The 4th State
Newsletter of the Institute for Plasma Research, Gandhinagar, Gujarat (India)
Issue 147, October 2025

अखिल भारतीय राजभाषा सम्मेलन

पांचवां अखिल भारतीय राजभाषा सम्मेलन का आयोजन **14–15 सितम्बर, 2025** को राजभाषा विभाग, गृह मंत्रालय, भारत सरकार द्वारा *महात्मा गांधी कन्वेंशन सेंटर, गांधीनगर* में किया गया। इस सम्मेलन में भारत के माननीय गृहमंत्री श्री अमित शाह, गुजरात के माननीय मुख्यमंत्री श्री भूपेन्द्र पटेल सहित भारत सरकार के अनेक वरिष्ठ अधिकारी तथा विभिन्न कार्यालयों के राजभाषा संवर्ग से जुड़े अधिकारीगण उपस्थित रहे।

माननीय गृह एवं सहकारिता मंत्री जी से पुरस्का प्राप्त करने हुए श्री सुनील गंजू, प्रमुख, एनसीपीडब्ल्यू, पऊवि एवं वैज्ञानिक सचिव, पऊआ

प्लाज़्मा अनुसंधान संस्थान (आईपीआर) की ओर से **डॉ. तापस गांगुली, निदेशक; डॉ. परितोष चौधरी, डीन (आर एंड डी); श्रीमती सुप्रिया नायर, कार्यकारी मुख्य प्रशासनिक अधिकारी; डॉ. राज सिंह, वैज्ञानिक अधिकारी-एच** तथा अन्य अधिकारियों ने सक्रिय सहभागिता की। सम्मेलन के उद्घाटन समारोह में **परमाणु ऊर्जा विभाग** को राजभाषा नीति के उत्कृष्ट कार्यान्वयन के लिए भारत सरकार के लिए राजभाषा कीर्ति *प्रथम पुरस्कार (*वर्ष 2024-25) से सम्मानित किया गया, जिसे भारत के माननीय गृहमंत्री श्री अमित शाह द्वारा प्रदान किया गया। **परमाणु ऊर्जा विभाग** की ओर से यह पुरस्कार **श्री सुनील गंजू, प्रमुख, एनसीपीडब्ल्यू, पऊवि एवं वैज्ञानिक सचिव, पऊआ ने प्राप्त किया।**

इस समारोह में नगर राजभाषा कार्यान्वयन समिति के लिए राष्ट्रीय स्तर पर **नराकास गांधीनगर** को 'ख' क्षेत्र के अंतर्गत 'नराकास राजभाषा सम्मान' **द्वितीय पुरस्कार** से सम्मानित किया गया।

यह सम्मेलन एक अत्यंत समृद्ध और प्रेरणादायक अनुभव सिद्ध हुआ, जिसने हिंदी भाषा को एक सेतु के रूप में समझने और राष्ट्रीय एकता एवं सांस्कृतिक पहचान को सुदृढ़ करने के लिए एक महत्त्वपूर्ण मंच उपलब्ध कराया। इस आयोजन ने न केवल भाषा के प्रति जागरूकता को बढ़ाया, बल्कि सभी प्रतिभागियों को राजभाषा के संवर्धन एवं प्रयोग को प्रोत्साहित करने हेतु नई ऊर्जा और उत्साह प्रदान किया।

अखिल भारतीय राजभाषा सम्मेलन

(बाएं से दाएं) डॉ. सूर्यकान्त गुप्ता, श्री हरीशचन्द्र खण्डूरी, श्री पिनाकिन देवलुक, सुश्री अंजलि सिन्हा, श्री सुनील गंजू, डॉ. तापस गांगुली, डॉ. परितोष चौधुरी, डॉ. राज सिंह, सुश्री फाल्गुनी शाह, श्रीमती सुप्रिया नायर एवं डॉ. संध्या दवे

हिंदी पखवाड़ा – विशेष व्याख्यान

हिंदी पखवाड़ा–2025 के अंतर्गत "आइए परमाणु ऊर्जा विभाग को जानें" विषय पर एक विशेष व्याख्यान दिनांक 16 सितम्बर 2025 को सेमिनार हॉल में आयोजित किया गया। इस अवसर पर परमाणु ऊर्जा विभाग, मुंबई के निदेशक (राजभाषा) श्री अचलेश्वर सिंह मुख्य वक्ता के रूप में उपस्थित थे।

व्याख्यान की शुरुआत में श्री अचलेश्वर सिंह ने परमाणु ऊर्जा विभाग की विजन साझा की। उन्होंने बताया कि विभाग का मुख्य उद्देश्य भारत को प्रौद्योगिकी के माध्यम से सशक्त बनाना, नागरिकों के जीवन की गुणवत्ता को बेहतर बनाना तथा ऊर्जा आत्मनिर्भरता की दिशा में महत्वपूर्ण योगदान देना है। उन्होंने कहा कि विभाग न केवल ऊर्जा उत्पादन में बल्कि कृषि, स्वास्थ्य, खाद्य सुरक्षा और चिकित्सा के क्षेत्रों में भी अपनी उल्लेखनीय भूमिका निभा रहा है।

उन्होंने रिएक्टरों से निकलने वाले रेडियोधर्मी अपशिष्ट के पुनर्चक्रण की प्रक्रिया विस्तार से समझाई, जिससे पर्यावरणीय प्रभाव न्यूनतम रहता है। साथ ही, परमाणु संयंत्रों के रक्षा और सुरक्षा तंत्र के बारे में जानकारी देते हुए जनसुरक्षा और पर्यावरण सुरक्षा सुनिश्चित करने पर जोर दिया। व्याख्यान में विभाग के फ्यूज़न कार्यक्रम, मौलिक अनुसंधान को समर्थन, विश्वविद्यालयों के साथ सहयोग तथा अंतरराष्ट्रीय साझेदारी पर भी चर्चा हुई। श्री सिंह ने स्पष्ट किया कि परमाणु ऊर्जा विभाग ऊर्जा क्षेत्र के साथ-साथ विज्ञान, कृषि, औषधि एवं खाद्य सुरक्षा जैसे विविध क्षेत्रों में देश की प्रगति में महत्वपूर्ण भूमिका निभा रहा है।

