The 4th State

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

Issue 146, September 2025

79th Independence Day at IPR

Dean (Admin), Dr. Subroto Mukherjee hoisted the National Flag on behalf of the Director and also received the ceremonial guard of honour by the IPR Security Staff

79th Independence Day at CPP-IPR

Glimpses of the Independence Day celebration at CPP-IPR Guwahati

Investigation of thermal hydraulics performance of Pb-Li in a square duct

The knowledge of Pb-Li heat transfer coefficient (HTC) is essential for designing heat exchanger, recuperator etc. The HTC for Pb-Li has recently been measured, in mixed convection flow regime, using a high temperature (~300°C-350°C) loop set up at IPR. The temperature snapshot inside the duct has been measured using an array of thermocouples dipped inside the hot fluid for estimating the Nusselt number (Nu). For the heating configuration used, the Nu is found to increase with decrease in Peclet number (Pe) for Pe < 500, unlike the literature data. This is due to buoyancy added heat transfer. The Nu is found to increase thereafter with increase in Pe, consistent with the literature data.

The experimental results are corroborated by the numerical results performed using validated SST turbulence model with proper selection of turbulent Prandlt number, applicable to liquid metals.

The paper is authored by Srikanta Sahu, Ashok K. Prajapati, Dusmanta Mahanta, Karishma B. Pandya, Sandeep Gupta, Rajendraprasad Bhattacharyay, published online in the International Journal of Heat and Fluid Flow

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

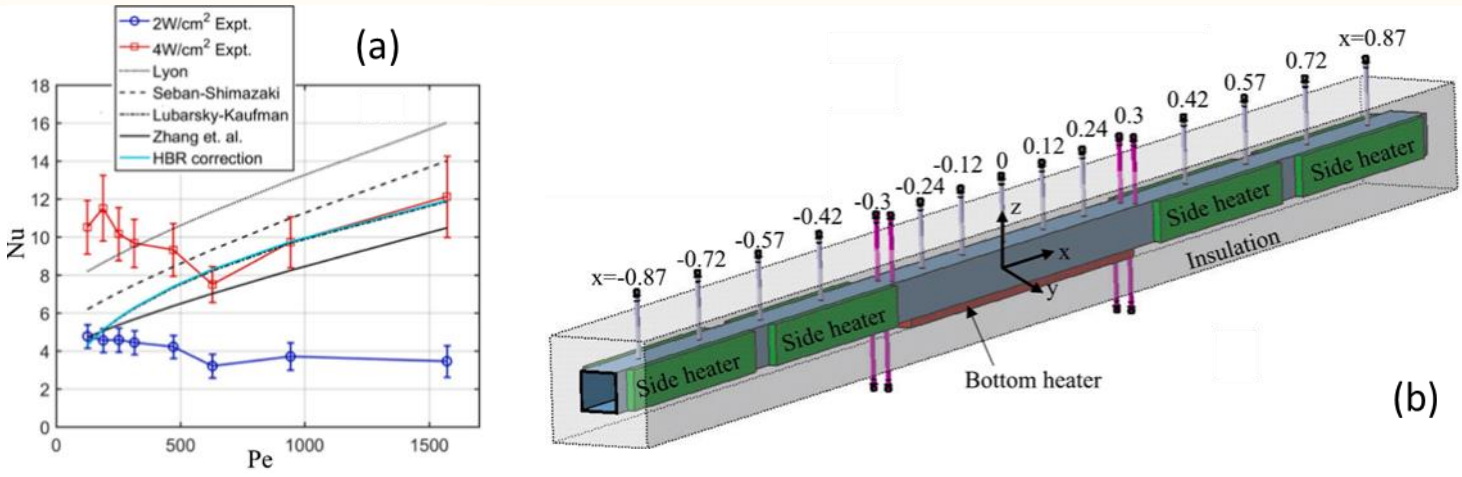


Figure: (a) The comparison of experimentally obtained Nu with literature data and (b) schematic of test duct used in the experiment showing positions of thermocouples

Cryogenic helium turbine development at IPR

After the successful test of the indigenously developed helium refrigerator-cum-liquefier (HRL) plant at the cryogenic division of IPR, having complex cryogenic technology with about 90% indigenous contents and many of the critical components made indigenously, now effort is being made to make all critical items indigenously. Cryogenic helium turbine is one of these critical items. Although some design and analysis efforts have been made by IPR in last few years towards the development of this item, yet a complete turbine as a prototype or model is yet to be made. In this article, the effort of making a prototype low temperature subassembly (LTS) of turbine is presented. This is one of 4 critical subassemblies of cryogenic helium turbine. Other 3 critical subassemblies are, 1) Shaft with wheel and blade, contactless bearing, brake compressor with compact water cooling. Main functions of this LTS are to create high velocity helium gas through nozzles by converting pressure energy from about 5.6 to 3.6 bar and increasing velocity from about 5 to 145 m/s, to reduce external heat load by providing good thermal insulation in compact volume, to provide high pressure helium gas with uniform velocity and pressure field around the nozzles and to give out helium gas at lower pressure (~1.3 bar) & lower temperature (~10 K or -263 ^{0}C) after expansion through the turbine wheel. The turbine, for which this LTA is being made, has function to provide cooling power of about 1 kW by reducing helium temperature from ~15 K to ~10 K through an isentropic expansion (design efficiency ~70%) process from ~6 bar to ~1.3 bar. Nominal helium flow rate through turbine is 50 g/s and rotational speed is ~1.6 lakhs RPM (revolution per minute). As a prototype, 25 different elements of nozzles and its housing with dimensional tolerance of 20 micron, have been successfully fabricated and tested through AIC (Atal Incubation Centre) at C V Raman Global University, Bhubaneswar. Analysis results and fabricated LTS are shown in in Fig-1, 2 and 3.

