapatra, Dr. Rohit Shamra, Mr. Sooraj K P, Ms. Tarundeep, Ms. Nupur Parekh and Ms. Sheetal also presented their work at the conference through oral and poster presentations. Ms. Tarundeep Kaur, Research Scholar, received the **best oral presentation award** for her work titled "**Ag-NPs/Graphene hybrid structure on ion -beam produced nanoripple silicon for SERS application**". Congratulations to Ms. Tarundeep Kaur.



Dr. Mukesh Ranjan giving his presentation

Dr. Mukesh Ranjan is being felicitated at the conference





Ms. Tarundeep Kaur presenting her work (L). Dr. Mukesh Ranjan receiving the best oral presentation award on behalf of Ms. Tarundeep Kaur from Director IUAC, Prof. Avinash Pandey (C). Ms. Sheetal Presenting her poster at the conference (R)

Group Photo of the conference participants

हिंदी व्याख्यान

संस्थान की हिंदी समिति द्वारा सेवानिवृत्त होने वाले अधिकारियों के सेवा-काल के अनुभवों को साझा करने के उद्देश्य से हिंदी में व्याख्यानों का नियमित रूप से आयोजन किया जाता है। इसी श्रृंखला के अंतर्गत दिनांक 24 नवंबर 2025 को डॉ. अनिता वी. पी., वैज्ञानिक अधिकारी-एच, द्वारा व्याख्यान प्रस्तुत किया गया। डॉ. अनिता 30 नवंबर 2025 को सेवानिवृत्त हो रही हैं।

डॉ. अनिता ने "अनुसंधान से जिम्मेदारियाँ – और उससे आगे" विषय पर अपने 29 वर्षों के अनुभवों और कार्यप्रणालियों को केंद्रित करते हुए सारगर्भित व्याख्यान दिया। उन्होंने IPR क्षेत्र में कार्य करते हुए LVPD प्रणाली से SYMPLE प्रणाली तक की यात्रा का उल्लेख किया तथा इस दौरान सामने आई चुनौतियों पर भी प्रकाश डाला। अपनी सेवा अवधि में उन्होंने 5 वर्षों तक मुख्य सतर्कता अधिकारी के रूप में भी सक्रियता और निष्ठा के साथ दायित्व निभाया है।

नृत्य, संगीत एवं गायन कलाकार के रूप में उनकी बहुमुखी प्रतिभा भी सदैव प्रशंसनीय रही है।

अपने व्याख्यान में मैडम ने जीवन के कुछ महत्वपूर्ण सूत्रों का उल्लेख किया, जिन्हें अपनाकर हम अपना आत्मविश्वास बढ़ा सकते हैं तथा अपने लक्ष्य की ओर दृढ़ता से आगे बढ़ सकते हैं।