यह सत्र परस्पर संवादात्मक रहा। व्याख्यान के दौरान कई जिज्ञासु श्रोताओं ने प्रश्न पूछे, जिनका श्री सिंह ने सरल भाषा में स्पष्ट उत्तर दिया। इस व्याख्यान के माध्यम से श्रोतागणों को परमाणु ऊर्जा विभाग की व्यापक गतिविधियों को एक मंच पर सहज और सरल भाषा में समझने का सुअवसर प्राप्त हुआ। निस्संदेह, यह व्याख्यान सभी श्रोताओं के लिए ज्ञानवर्धक एवं उपयोगी साबित हुआ।

श्री अचलेश्वर जी का स्वागत करते हुए डॉ. राजसिंह

श्री अचलेश्वर सिंह व्याख्यान देते हुए

स्मृति चिन्ह प्रदान करते हुए डॉ. बी.के शुक्ला

Behavior of magneto-convective fluctuations in MHD duct flow under differently heated walls and applied magnetic field direction

Magneto-convective fluctuations produce temperature fluctuation in liquid metal flowing in a heated duct under transverse magnetic field. Such fluctuations may appear in liquid breeder blankets pertaining to fusion reactor depending upon specific flow parameters. Numerical simulations are carried out to better understand the phenomenon in a horizontal square duct with different wall heating configuration and applied magnetic field direction. Two distinctive features have been observed. In the case of magnetic field applied transverse to gravity, the convection rolls align with the magnetic field direction (HMF case). However, the convection rolls are sliced into multiple rolls, when the magnetic field is applied along the gravity direction (VMF case). A detailed study reveals that the observed fluctuations and slicing of convection rolls are the result of axial current generated due to the buoyancy forces in the fluid.

The paper is authored by Srikanta Sahu, Suneet Singh, Rajendraprasad Bhattacharyay, published online in the International Journal of Thermal Sciences, Vol. 219, Jan 2026, 110203

Full-Text: https://doi.org/10.1016/j.ijheatfluidflow.2025.109961

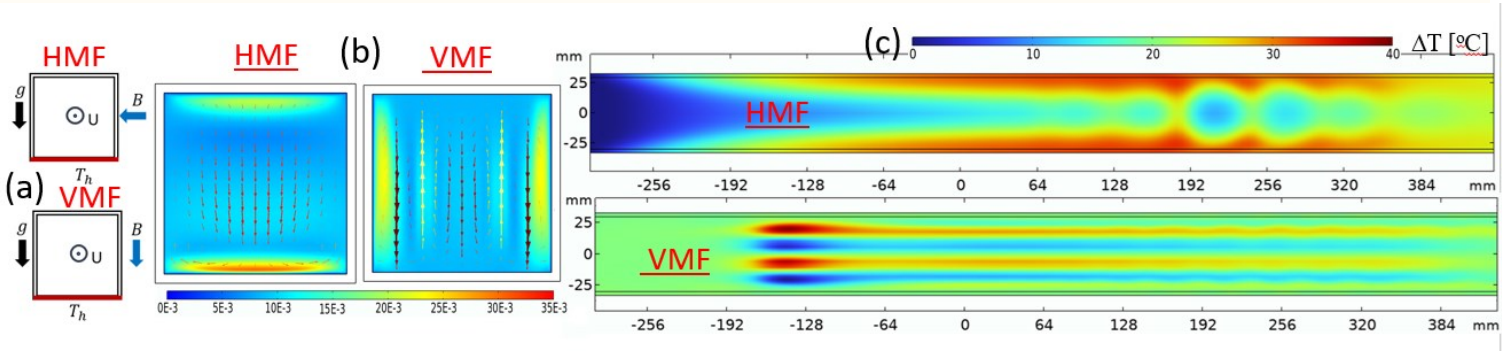
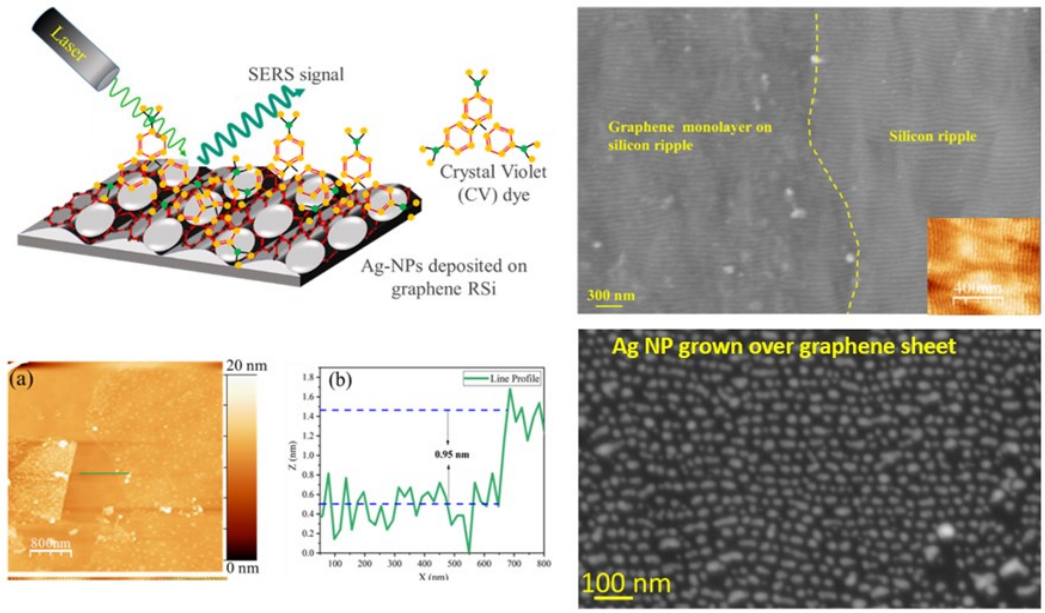


Figure: (a) Heating configuration in square duct for HMF & VMF, (b) comparison of velocity (U [m/s]) profile in HMF and VMF cases at 10 mm away from the heated section, (c) comparison of temperature distribution in the mid horizontal plane