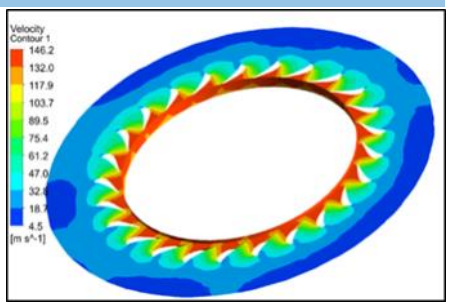


Fig. 1: Velocity field around nozzles

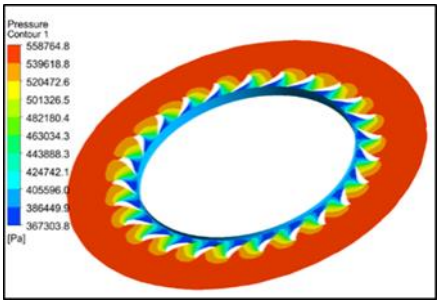


Fig. 2: Pressure field around nozzles

Fig-3: Fabricated LTS

New Research Scholars joined IPR

A new group of fifteen PhD research scholars and one internal candidate joined the IPR PhD program on August 1, 2025. Two of the students are through the DAE Doctoral Fellowship Scheme (DDFS). Six of the students are female and ten are male. The program began with the online enrollment of students for the Ph.D. program at the Homi Bhabha National Institute (HBNI). The enrollment process was followed by joining formalities with the help of the IPR administration, as well as opening library accounts with the help of the SIRC team.

Students also registered for the Academic Bank Credit System and filed an online anti-ragging undertaking along with compliance submission under the UGC's initiative to reduce the compliance burden on its stakeholders by submitting undertakings completely online.

The new academic session for the enrolled PhD students began with a class schedule for their first trimester based on the approved syllabus for the PhD coursework, which includes a number of elective courses offered by expert faculty members of the institute.

Classes are scheduled to meet the required credits stipulated by HBNI, as well as to provide an orientation to ongoing IPR activities. Special lecture slots are arranged in the schedule for IPR faculty so students can learn about IPR's activities and interact with IPR faculty to make an informed choice about their research area.

Students actively participated in Anti-Ragging Week, which concluded on August 18, 2025. The IPR director addressed the students during the event. The IPR community extends a warm welcome to the newly enrolled Ph.D. students and wishes them a productive, fruitful, and exciting Ph.D. experience.

(L-R): Vivek Panchal, Devasi Nareshkumar Vachnaram, Vinod H N, Anurag, Jay Hariyani, Aiswarya Nair, Krishnapriya T L, Tanushree Kar, Pooja Yadav, Komal Verma, Bhumi, Adith O S, Srinibash Behera, Udit Vavecha, Vandavasi Uday Kiran Sai, Manik Agrawal

Observance of Anti Ragging Week 2025 at IPR

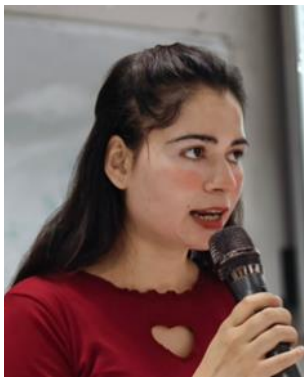
As per the UGC directive, IPR observed “Anti-Ragging Week” during 12th -18th August 2025, with the objective of sensitizing students about the harmful effects of ragging, promoting a healthy campus environment, and strengthening peer bonding. The inauguration ceremony was held on 12th August 2025, Retired High Court Judge and academician in the field of Law, Dr. Jyotsna Yagnik was the chief guest and Retired Professor, Gujarat University, Dr. Vipin Rana was the Guest of Honor. They addressed the students, highlighting the legal implications of ragging, its psychological consequences, and the significance of cultivating mutual respect and cooperation among peers. Dean Administration, Dr. S. Mukherjee and Dean Academic, Dr. Daniel Raju highlighted the various initiatives taken for the well-being of scholars during their PhD journey. Anti-ragging pledge as per the UGC directive was administered by the Student representative, Ms. Nidhi Pandey.

Observance of Anti Ragging Week 2025 at IPR


Lighting of Lamp (L). Floral Welcome to the Guest speakers



(L-R) Dr. Jyotsna Yagnik, Dr. Vipin Rana, Dr. R. Sugandhi and Dr. Subroto Mukherjee giving their talks



Students Representative, Ms. Nidhi Pandey (L) administering the pledge, Dean Academic, Dr. D. Raju (C) addressing the audience, Anti-Ragging Committee Chairperson, Dr. Alphonsa Joseph (R) expressing the vote of thanks

Dean Admin, Dr. Subroto Mukherjee felicitating the guest Dr. Jyotsna Yagnik

IPR Team with the Guests

Observance of Anti Ragging Week 2025 at IPR

An ice-breaking session was organised for all the research scholars, freshers as well as the senior scholars, which included team activities and fun- games like quiz, dumb charades and presenting fake research proposals. These activities gave them the opportunity to get to know one another in an informal and positive settings, removing inhibitions and strengthening the bonds between them. Competitions like slogan writing and extempore based on the theme were also organised. The Dean Academic announced the constitution of a "**Peer Mentoring & Support Network group**" within IPR to enhance better interactions, support and guidance for our fresh research scholars. The concluding session of Anti-ragging week celebration commenced on 18th of August, with a presentation by Dr. Alphonsa Joseph, highlighting various events and activities during the week. Director, IPR, Dr. Tapas Ganguli graced the occasion and interacted with research scholars and distributed prizes to winners of various competitions. The session concluded with vote of thanks from Dr. Jinto Thomas followed by feedback from new scholars.