व्याख्यान देते हुए डॉ. अनिता वी.पी

डॉ. अनिता वी.पी को भेंट प्रदान करते हुए डॉ. सुब्रोतो मुखर्जी

सभागार में उपस्थित श्रोतागण

Past Events @ IPR

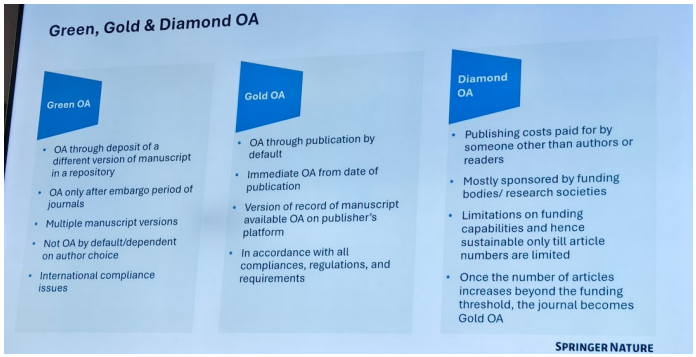
- ***Ms. Lucky Saikia,*** gave a talk on "Discharge-Driven Neutron Generation: Exploration and Application" at 9th Asia-Pacific Conference on Plasma Physics (AAPPS-DPP2025), Fukuoka International Congress Center, Japan, 21-26 September 2025
- ***Mr. Maulik Panchal,*** gave a talk on "Experimental quantification of anisotropy in effective thermal conductivity of compressed pebble beds for fusion blankets" at 22nd International Conference on Fusion Reactor Materials (ICFRM-22), Marinart, Shizuoka City, Japan, 28 September-3 October 2025
- ***Mr. Maulik Panchal,*** gave a talk on "Dual-direction hot-wire measurements of anisotropic effective thermal conductivity in fusion pebble beds" at 22nd International Workshop on the Ceramic Breeder Blanket Interactions (CBBI-22), Kyoto University, Japan, 6-8 October 2025
- ***Ms. Sheetal Singh,*** gave at talk on "Comparative study of Nanostructure formation and Reflectivity recovery in Plasma and Ion-beam cleaned mirrors" at 8th International Conference on Nanostructuring by Ion Beams (ICNIB 2025), Saurashtra University, Rajkot, 7-9 October 2025
- ***Dr. Amit K. Singh,*** gave an invited talk on "IMAS-related activities in IPR" at 17th Integrated Modelling Expert Group (IMEG) Meeting, ITER Headquarters, France, 20–22 October 2025
- ***Dr. Rakesh Moulick,*** gave an invited talk on "Innovation for Application - Rethinking the Purpose of Research" at Two-days Rashtriya Uchchatar Shiksha Abhiyan (RUSA) 2.0/ PM-USHA, Assam sponsored teachers' training programme on 'Mentoring Cutting Edge Research in the Light of NEP 2020, Kokrajhar University, Assam, 22-23 October 2025
- ***Dr. Shilpa Singh,*** gave a talk on "Cold Plasma Oxidation of Copper Powder" on 30th October 2025
- ***Mr. Tulchhi Ram,*** gave a talk on "Study of ECR Plasma Relevant to Initial Phases of Discharges in Fusion Devices" on 6th November 2025
- ***Dr. Indhu Suresh,*** Indian Institute of Technology, Tirupati, gave a talk on "Relativistic calculation of cross-sections for electron-induced processes and their application in optical plasma diagnostics and machine learning methods" on 7th November 2025
- ***Dr. Rohit Sharma,*** gave a talk on "Graphene's response to ion-beam–induced glass rippled substrates: Insights into Strain Modulation and Property Evolution" on 7th November 2025
- ***Mr. Kunal Trivedi,*** gave a talk on "Deposition and characterization of titanium nitride (TiN) coating on stainless steel and zircaloy-4 deposited by cylindrical magnetron sputtering for improved oxidation resistance" on 10th November 2025
- ***Dr. Subhojit Bose,*** gave a talk on "Design and Installation of an Improved Pre-Ionization System and Edge Fluctuation Dynamics Studies during Plasma Current Ramp-up in ADITYA-U Tokamak" on 11th November 2025
- ***Mr. Nitin D. Shah,*** gave an invited talk on "ITER Program and Indian Contribution" at Indian Cryogenics Council Golden Jubilee Conference, Variable Energy Cyclotron Centre, Kolkata, 13-14 November 2025
- ***Dr. Praveen Garg,*** UGC-DAE Consortium for Scientific Research, Indore, gave a talk on "Development of low-cost transition metal oxide based Photoelectrodes for efficient Solar Water Splitting" on 14th November 2025
- ***Dr. Kamalakkannan. K,*** gave a talk on "Depth resolved defects dynamics and recovery on ion-implanted 6H- and 4H- SiC: Insights from Raman, Luminescence and Positron Annihilation studies." on 18th November 2025
- ***Dr. Deepak Dhingra,*** Department of Earth Sciences, Indian Institute of Technology Kanpur, gave a talk on "The Rocky Moon and Icy Enceladus: Lessons for Earth" on 19th November 2025
- ***Dr. Shashank Singh,*** gave a talk on "Development of a Time of Flight Diagnostic for energy analysis of Neutral Particles in ADITYA-U Tokamak" on 21st November 2025
- ***Ms. Gayatri Barsagade,*** gave a talk on "Quasi-longitudinal whistler mode activity in magnetized plasma" on 21st November 2025