Molecular detection using SERS with Ag-NPs/Graphene hybrid structure

With the help of metal nanoparticles Surface Enhanced Raman Scattering (SERS) is used for detecting various molecules like food adulterants, pesticides, disease diagnostics etc. Graphene is a single-atom- atomically flat, chemically tunable surface allows controlled adsorption and orientation of analyte molecules. As a support for noble-metal nanoparticles (NPs), graphene helps create dense, reproducible “hot-spots” these graphene–metal hybrids are powerful, stable substrates for ultrasensitive SERS detection. We report, for the first time, the transfer of graphene onto ion-beam-fabricated silicon ripple patterns. The graphene conforms seamlessly to the rippled topology, as confirmed by AFM and SEM as shown in the Figure. Furthermore, depositing silver nanoparticles (Ag-NPs) on the graphene-covered ripples yields elongated NP geometries with reduced interparticle spacing, compared with deposition on ripples without graphene. The graphene–Ag-NP hybrid substrate, tested with crystal violet (CV), achieves a detection limit of 10−10 M, demonstrating strong suitability for SERS applications.



Graphene Sheet over prepatterned surfaces and metal nanoparticles grown over it for the SERS measurements

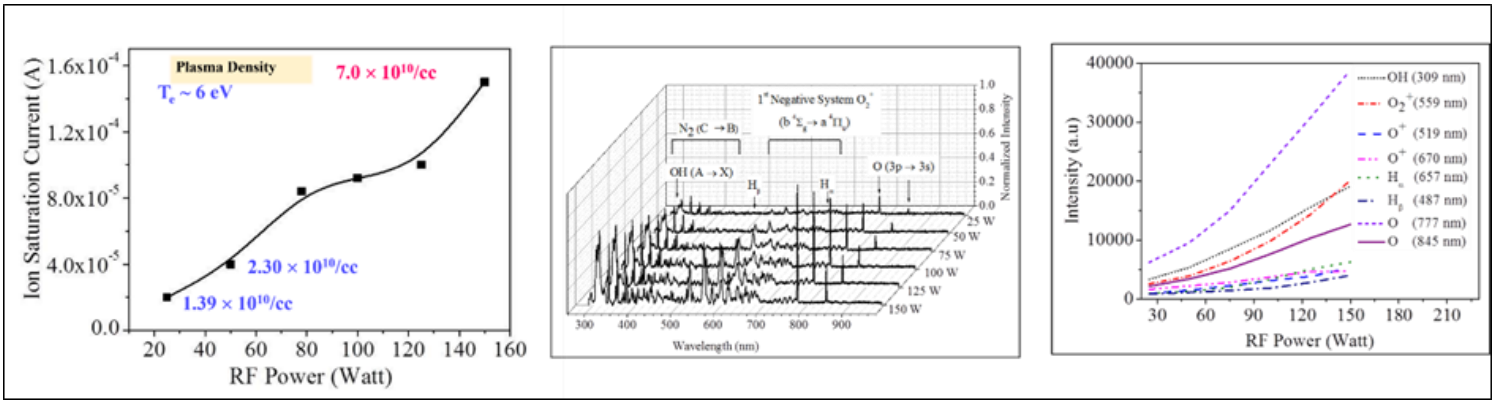
The published work “***Investigation of Ag-NPs/ Graphene hybrid structure on nanoripple silicon for SERS application***” is authored by Tarundeep Kaur Lamba, Rohit Sharma, K.P. Sooraj, Sebin Augustine, Radhe Shyam, Mukesh Ranjan, published in Applied Surface Science (2025).

Full-text: https://doi.org/10.1016/j.apsusc.2025.164374

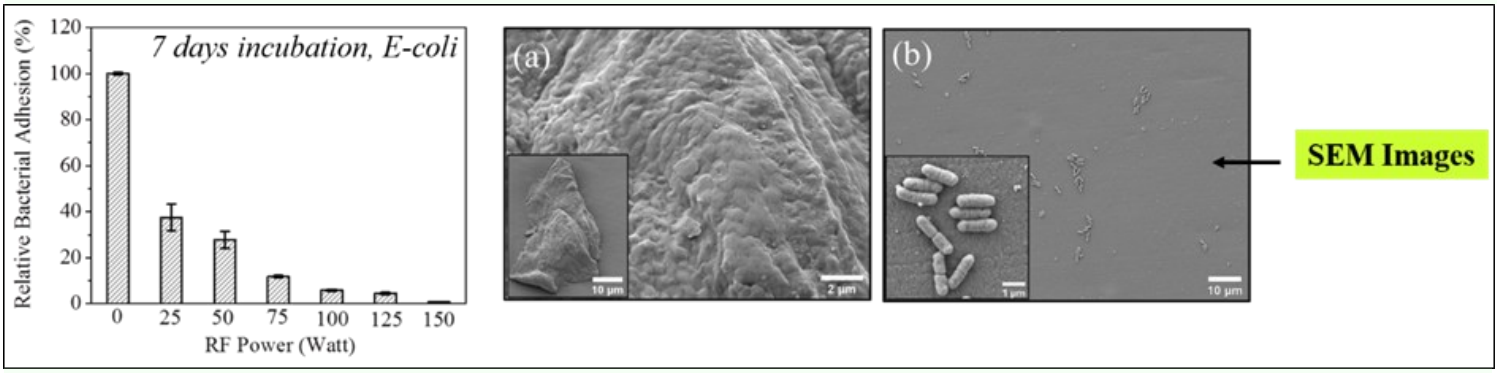
Doctoral Research Spotlight

Surface Modification of Silicone Catheters to Mitigate Bacterial Adhesion and Biofilm Formation by Purvi Dave

The thesis investigates plasma surface modification as a single-step, innovative solution to reduce bacterial adhesion and biofilm formation on silicone catheters, widely used in medical procedures but prone to catheter-associated urinary tract infections (CA-UTIs). Focusing on uropathogenic Escherichia coli and other bacterial strains, the research aims to create non-toxic, antibiotic-free, biofilm-resistant catheters by altering their surface properties. In this study silicone catheter samples were subjected to plasma treatment under varying process parameters, including power levels, treatment durations, gas compositions (such as oxygen and argon), and driving frequency. Plasma density, electron temperature and gas phase reactive species were estimated by Langmuir probe measurements and OES analysis respectively as shown in fig -1.