Research Scholars participating in various activities organized by the Anti-Ragging committee

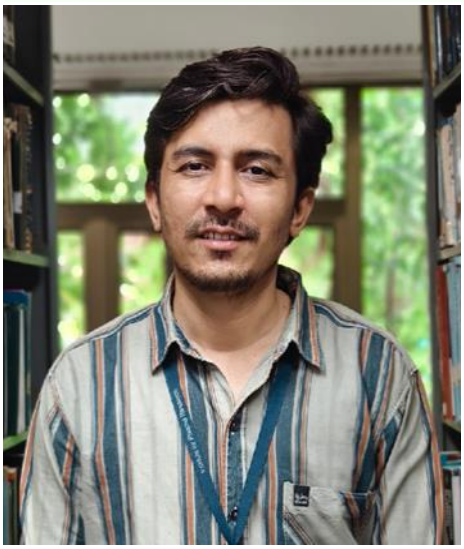
Dr. Jinto Thomas (L) giving the vote of thanks during the concluding session

IPR Anti-Ragging Committee (L-R) Ms. Shilpa Khandker, Dr. Alphonsa Joseph, Dr. Daniel Raju, Dr. S. Mukherjee (Dean Admin), Dr. Jinto Thomas, Dr. Nitin Bairagi and Dr. Ritesh Sugandhi

Doctoral Research Spotlight

Study of neutron induced reactions of different materials for reactor applications by Mayur Mehta

Accurate nuclear data are essential for the design, operation and safety assessments of fusion-fission reactors, accelerators and medical devices. Nuclear data fall into two main categories: (i) Nuclear reaction data, which describe interactions between particles like neutrons, protons, or photons and target nuclei; (ii) Nuclear structure and decay data, which detail nuclear energy levels, half-lives and decay emissions. Among these, neutron-induced reaction cross-sections are especially vital for reactor physics calculations, isotope production, and safety evaluations.



Mayur Mehta

Recent research has focused on measuring neutron-induced reactions cross-section of isotopes of tungsten (W), zirconium (Zr), niobium (Nb), strontium (Sr), and rubidium (Rb) were measured up to 20 MeV neutron energy using the offline γ-ray spectroscopic technique which are key reactor materials used in Plasma Facing Components (PFCs), structural components, magnets and medical applications. Despite ongoing efforts, significant gaps remain in cross-section data across various neutron energies, with notable discrepancies between published and evaluated nuclear data libraries. In present study, the neutron-induced reaction cross-sections of tungsten (W) isotope was measured at 6 MV Folded Tandem Ion Accelerator (FOTIA) facility in neutron energy range between 0.6 to 4 MeV and (n,2n) and (n,p) reactions cross-section of Zr, Nb, Sr and Rb isotopes were measured at 14UD BARC-TIFR, Pelletron-Linac facility at Mumbai, India in neutron energy range between 10 to 20 MeV. Uncertainties in these measurements were quantified using covariance analysis. The results were further analyzed using nuclear reaction models from TALYS and EMPIRE codes providing valuable new data for future reactor designs and safety assessments.

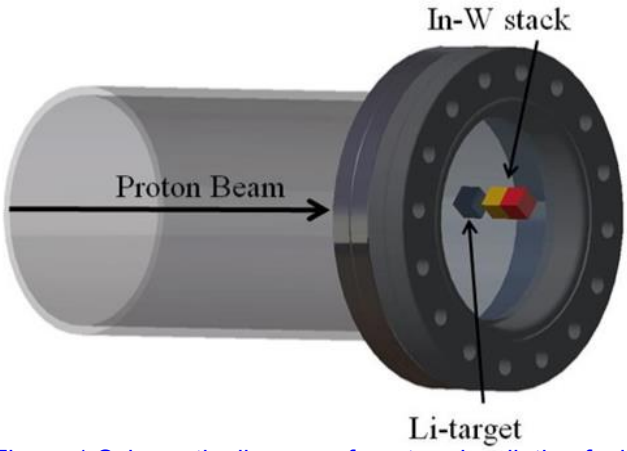


Figure 1 Schematic diagram of neutron irradiation facility at FOTIA-BARC

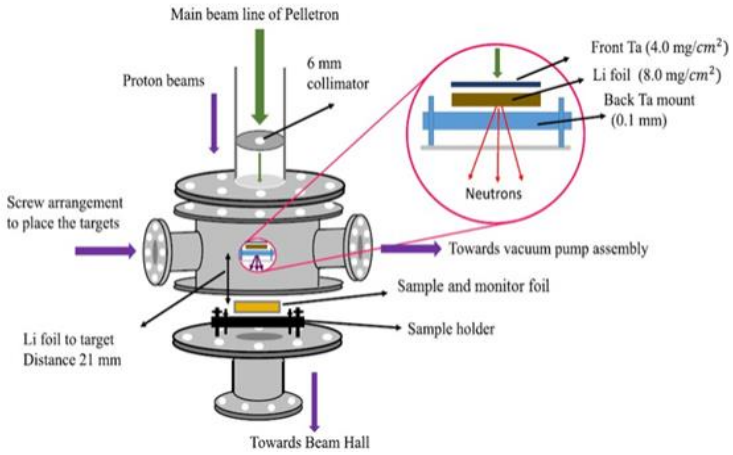


Figure 2 Schematic diagram of TIFR-BARC Pelletron-Linac Facility

Publications:

1] Mayur Mehta, N. L. Singh, Ratankumar Singh, R. Makwana, P. V. Subhash, et al., Activation cross section for ^{85}Rb(n,p)^{85m}Kr and ^{85}Rb(n,2n)^{84m}Rb reaction with uncertainty propagation and covariance analysis, J. of Radioanalytical and Nuclear Chemistry, (2024)

2] Mayur Mehta, N. L. Singh, Ratankumar Singh, Rakesh Chauhan, et al., Cross section of (n,2n) reaction for Niobium and Strontium isotopes between 13.97 to 20.02 MeV neutron energies, Applied Radiation and Isotopes 182, 110142, (2022)