Upcoming Events

- Canadian Workshop on Fusion Energy Science and Technology (CWFEST) 2025, Online only event, 02-03 December 2025; https://www.xcdsystem.com/cns/program/2y5CSqn/index.cfm?pgid=1780
- 38th International Symposium on Superconductivity (ISS2025), Nagasaki, Japan, 02-04 December 2025; https://www.iss2025.jp/
- IAEA International Symposium on Artificial Intelligence and Nuclear Energy, Vienna, Austria, 03-04 December 2025; https://www.iaea.org/events/ai-symposium-2025
- 3-day International Conference on Material Science (3d-ICOMAS), Verona, Italy, 03-05 December 2025; https://www.3d-icomas.org/
- Materials in Nuclear Energy Systems 2025 (MiNES 2025), Ohio, United States, 07-11 December 2025; https://www.tms.org/MiNES2025
- 69th DAE Symposium on Nuclear Physics (SNP-2025), Dr B R Ambedkar National Institute of Technology Jalandhar, Punjab, 08-12 December 2025; https://sympnp.org/snp2025/
- Fusion Power Associates Annual Meeting and Symposium: Fusion Research: Status and the Next Ten Years, Washington, USA, 09-10 December 2025; https://www.eventbrite.com/e/fusion-power-associates-annual-meeting-and-symposium-tickets-1482203593849?aff=oddtdtcreator
- IAEA Workshop on Digital Engineering for Fusion Energy Research, Massachusetts, USA, 09-12 December 2025; https://conferences.iaea.org/event/412/
- 41st DAE Safety & Occupational Health Professional Meet (DAE-SOHPM), Institute For Plasma Research (IPR), Gandhinagar, 17-19 December 2025; https://www.ipr.res.in/DAESOHPM41/
- International Conference on Atomic, Molecular, Nano and Optical Physics with Applications (IAMNOP-2025), Jawaharlal Nehru University, New Delhi, 17-19 December 2025; https://iamnop2025.org/
- 9th European Conference on Electrical Engineering and Computer Science (ELECS 2025), Athens, Greece, 21-23 December 2025; https://www.elecs.org/
- 8th International Conference on Environment, Chemical Engineering & Materials (ENCEMA), Athens, Greece, 21-23 December 2025; https://www.encema.org/
- International Congress on Theoretical and Applied Mechanics, Fluid Mechanics, Heat and Mass Transfer (MECHANICA 2025), Athens, Greece, 21-23 December 2025; https://mechanica.iapub.org/

Workshop on Springer Nature OA Agreement under ODOS Consortium

IPR Library in collaboration with Springer Nature, organized a workshop session on the Open Access (OA) Agreement under One DAE One Subscription (ODOS) consortium on 13 Nov 2025. The session highlighted various aspects of OA publishing with special emphasis on the benefits of OA agreement under ODOS.



Mr. Neeraj Karandikar (Top Left) from Springer Nature conducting the session at IPR

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Know Your Colleague

Ms Priyanka Verma joined IPR in 2023 as a Scientific Assistant-B in the Aditya-U Operations Division. She holds a B.Sc. (Hons.) in Physics (2021) and M.Sc. in Physics (2023) from Panjab University, Chandigarh, where she completed her Master’s project on Quantum Annealing. She is actively involved in machine readiness activities, subsystem operations during plasma shots, and ensuring smooth machine shutdowns. Her work also includes Rogowski coil fabrication, equipment calibration, magnetic field analysis, and developing digital tools such as an electronic logbook for electrical parameters and metadata management software for tokamak diagnostic probes. Priyanka has participated in several workshops and training programs, including the IUCAA summer school and International Remote Student Training at JINR, Dubna, Russia. She was also a Bronze Honour recipient in the International Astronomy and Astrophysics Competition (2020). Priyanka actively participates in IPR activities and competitions. In the past, she has been associated as a content writer for Beyond Science Magazine. Outside of work, Priyanka enjoys art, painting, and spending time in nature.

Superannuation

DR ANITHA V P

Superannuated from Services on 30 Nov 2025 after serving the Institute for more than 28 years.

IPR Wishes you a very Happy & Healthy Retired Life!

SHRI SUNIL MISAL

Superannuated from Services on 30 Nov 2025 after serving the Institute for more than 28 years.

IPR Wishes you a very Happy & Healthy Retired Life!

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