Surface characterization techniques, including contact angle measurements, FT-IR spectroscopy, and AFM, evaluated changes in hydrophilicity, surface energy, functionalities, and topography. Bacterial adhesion and biofilm formation on plasma-treated catheters were assessed using E. coli, with adhesion quantified as CFU and relative percentages. Plasma-treated catheters significantly reduced bacterial adhesion and biofilm formation compared to untreated controls (Fig. 2).



Among the various process parameters investigated in this study, the RF power was found to have the most significant impact on bacterial adhesion properties. Among 40 kHz and 13.56 MHz driving frequencies, 13.56 MHz plasma discharge irrespective of plasma forming gas (argon / oxygen) resulted in higher surface energy and surface roughness due to higher plasma density and thus better biofilm resistant catheter surface compared to other plasma discharge conditions.

Publications:

1] Purvi Dave, C Balasubramanian, Chirayu Patil, Ramakrishna Rane and Sudhir K Nema, Influence of plasma-forming gas and plasma source driving frequency on surface properties of silicone catheters for reducing bacterial adhesion, Plasma Science and Technology, (2025)

2] Purvi Dave, C. Balasubramanian, Sukriti Hans, Vikas Rathore, S. K. Nema, Influence of RF Power on Wettability, Morphology and Bacterial Adhesion Properties of Oxygen Plasma Treated Silicone Catheter Surfaces, Plasma Chemistry and Plasma Processing, (2024)

3] Purvi Dave, C. Balasubramanian, Sukriti Hans, Chirayu Patil and S. K. Nema, Oxygen Plasma for Prevention of Biofilm Formation on Silicone Catheter Surfaces: Influence of Plasma Exposure Time, Plasma Chemistry and Plasma Processing, (2023)

Purvi Dave

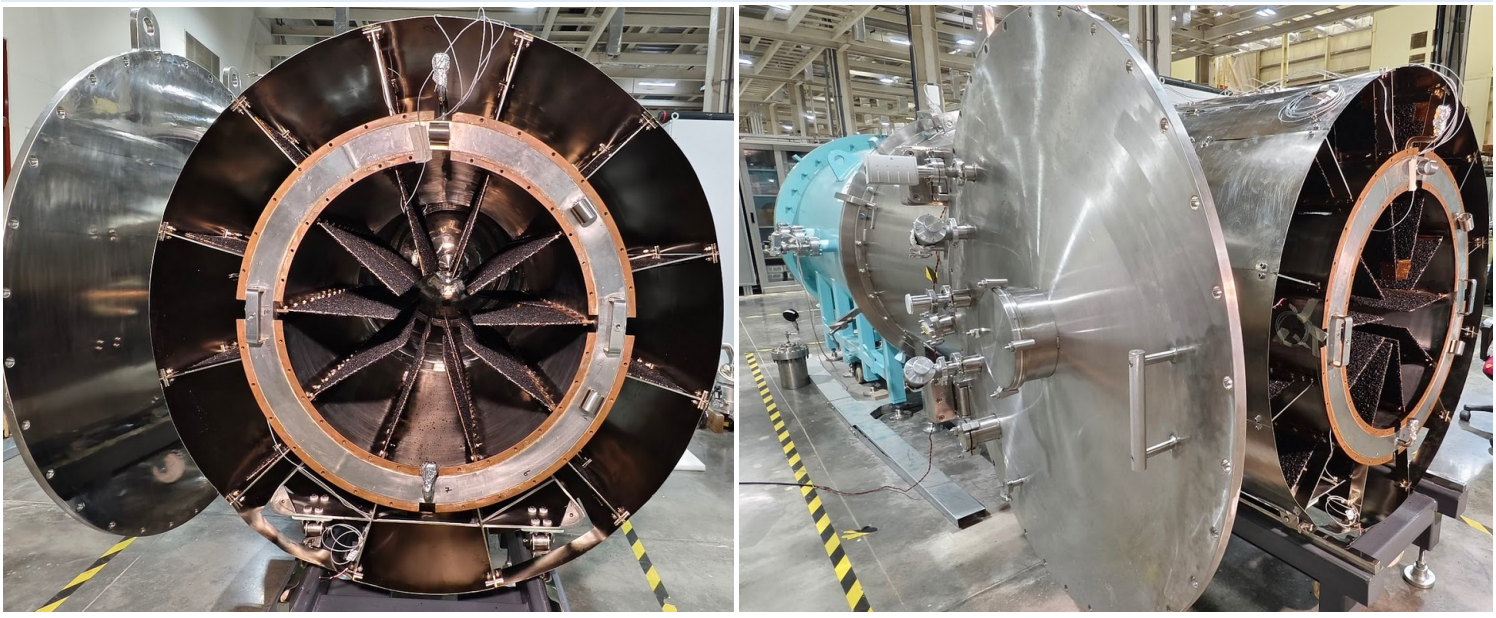
Cryopump and Pellet Injector Division

Photo of the Group members lead by Dr. Ranjana Gangradey (Standing 3rd from Left)

The division is involved in developing indigenous technologies related to exhaust and fueling of fusion machine. The journey of the group started with developing liquid helium based cryoadsorption cryopumps to pump gases like hydrogen and helium. Task of development of materials like sorbent and adhesive for the project was carried out through Indian industries. The spinoff resulted in quality microporous sorbent and a thermal conducting glue compatible to sustain thermal cycling from 4 K to 400 K. To qualify the materials the division has established various characterization facilities like adsorption system for isotherm study to characterize the sorbent material, outgassing rate measurement system, thermal conductivity measurement system for cryogenic temperature, thermal cycling system from 4 K to room temperature etc. The Division also gained experience in the design aspects covering transmission probability, structural and thermal analysis and coming up with optimized design for a given specification. Various cryopumps providing pumping speed range for helium gas, 2000 l/s, 14000 l/s, 50,000 l/s were developed and tested.

The division then went ahead with developing liquid nitrogen based cryopumps to pump nitrogen and water vapor. The pumps have application in pumping large volume chambers. A novel Cryogenic Vacuum Producing System (CVPS) was developed providing pumping speed of 4000 l/s for N_2 and 15000 l/s for H_2O. It requires no electrical power as it is liquid nitrogen bath based and has no moving parts which minimizes the mechanical wear and tear and thus maintenance. A patent has been awarded for CVPS with Indian Patent No. 504062 and then CVPS is brand named as **AGASTYA (A GAS Trapping YAntra)**. Three pumps were developed for ISRO under a MoU to evacuate large volume chambers to test vacuum compatibility of satellite and its components and at present AGASTYA 1250 is under test phase.