3] Mayur Mehta, N. L. Singh, R. K. Singh, Siddharth Parashari, P. V. Subhash, et al., Measurement of ^{90}Zr(n,2n)^{89}Zr and ^{90}Zr (n,p)^{90m}Y reaction cross sections in the neutron energy range of 10.95 to 20.02 MeV, J. of Radioanalytical and Nuclear Chemistry, 328, 71, (2021)

Fig. 3 Experimental set-up of off-line gamma ray spectroscopy

Innovation Talks - Expert Lecture Series

The Institute Innovation Council of IPR in association with Homi Bhabha National Institute (HBNI) and IPR's Atal Incubation Centre - Plasmatech Innovation Foundation organized an innovation talk series expert lectures on the following topics:

(a) Talk on "**Safeguarding IP for Deeptech Innovations**" by Shri P. R. Dani, IP expert on 7th August 2025: The talk was aimed at safeguarding the intellectual property for deeptech innovations which act as a moat for long gestation innovations and can also act as revenue enabler in future. The talk by Shri Dani showcased what stage patenting should be done and how securing IP based on territorial markets could strategize the country of interest and the procedures and policies so involved. The talk was attended by 40+ participants including students, faculties and researchers.

(b) Talk on "**Enabling Deeptech Innovations - Experience with AIC- Pi Hub**" by Dr. Christ P. Paul, Director & Head of AIC-Pi Hub, RRCAT, Indore on 8th August 2025: The talk was attended by over 50+ participants comprising of Ph.D. students, post-doctoral fellows, researchers and startup enthusiasts. The expert talk explained how deeptech innovation ecosystem has been garnered in RRCAT, DAE and how complex science innovations are enabled through several collaborations ranging from laser based metal 3D printing to sensor technology.


Shri P R Dani delivering his talk (R) Audience attending the talk (L)

Dean (Admin), Dr. S. Mukherjee (L) introducing the speaker. Dr. C P Paul (R) delivering his talk

Audience attending the Talk

Celebration of World Entrepreneurship Day 2025 at IPR

Institute Innovation Council (IIC) and AIC-Plasmatech coordinated the celebration of the World Entrepreneurship Day 2025 at IPR on 21st August 2025. At this occasion, the guest speaker, Dr. Ravindra Raj, CEO & MD of Omspace Rocket & Exploration Pvt. Ltd. presented his entire journey from an M.Tech student in power engineering from IIT Madras to CEO to motivate IPR PhD/Postdoc students, young scientists and engineers. He mentioned that, focusing on his product as well as on the finances are the key aspects of Entrepreneurship and he motivated the students to deal with both these aspects. Finally, he gave an overview, how his company is contributing in the launching of Nano-satellites, reusable small launch vehicle (RSLV) and in space technology training program. He is very closely working with various national and international space agencies. In the end of the program, students actively interacted with the speaker and discussed how to become Entrepreneur and face challenges. The program was attended by Dean Academic IPR, IIC coordinators and AIC plasma tech team, PhD/ Postdoc students and IPR employees.




Dr. Ritesh Sugandhi giving a talk on Entrepreneurship Day (Top Left). Dean Academic, Dr. D. Raju attending the session (Top Right). Student Representative, Ms. Nidhi Pandey felicitating the Chief Guest (Bottom Left). Chief Guest, Dr. Ravindra Raj delivering his talk (Bottom Right).


Dr. Nirav Jamnapara giving the vote of thanks on behalf of AIC-IPR Plasmatech (Left). Audience attending the Talk (R)

Chief guest Dr. Ravindra Raj with IPR team

Odisha Vice Chancellors visit to IPR

A 24 member delegation from the Education Department, Govt. of Odisha comprising of Vice Chancellors, Deans and decision makers of various institutions of Odisha visited Gujarat on a 3-day exposure tour to explore the startup and innovation ecosystem in the state of Gujarat. i-Hub, the nodal agency of Govt. of Gujarat had co-ordinated the visit. One of the purpose of the visit was to update the delegation about Deeptech opportunities in the innovation ecosystem at the Institute for Plasma Research (IPR) through IPR's Atal Incubation Centre - Plasmatech Innovation Foundation. The delegation along with 4 members of i-Hub participated and visited IPR on 24 July 2025. The delegation was introduced about IPR's activities including research, academics and innovation followed by a detailed discussions on several aspects of engagement between IPR and the educational institutions. The delegation visited several labs covering different aspects of research & innovation. The visit concluded with the Odisha delegation appreciating the activities being done and looking forward to exploring more collaboration and interaction between the students in Odisha with IPR.

Dr. Nirav Jamnapara (L) giving an introduction, Mr. Tejas Parekh (C) presenting the activities of IPR and Dr. Kaushik Chaudhury (R) giving an introduction to IPR AIC-Plasmatech

Dean (Admin), Dr. Subroto Mukherjee (L) addressing the delegation. A section of the delegation (R)

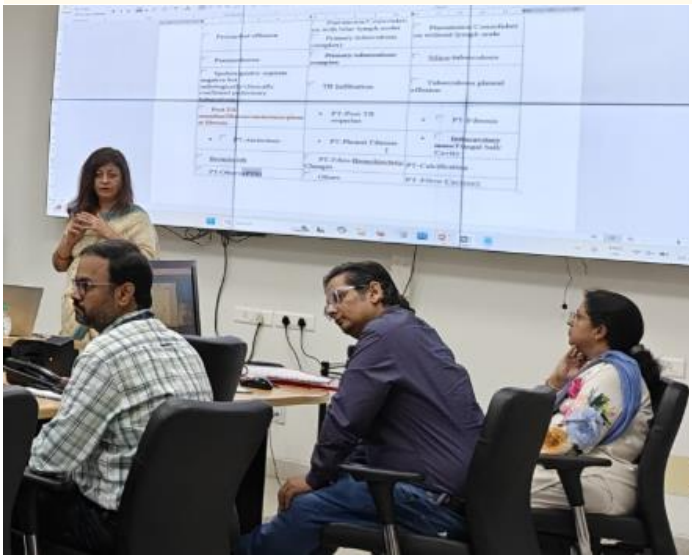
A section of the delegation (L). Dean (R&D), Dr. Paritosh Chaudhuri (R) conveying the vote of thanks