Thus the division now has good experience as they developed AGASTYA with openings 250 mm, 400 mm, 500 mm, and 1250 mm finding application in Fusion and space research. The infrastructure to test these pumps is available in the division.

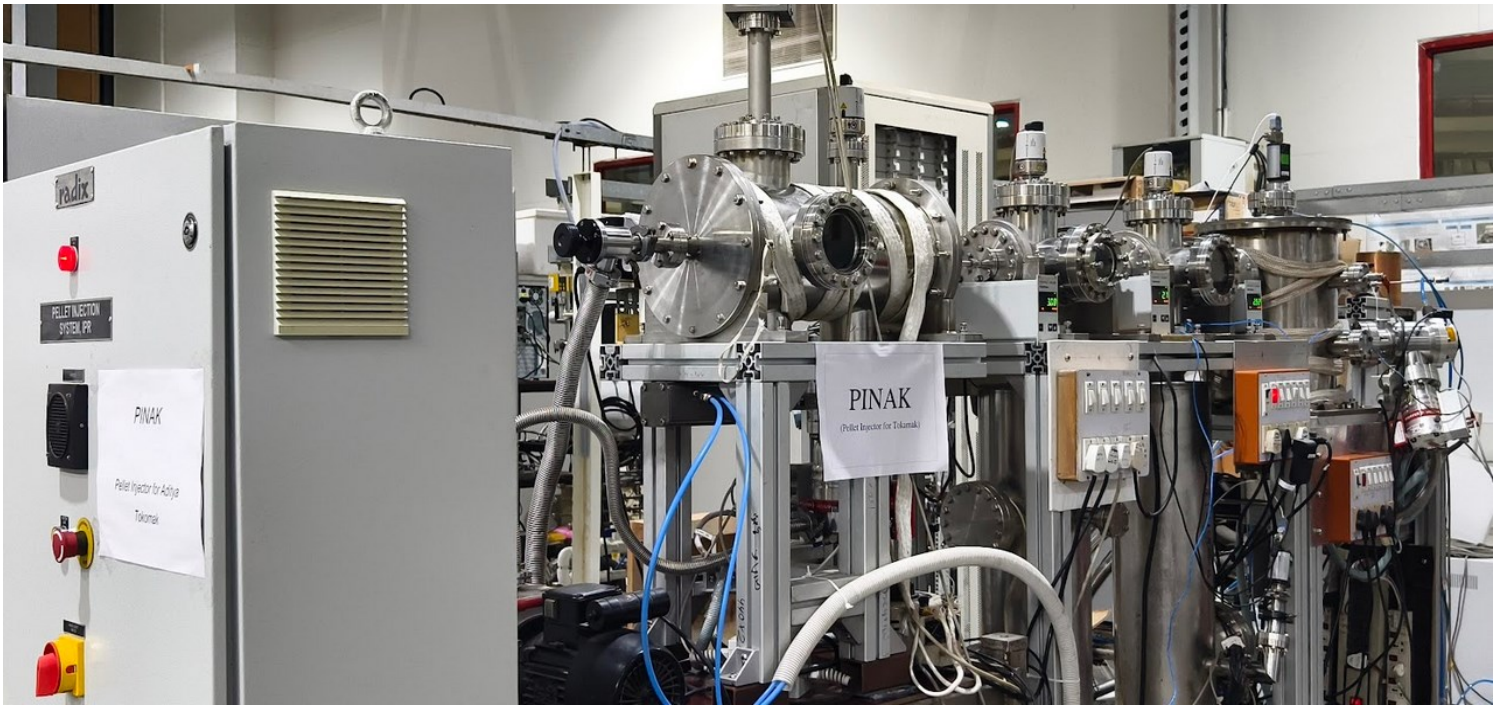


A inside view of the AGASTYA-1250

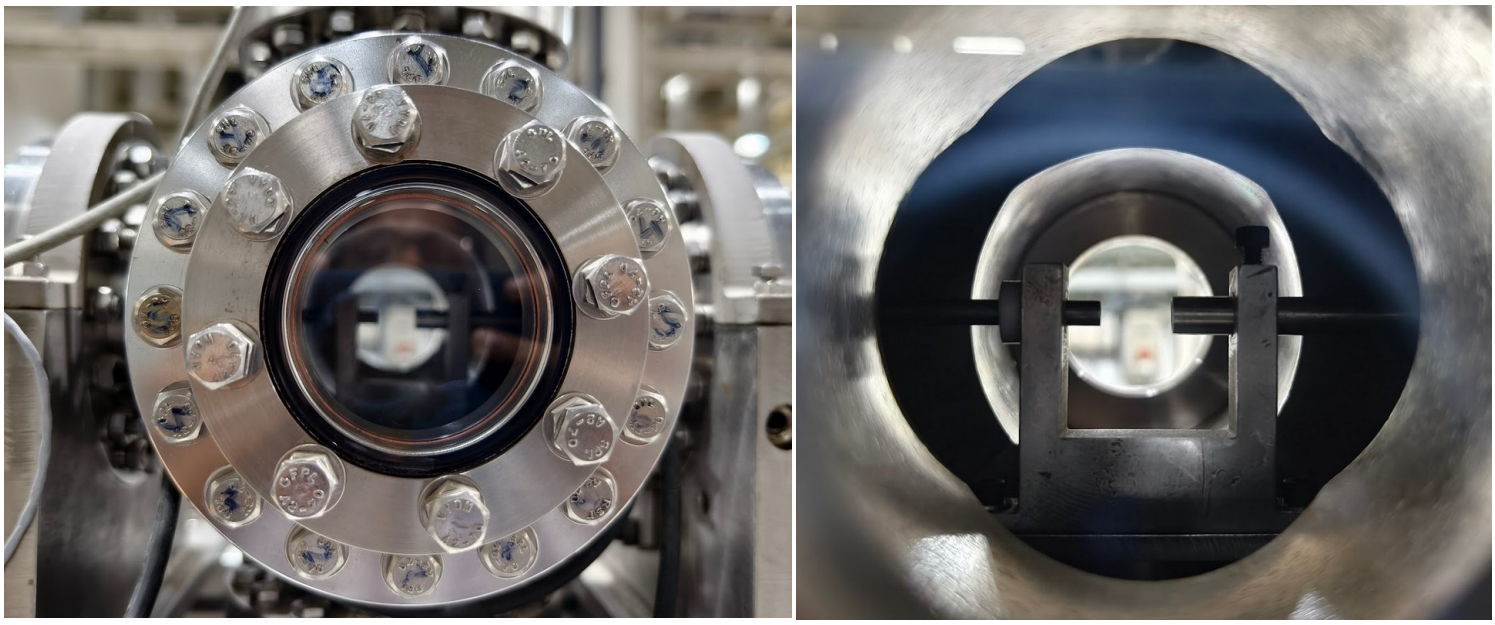
Cryopump and Pellet Injector Division

In fusion reactors, matter exists in the plasma state at temperatures reaching millions of kelvin, enabling the fusion of atomic nuclei. Hydrogen and its isotopes serve as the primary fuel source for sustaining these reactions. However, effective fueling of the reactor and plasma control (disruption mitigation, Edge Localized Modes (ELM) mitigation, etc.) are among the key challenges in realizing the fusion energy. To address these issues, the injection of cryogenically cooled frozen solid hydrogen ice pellets into the plasma at high velocities (100–1000 m/s) has proven to be an effective strategy. In order to achieve the self-sufficiency in technology development, the division developed a **Pellet INjector for tokamAK (PINAK)**. This system reliably produces cylindrical pellets of length 1 to 6 mm (length/diameter =1 to 1.5) and speed between 80 and 1000 m/s. The pellets are launched using either a high-pressure propellant through a gas gun or an indigenously developed mechanical launcher, which offers variable-speed pellet injection to accommodate diverse experimental requirements. This system is remotely operated by using a commercial PLC and in-house SCADA developed using the LabVIEW application.

The technology of PINAK is available with few developed countries. The successful development of PINAK technology puts IPR and India on the global map alongside the leading labs such as ORNL, USA and Pellin Laboratory, Russia as pioneers in the development of pellet injector.



A view of the PINAK system with its different sub systems



An inside view of the PINAK system highlighting the transition jump in the pellet flying tubes

Academic Visits to IPR

Date	Institution	Visitors
04 Aug 2025	Vishwakarma Government Engineering College,Chandkheda	50 Students and 02 Faculties, ECE, 4th Sem
06 Aug 2025	Institute of Technology, Nirma University, Ahmedabad	84 Students and 02 Faculties ,B.Tech, Sem 5 CS/IT (Batch 1)
07 Aug 2025	Institute of Technology, Nirma University, Ahmedabad	81 Students and 02 faculties, B.Tech., Sem 5
08 Aug 2025	UCP Institute of Technology, Sardar Vallabhbhai Global University, Ahmedabad	89 Students and 02 faculties
12 Aug 2025	Government Engineering College, Modasa	42 Students and 01 Faculty, CE and IT, 3rd and 5th Sem.
14 Aug 2025	Government Engineering College, Modasa	28 Students and 02 faculties, B.E.(Elec.)5th and 7th Sem
18 Aug 2025	Gems Genesis International School, Ahmedabad	51 Students and 03 Teachers, Std. 10-12.
19 Aug 2025	Gems Genesis International School, Ahmedabad	28 Students and 02 Teachers, Std. 10-12.
20 Aug 2025	Institute of Technology, Nirma University, Ahmedabad	72 Students and 2 Faculties, Sem 3, ECE
21 Aug 2025	Institute of Technology, Nirma University, Ahmedabad	71 Students and 2 Faculties, Sem 3, ECE
22 Aug 2025	Apollo International School, Ahmedabad	17 Students and 02 teachers, 11-12 Sci.
25 Aug 2025	Airport school, Ahmedabad	24 Students and 02 Teachers, 11-12 Sci.
26 Aug 2025	Scholar Career Academy, Ahmedabad	117 Students and 01Faculty, 11-12 Sci.
28 Aug 2025	Multi Task Staff (MTS) of IPR	53 Staff Members
29 Aug 2025	Atmiya University, Rajkot	44 Students and 3 Faculties, IT, 5th and 7th Sem.

Students and faculties from Vishwakarma Government Engineering College, Chandkheda visiting IPR on 04 August 2025

Students and faculties from Nirma University, Ahmedabad visiting IPR on 07 August 2025

Academic Visits to IPR

Students and Faculty from UCP Institute of Technology, Sardar Vallabhbhai Global University, Ahmedabad visiting IPR on 08 August 2025

Students and teachers from Gems Genesis International School, Ahmedabad IPR on 18 and 19th August 2025

Students and Teachers from Airport School, Ahmedabad visiting IPR on 25 August 2025

Students and Teachers from Scholar Career Academy, Ahmedabad visiting IPR on 26 August 2025

Academic Visits to IPR

Multi Task Staff (MTS) members of IPR visiting IPR on 28 August 2025, during their orientation program

Plasma Exhibition at KSNUA & HS, Shivamogga, Karnataka

Institute for Plasma Research (IPR), Gandhinagar (Gujarat) in collaboration with Keladi Shivappa Nayaka University of Agricultural & Horticultural Sciences, (KSNUA & HS), Shivamogga, Karnataka, conducted Plasma Exhibition during 18-22 August 2025.

Glimpse of the Plasma Exhibition at KSNUA & HS, Shivamogga, Karnataka

Plasma Exhibition at SSSE, Tumakuru, Karnataka

Institute for Plasma Research (IPR), Gandhinagar (Gujarat) in collaboration with Sri Siddartha School of Engineering, Tumakuru Karnataka, conducted Plasma Exhibition during 25-29 August 2025.






Glimpse of the Plasma Exhibition at SSSE, Tumakuru, Karnataka

Conference Presentations

Dr. Mukesh Ranjan, gave an invited talk title “Low energy ion surface modification for water harvesting” in 25th International Workshop on Inelastic Ion-Surface Collisions (IISC-25), held in September 14-19, 2025 at Steinschaler Dörfl in Frankenfels, Austria. Communities of ion solid interactions, plasma material interaction and ion beam centres participated in the event..