Two-Days meeting on DeepCXR at IPR

A 2-day meeting for DeepCXR -AI Screening Tool for Indian population under National Program of India was hosted at IPR. Collaborators from ICMR Hd. Qtr Delhi and other participating Institutes of VPCI Delhi, AIIMS Delhi, AIIMS Bhopal, GMC Ratlam, SCB Cuttack, Orissa, GMC Agartala, KGMU Lucknow, ICMR-NIRT Chennai, MGIMS, Wardha, ICMR-NIIH, ICMR-NIIRNCD, Jodhpur, IGGMC, Nagpur, IMS, Rohtak & NIOH Ahmedabad visited IPR to discuss enhancement of DeepCXR as a AI diagnostic Tool of India.

The meeting started with a welcome address by Dean Administration and Dean R & D, IPR who apprised all investigators about IPR activities with a special focus on Fusion research and its applications. This was followed by an inaugural presentation by Mrs. Manika Sharma, IPR on the progress in the development of DeepCXR including deployment of version 1.1 in the NTEP program across peripheral health institutions across six states. Dr. Nirav Jamnapara delivered a presentation on diverse medical technology developments of IPR/FCIPT.

This 2-day meeting focused on the discussions regarding training of the AI for differentiating TB/NTB category and on plan of data collection from all sites. There were presentations with an overview of current challenges, the target sensitivity and specificity which needs to be achieved for AI as a diagnostic test and the shortfalls in CXR images for different categories of TB/NTB which needs to completed. This was followed by deliberations and discussions involving all investigators, experts, and the IPR AI development team. IPR facilitated visit to Tokamak Aditya-U for all the site investigators. The meeting concluded with a vote of thanks.



During the DeepCXR meeting at IPR

Participants vising ADITYA-U

Participants of the DeepCXR meeting at IPR

अखिल गुजरात हिंदी संगोष्ठी-2025

दिनांक 24 एवं 25 जुलाई 2025 को नराकास, गांधीनगर के सौजन्य से सूचना एवं पुस्तकालय नेटवर्क केन्द्र (इन्फ्लिबनेट), गांधीनगर द्वारा "**विकसित भारत - 2047 में सरकारी कार्यालयों की भूमिका**" विषय पर अखिल गुजरात हिंदी संगोष्ठी का आयोजन किया गया। इस दो दिवसीय संगोष्ठी में कुल 08 सत्रों में 32 प्रतिभागियों ने मौखिक प्रस्तुति दी एवं 18 प्रतिभागियों ने पोस्टर प्रस्तुति दी। संगोष्ठी में पूरे गुजरात से लगभग 358 प्रतिभागियों ने सहभागिता की। इस संगोष्ठी में प्लाज़्मा अनुसंधान संस्थान की ओर से निम्नलिखित अधिकारियों एवं कर्मचारियों ने सहभागिता की:

डॉ. ब्रज किशोर शुक्ला, वैज्ञानिक अधिकारी/एच	आमंत्रित व्याख्यान: **प्लाज़्मा- विकसित भारत में स्वच्छ ऊर्जा का अनंत स्रोत**
डॉ. रितेश सुगंधी, वैज्ञानिक अधिकारी/जी	विकसित भारत 2047 के संकल्प में सरकारी ई-मार्केटप्लेस (जेम) की भूमिका का तुलनात्मक विश्लेषण
सुश्री प्रतिभा गुप्ता, वैज्ञानिक अधिकारी/एफ	डिजिटल ट्विन्स: परमाणु रिएक्टर के लिए वरदान
श्री सचिन कुमार, पीएच.डी. शोधार्थी	विकसित भारत 2047 हेतु ऊर्जा आत्मनिर्भरता और वैज्ञानिक नवाचार में प्लाज़्मा अनुसंधान संस्थान (IPR) का योगदान
सुश्री प्रियंका वर्मा, वैज्ञानिक सहायक-बी	शासन की रीढ़: इलेक्ट्रॉनिक सेवा प्रदायगी के माध्यम से नागरिक सशक्तिकरण

श्री हर्ष कहार, कार्यालय लिपिक-ए एवं श्री रवि शेशांगिया, कार्यालय लिपिक-ए ने सामान्य प्रतिभागी के रूप में इस संगोष्ठी में भाग लिया। इस संगोष्ठी के माध्यम से प्रतिभागियों को न केवल अपने शोध कार्यों को साझा करने का अवसर मिला, बल्कि विकसित भारत 2047 की दिशा में सरकारी

सुश्री प्रियंका वर्मा प्रस्तुति देते हुए

सुश्री प्रतिभा गुप्ता स्मृति चिन्ह प्राप्त करते हुए

श्री सचिन कुमार स्मृति चिन्ह प्राप्त करते हुए (दाएं)

डॉ. रितेश सुगंधी स्मृति चिन्ह प्राप्त करते हुए (दाएं)

डॉ. ब्रज किशोर शुक्ला स्मृति चिन्ह प्राप्त करते हुए (दाएं)

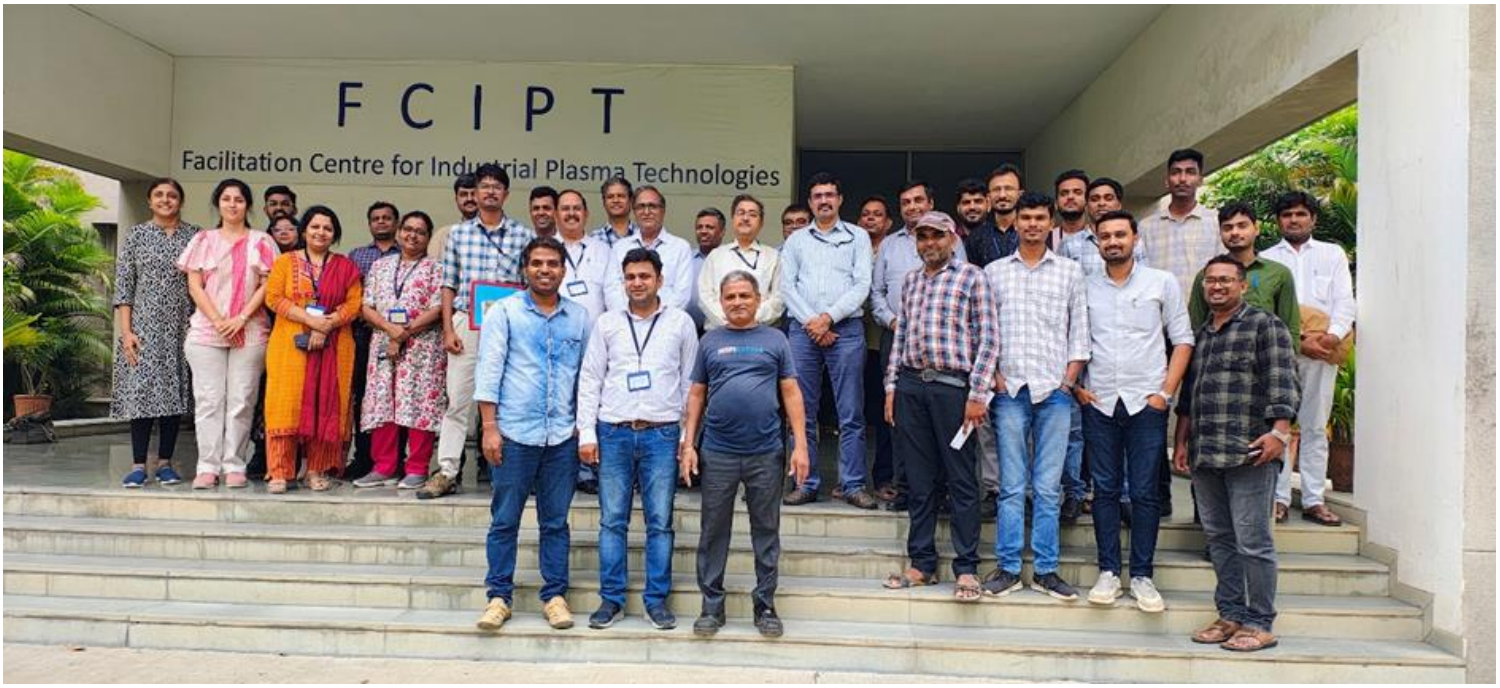
समूह फोटो

हिंदी कार्यशाला

दिनांक 17 जुलाई 2025 को औद्योगिक प्लाज़्मा प्रौद्योगिकी सुविधा केन्द्र (FCIPT) के सेमिनार हॉल में "**छुट्टी यात्रा रियायत (LTC) नियम**" विषय पर एक हिंदी व्याख्यान का आयोजन किया गया। इस व्याख्यान के वक्ता श्री रवि कुमार शीशांगीया, कार्यालय लिपिक-ए ने एलटीसी से जुड़े नवीनतम नियमों के बारे में विस्तारपूर्वक जानकारी प्रदान की। उन्होंने अपने व्याख्यान में एलटीसी नियमों पर चर्चा करते हुए यह स्पष्ट किया कि यात्रा की बुकिंग केवल अधिकृत एजेंटों के माध्यम से ही मान्य होगी और किराया केवल निर्धारित श्रेणी एवं सबसे सस्ती दर के अनुसार ही प्रतिपूर्ति योग्य होगा। हवाई यात्रा के लिए कम से कम 21 दिन पूर्व टिकट बुक करने के लिए अनुरोध किया गया तथा बोर्डिंग पास, किराया विवरण एवं अन्य दस्तावेजों को अनिवार्य रूप से प्रस्तुत करने पर बल दिया गया। साथ ही, आयकर अधिनियम की नई व्यवस्था के अनुसार धारा 10(5) के तहत छूट की सीमा एवं कर योग्यता की जानकारी भी साझा की गई। सभागार में उपस्थित सदस्य इससे काफी लाभान्वित हुए। व्याख्यान के बाद चर्चा सत्र के दौरान श्री हरीशचन्द्र खण्डूरी, प्रशासनिक अधिकारी एवं श्री भूपत गमारा, कार्यालय लिपिक ने श्रोताओं के संदेहों का निवारण किया।

श्री रवि कुमार व्याख्यान देते हुए

श्री हरिश्चंद्र खडुरी, प्रशासनिक अधिकारी उपस्थित श्रोताओं से चर्चा करते हुए



औद्योगिक प्लाज़्मा प्रौद्योगिकी सुविधा केन्द्र (FCIPT) के स्टाफ सदस्यों के साथ समूह फोटो

आमंत्रित व्याख्यान

बैंक ऑफ बड़ौदा - बड़ौदा एपेक्स अकादमी, गांधीनगर में नव नियुक्त 25 राजभाषा अधिकारियों के लिए एकल सप्ताह का राजभाषा प्रशिक्षण 14 से 19 जुलाई तक एपेक्स अकादमी में आयोजित किया गया था। इस दौरान दिनांक 18 जुलाई, 2025 को संस्थान की हिंदी अधिकारी डॉ. संध्या दवे ने "**गृह मंत्रालय का राजभाषा पोर्टल और टूल्स**" विषय पर विस्तृत व्याख्यान दिया।

Plasma Awareness Week at IPR

Institute for Plasma Research (IPR), Gandhinagar (Gujarat) conducted **Plasma Awareness Week (PAW)** during 07 - 11 July 2025 at IPR campus, for introducing the Institute and Plasma to Government schools students.