Dr. Mukesh Ranjan delivering his invited talk (L). Group Photo of the conference participants (R)

Dr. Rajiv Sharma, gave an invited talk on "***Glass Fiber Composites insulation material for cryogenics and fusion application***" at 4th Composite Industries National Conclave and Exhibition (CINCE 2025), Ahmedabad University, Ahmedabad, 19-21 September 2025.

Dr. Rajiv Sharma delivering his invited talk (L) and receiving the appreciation (R)

Talk on Writing Impactful Manuscript for Journal Publications

IPR Library organized a talk on "**Writing an Impactful Manuscript for Journal Publication: Insights from an Author, Reviewer and Editor**” on 22 Sep 2025 at IPR. The talk was delivered by Dr. Reeshab Goenka, Senior Scientific Editor, Energy Journals, Elsevier.

The talk highlighted useful tips to write manuscripts suitable for journal publication. Insights from an author’s, a reviewer’s, and an editor’s perspective, delineating the important aspects of the manuscript were shared. The talk also discussed about the Journal selection and submission, the peer review process and what to do in the face of rejection. It also discussed about scientific publishing ethics and more specifically the responsible use of AI in scientific writing.

More than 80 participants attended the talk at IPR Seminar Hall and around 20 participants remotely joined the informative talk.

Dr. Reeshab Goenka

Participants attending the Talk on Writing Impactful Manuscript for Journal Publications

Past Events @ IPR

- ***Ms. Priyavandana J. Rathod,*** gave a talk on "Experimental Investigation on Interaction of Electromagnetic Waves in an Over-dense Plasmas" on 08th September 2025
- ***Mr. Ayan Adhikari,*** gave a talk on "Study of the Dynamics of Cross-Field Diffusion and Turbulence in a Magnetically Screened High-Beta Plasma" on 11th September 2025
- ***Dr. Mahima Sheoran,*** Amity Institute of Nano Technology, Noida, gave a talk on "Synthesis and Characterization of Nanomaterials for Energy Applications" on 12th September 2025
- ***Dr. Piyush Prajapati,*** gave a talk on "Helium cooled solid breeder blanket concepts studies for Indian fusion pilot plant" on 18th September 2025
- ***Dr. Rajiv Sharma,*** gave an invited talk on "Glass Fiber Composites insulation material for cryogenics and fusion application" at 4th Composite Industries National Conclave and Exhibition (CINCE 2025), Ahmedabad University, Ahmedabad, 19-21 September 2025
- ***Dr. Snehanshu Maiti,*** gave a talk on "Particle transport in 2D Navier-Stokes fluids" on 22nd September 2025
- ***Dr. Akanchha,*** Indian Institute of Technology, Kanpur, gave a talk on "Study of Three Different Problems Related to Nuclear Security" on 26th September 2025
- ***Dr. Ankita Saxena,*** gave a talk on "Radiated Power Loss Analysis in ADITYA-U Tokamak Plasma Discharges Using an Infrared Imaging Video Bolometer (IRVB)" on 30th September 2025
- ***Dr. Daniel Raju,*** gave a talk on "Integrated Modelling & Analysis Suite (IMAS) - Let's start using it!" on 30th September 2025

Upcoming Events

- Advanced Nuclear Reactor Design 2025, Manchester, United Kingdom, 1-2 October 2025; https://eventsportal.imeche.org/event/sessions?id=Advanced_Nuclear_Reactor_Design_2025
- TopFuel 2025: Nuclear Reactor Fuel Performance Conference, Nashville, 5-9 October 2025; https://www.ans.org/meetings/topfuel2025/
- 22nd International Workshop on the Ceramic Breeder Blanket Interactions (CBBI-22), will be held jointly with the 17th International Workshop on Beryllium Technology, Kyoto University, 6–8 October 2025; https://indico.nifs.ac.jp/event/17/
- 8th International Conference on Nanostructuring by Ion Beams (ICNIB 2025), Saurashtra University, Rajkot, 7-9 October 2025; https://sites.google.com/view/icnib2025
- Symposium on Information, Data and Knowledge Management for Radioactive Waste: Challenges Across All Timescales, Yokohama, Japan, 7-10 October 2025; https://oecd-nea.org/jcms/pl_97583/symposium-on-information-data-and-knowledge-management-for-radioactive-waste-challenges-across-all-timescales
- 78th Annual Gaseous Electronics Conference (GEC 2025), Seoul, Republic of Korea, 13-17 October 2025; https://www.apsgec.org/gec2025/
- 30th Fusion Energy Conference (FEC2025), Chengdu, China, 13-18 October 2025; https://www.iaea.org/events/fec2025
- Technical Meeting on the Application of Artificial Intelligence for Nuclear Security, Vienna, Austria, 20 - 24 October 2025; https://conferences.iaea.org/event/420/
- International Conference on Resilience of Nuclear Installations against External Events from a Safety Perspective – Focus on Climate Change, Vienna, 20 - 24 October 2025; https://conferences.iaea.org/event/404/

CPP-IPR Outreach Programme at Royal Global University, Guwahati

An outreach programme on the theme of “Frontiers of Plasma Science: Fundamentals and Applications” was conducted by CPP-IPR’s Outreach Cell at Royal Global University, Guwahati on 12th September, 2025. The workshop was attended by 10 faculties and 70 students of Physics, Chemistry and Mathematics Department of the university. Dr. Rakesh Moulick and Dr. Ngangom Aomoa gave talks on various aspects of plasma physics followed by live demonstration of glow discharge plasma, arc plasma, Jacob’s ladder and a plasma globe.