Total seven local Government schools and one PM Shri Jawahar Navodaya Vidyalaya(JNV) with 394 students and 24 teachers attended PAW. Students and teachers were introduced to Plasma and its applications by delivering interactive presentations.

Plasma based exhibits were also demonstrated to all the students and teachers at outreach hall during event. Later, they were taken to visit SST1 tokamak and were explained about its operation.

Date	Institution	Visitors
07 Jul 2025	Hansol Gujarati Shala No.1, Hansol, Gandhinagar	58 Students and 02 Teachers
07 Jul 2025	Koteshwar Prathmik School, Koteshwar, Ahmedabad	54 Students and 04 Teachers
08 Jul 2025	Sarvoday Vidya Mandir (School), Bhat, Gandhinagar	49 Students and 02 Teachers
08 Jul 2025	Salujina Muvada Primary School, Dhabhoda,	25 Students and 04 Teachers
09 Jul 2025	Bhat Prathmik Shala, near gram panchayat, Bhat, Ahmedabad	54 Students and 04 Teachers
10 Jul 2025	PM Shri Jawahar Navodaya Vidyalaya, Sametri, Dahegam, Gandhinagar	50 Students and 03 Teachers
11 Jul 2025	Motera Kanya Primary School, Motera, Gandhinagar	49 Students and 02 Teachers
11 Jul 2025	Government Primary School, Sector-8, Gandhinagar	55 Students and 03 Teachers

Students and Teachers from Hansol Gujarati Shala No.1 visiting IPR on 07 Jul 2025

Students and Teachers from Koteshwar Prathmik School visiting IPR on 07 Jul 2025

Plasma Awareness Week at IPR

Students and Teachers from Sarvoday Vidya Mandir visiting IPR on 08 Jul 2025

Students and Teachers from Salujina Muvada Primary School visiting IPR on 08 Jul 2025

Students and Teachers from Bhat Prathmik Shala visiting IPR on 09 Jul 2025

Students and Teachers from PM Shri Jawahar Navodaya Vidyalaya visiting IPR on 10 Jul 2025

Plasma Awareness Week at IPR

Students and Teachers from Motera Kanya Primary School visiting IPR on 11 Jul 2025

Students and Teachers from Government Primary School visiting IPR on 11 Jul 2025

Academic Visits to IPR

Date	Institution	Visitors
01 Jul 2025	Shree Swaminarayan Institute of Technology (SSIT), Bhat, Gandhinagar	102 Students and Faculty, Sem 1 (Batch 2)
14 Jul 2025	SAL College of Engineering, Ahmedabad	63 Students and Faculty, CS/IT (Batch 1)
15 Jul 2025	GEMS Genesis International School, Ahmedabad	19 Students and Teachers, Class 8A
16 Jul 2025	GEMS Genesis International School, Ahmedabad	29 Students and Teachers, Class 8B
17 Jul 2025	GEMS Genesis International School, Ahmedabad	28 Students and Teachers, Class 8C
18 Jul 2025	Ahmedabad International School, Bhat, Gandhinagar	46 Students and Teachers, Class 12 (Sci.)
21 Jul 2025	SAL College of Engineering, Ahmedabad	58 Students and Faculty, Sem 5, CS/IT (Batch 2)
22 Jul 2025	SAL College of Engineering, Ahmedabad	95 Students and Faculty, Sem 1, CS/IT (Batch 3)
23 Jul 2025	SAL College of Engineering, Ahmedabad	67 Students and Faculty, Sem 3, CS/IT (Batch 4)
24 Jul 2025	Shivashish World School, Ahmedabad	58 Students and Teachers, Class 10
29 Jul 2025	SAL College of Engineering, Ahmedabad	83 Students and Faculty, CS/IT (Batch 5)
29 Jul 2025	Swaminarayandham International School, Gandhinagar	110 Students and Teachers, Class 7 & 8
30 Jul 2025	SAL College of Engineering, Ahmedabad	78 Students and Faculty, CS/IT (Batch 6)

Academic Visits to IPR

Students and Faculty from SSIT, Bhat, Gandhinagar visiting IPR on 01 Jul 2025

Students and Faculty from SAL College of Engineering Ahmedabad, visiting IPR on 14 Jul 2025

Students and Teachers from GEMS Genesis International School visiting IPR on 15 Jul 2025

Students and Teachers from GEMS Genesis International School visiting IPR on 17 Jul 2025

Academic Visits to IPR

Students and Teachers from GEMS Genesis International School visiting IPR on 18 Jul 2025

Students and Teachers from SAL College of Engineering, Ahmedabad visiting IPR on 21 Jul 2025

Students and Teachers from SAL College of Engineering, Ahmedabad visiting IPR on 22 Jul 2025

Students and Teachers from SAL College of Engineering, Ahmedabad visiting IPR on 23 Jul 2025

Academic Visits to IPR

Students and Teachers from Shivashish World School visiting IPR on 24 Jul 2025

Students and Teachers from SAL College of Engineering, Ahmedabad visiting IPR on 29 Jul 2025

Students and Teachers from Swaminarayandham International School visiting IPR on 15 Jul 2025

Group Photo of the Students and Faculty from SSIT, Gandhinagar visiting IPR on 30 Jun 2025