Dr. N. Aomoa and Dr. Rakesh Moullik (R) delivering talks

CPP-IPR Outreach Team with Faculties and Students at the Royal Global University, Guwahati

Academic Visits to CPP-IPR

Date	Institution	Visitors
03 Sep 2025	Department of Electronics and Communication Engineering, Assam Don Bosco University	37 students and 3 faculty

Students from Don Bosco University visiting CPP-IPR on 03 Sep 2025

National Sports Day Celebrations at IPR

National Sports Day (NSD) was celebrated at Institute for Plasma Research on 31st Aug 2025, as per directives from AICTE and HBNI. The program commenced with the welcome address and talk on the “Role of Major Dhyan Chand in Indian Sports” by Dr. Ritesh Sugandhi. He highlighted the role of Major Dhyan Chand in India’s domination in hockey, winning 7 out of 8 Olympic gold medals from 1928 to 1964. Major Dhyan Chand is known as the magician of Hockey and has 570 goals in 185 international matches to his credit. Then, the NSD pledge was administered by student representative, Shri Amudon Chingangbam, in English, and also in Hindi by Shri Sandeep Gupta (former sports secretary of the Staff club). Shri Nilesh Contractor, graced the occasion as chief guest and delivered the talk on “Fitness and Spirit of Sports”. Shri Nilesh Contractor has been representing IPR in various sports activities at institute and inter-institute tournaments during the sport journey, spanning over 20+ years. He was the captain of IPR’s cricket team and credited to bring two inter-institute cups to IPR, along with many other laurels to the institute. He is a regular marathon runner. In the talk, he highlighted the sports activities and infrastructure at the institute for the students, the role of physical fitness, and the necessity of healthy eating habits. Students were encouraged regarding the “Sunday on Bicycle” initiative of Government of India. The event concluded by a vote of thanks, followed by a hot and healthy breakfast at the Guest house.

(L) Dr. Ritesh Sugandhi delivered the talk titled “Role of Major Dhyan Chand in Indian Sports”. (R) Shri Nilesh Contractor delivering talk on “Fitness and Spirit of Sports” and

अखिल भारतीय हिन्दी वैज्ञानिक संगोष्ठी – 2025
राजा रामन्ना प्रगत प्रौद्योगिकी केंद्र, इंदौर

राजा रामन्ना प्रगत प्रौद्योगिकी केंद्र, द्वारा दिनांक 22-23 अगस्त 2025 को अखिल भारतीय हिंदी वैज्ञानिक संगोष्ठी का आयोजन हुआ। संगोष्ठी का विषय "आत्मनिर्भर भारत में लेसर और त्वरक प्रौद्योगिकी" था। संगोष्ठी का उद्देश्य विज्ञान एवं प्रौद्योगिकी के क्षेत्र में अनुसंधान एवं नवाचार को प्रोत्साहित करने तथा उसे सामान्य जन-मानस तक सुलभ करवाना था तथा वैज्ञानिक ज्ञान को राजभाषा में प्रस्तुत करके इसे विस्तारित करना था। इसमें संस्थान के वैज्ञानिक अधिकारी-जी, डॉ. रितेश सुगंधी ने प्लाज़्मा अनुसंधान संस्थान की और से सहभागिता की।

संगोष्ठी के प्रथम दिवस परमाणु ऊर्जा विभाग के विभिन्न विभागों में चल रहे वैज्ञानिक अनुसंधानों को हिंदी भाषा में प्रस्तुत किया गया। दुसरे दिन में डॉ. रितेश सुगंधी ने अनुसंधान और प्रौद्योगिकी विकास के विभिन्न अनुप्रयोगों पर चर्चा की तथा नियंत्रित प्रयोग की आवश्यकता पर प्रकाश डाला। उन्होंने "स्काडा" द्वारा प्रयोगों के उद्देश्यों को प्राप्त करने के लिए विभिन्न प्रयोगात्मक प्रणालियों की चर्चा की।

यह संगोष्ठी, वैज्ञानिकों, शोधकर्ताओं तथा जिज्ञासुओं के लिए काफी महत्वपूर्ण रही।

संगोष्ठी के दौरान डॉ. रितेश सुगंधी

Index of Newsletter Issue 147, October 2025

Title	Page No
अखिल भारतीय राजभाषा सम्मेलन	01-02
हिंदी पखवाड़ा – विशेष व्याख्यान	02
Behavior of magneto-convective fluctuations in MHD duct flow under differently heated walls and applied magnetic field direction	03
Molecular detection using SERS with Ag-NPs/ Graphene hybrid structure	03
Doctoral Research Spotlight	04
Cryopump and Pellet Injector Division	05-06
Academic Visits to IPR	07-09
Plasma Exhibition at KSNUA & HS, Shivamogga, Karnataka	09
Plasma Exhibition at SSSE, Tumakuru, Karnataka	10
Conference Presentations	11
Talk on Writing Impactful Manuscript for Journal Publications	11-12
Past Events @ IPR /Upcoming events	12
CPP-IPR Outreach Programme at Royal Global University, Guwahati	13
Academic Visits to CPP-IPR	13
National Sports Day Celebrations at IPR	14
अखिल भारतीय हिन्दी वैज्ञानिक संगोष्ठी – 2025	14
Know Your Colleague	15

Know Your Colleague

Dr. Amreen Ara Hussain

Dr. Amreen Ara Hussain joined the Institute for Plasma Research (IPR) in December 2021 as a Scientific Officer–D and was posted at the FCIPT campus. She obtained her PhD in plasma processing from the Institute of Advanced Study in Science and Technology (IASST), Guwahati, in 2017. Her research focuses on the development of hybrid nanocomposites and perovskite materials for optoelectronic device applications. Her research interests include plasma polymerization, reactive magnetron sputtering, thermal/ e-beam evaporation and wet-chemical synthesis techniques for material fabrication and processing. Dr. Hussain has received national fellowships, including the National Postdoctoral Fellowship and the INSPIRE Faculty Award, awarded by SERB and DST, India, for the period 2017–2023. She also served as a Visiting Scientist at the Ulsan National Institute of Science and Technology (UNIST), South Korea, from 2020 to 2021. In recognition of her contributions to the development of hybrid material-based optoelectronic devices using plasma technologies, she received the Parvez Guzdar Young Scientist Award in 2023. Currently, Dr. Hussain is working as a Scientific Officer–E in the Plasma Surface Engineering Division at FCIPT/IPR. Her ongoing research involves hydrogen generation through plasma electrolysis and the development of bi-functional electrocatalysts for water

Newsletters from IPR

GANANAM (गणनम्)

High Performance Computing Newsletter

प्लाज़्मा समाचार

PLASMA PROCESSING UPDATE

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