CPP-IPR Outreach Programme at Pandit Deendayal Adarsha Mahavidyalaya, Amjonga

An outreach programme on the theme of “Plasma Science and its Application” was conducted by CPP-IPR’s Outreach Cell at Pandit Deendayal Adarsha Mahavidyalaya, Amjonga, Assam on 19th August, 2025. The workshop was attended by 4 faculties and 48 students of the Physics Department of the college. Dr. B. J. Saikia, 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. B J Saikia (L) and Dr. N. Aomoa (C) delivering talks and interacting with the students and faculties (R)

Students witnessing the live demonstration (L). Dr. Rakesh Moulick (R) giving a talk

Students, Faculties and CPP-IPR Outreach Team at Pandit Deendayal Adarsha Mahavidyalaya, Amjonga, Assam

Past Events @ IPR

- ***Talks presented at 11th Plasma Science Society of India Plasma Scholar's Colloquium (PSSI-PSC-2025), IPS Academy, Indore, 2-4 July 2025***
  - ***Mr. Chingangbam Amudon,*** gave a talk on "MPI Parallelisation of Vlasov-Poisson Solver VPPM-OMP1.0"
  - ***Mr. Nishant Bharali,*** gave a talk on "Plasma Diagnostics and Neutron Emission Studies in Cylindrical Inertial Electrostatic Confinement Devices"
  - ***Dr. Rohit Sharma,*** gave a talk on "Production of surperhydrophoic fabric using argon plasma and HDTMS coating"
  - ***Ms. Sheetal Singh,*** gave a talk on "Investigation of Al Coating and RF plasma cleaning on Cu Mirrors for ITER Application"
- ***Mr. Sunil Bassi,*** gave a talk on "Effect of Multiple Detonations on the Detonation Parameters in Rotating Detonation Engine" at 35th International Symposium on Shock Waves (ISSW35), Brisbane, Australia, 6-11 July 2025
- ***Mr. Pabitra Kumar Saha,*** gave a talk on "Generation of Multiple Double Layers and Ion Beam in RF Expanding Plasma" at 51st EPS Conference on Plasma Physics, Vilnius, Lithuania, 7-11 July 2025
- ***Talks presented at 4th International Conference on Advances in Plasma Science and Technology (ICAPST-25), Bharathiar University, Coimbatore, 16-18 July 2025***
  - ***Dr. G. Ravi,*** gave an invited talk on "Plasma jets for low pressure spraying applications"
  - ***Dr. Mukesh Ranjan,*** gave an invited talk on "Plasma Surface Engineering for Sensing and Wettability Application"
  - ***Mr. Maila Paramesh,*** gave a talk on "Plasma assisted thin film deposition of copper using DC and High Power impulse magnetron sputtering (HiPIMS)"
  - ***Mr. Rohit Parihar,*** gave a talk on "Atmospheric pressure plasma treatment of tomatoes for the reduction of pesticides residue and enhancement of shelf life"
  - ***Ms. Debanjali Roy,*** gave a talk on "A Study on the Discharge Properties of Argon Blue Core Plasma"
- ***Ms. Tarundeep Kaur,*** gave a talk on "Sequential Deposition of Ag Nanoparticles on Si ripple for LSPR anisotropy minimization and SERS application" at 15th International Conference on Metamaterials, Photonic Crystals and Plasmonics, Malaga, Spain, 22 - 25 July 2025
- ***Dr. Vineet Kumar Shukla,*** gave a talk on "Two dimensional elemental mapping by laser induced breakdown spectroscopy: Methodology and quantitative analysis of complex geological and metallic samples" on 23rd July 2025
- ***Mr. Amit Kumar Singh,*** gave a talk on "A global gyrokinetic study of microinstabilities driven by steep profile gradients in ADITYA-U Tokamak" on 28th July 2025
- ***Dr. Sebin Augustine,*** gave a talk on "Ti-TiO2-Ag assembly grown on Si and Soda-lime glass for SERS applications" on 01st August 2025
- ***Dr. Akhil Khajuria,*** gave a talk on "Preliminary study of dissimilar welding of IN-RAFM and SS316L steels using handheld laser technology" on 08th August 2025
- ***Dr. Roshin Raj Sheeba,*** gave a talk on "Zeeman Polarization Spectroscopic Diagnostics on ADITYA-U Tokamak" on 08th August 2025
- ***Dr. Konuru S Lakshmi Kanth,*** gave a talk on "Investigation of radiation impact on Cu alloys for its application in Neutral Beam systems" on 12th August 2025
- ***Prof. Rana Adhikari,*** California Institute of Technology, USA, gave a talk on "Hearing Ripples in Spacetime with Quantum Machines: The Promise of LIGO-India" on 20th August 2025 ***(Colloquium #344)***
- ***Dr. Ravindra Raj,*** CEO & MD of Omspace Rocket & Exploration Pvt. Ltd., gave a talk on "Deeptech Innovations: For the Fun of It" on 21st August 2025
- ***Dr. Hirakjyoti Sarma,*** Department of Physics, Tezpur University, Assam, gave a talk on "Structure, dynamics and phase transition of finite dust clusters in complex plasmas : A Molecular Dynamics study" on 29th August 2025

Upcoming Events

- 3rd JT-60SA International Fusion School 2025, Naka Fusion Institute, Japan, 1- 12 September 2025; https://indico.euro-fusion.org/event/3385/
- Technical Meeting on Tritium Breeding Blankets and Associated Neutronics, Vienna, Austria, 2- 5 September 2025; https://www.iaea.org/events/evt2304553
- IPP Summer University for Plasma Physics and Fusion Research, Garching, Germany, 8- 12 September 2025; https://www.ipp.mpg.de/summeruni
- 29th EU-US Transport Task Force Workshop - 2025, Budapest, Hungary, 9- 12 September 2025; https://ttf2025.ek.hun-ren.hu/
- 6th IAEA Technical Meeting on Fusion Data Processing, Validation and Analysis, Shanghai, China, 9- 12 September 2025; https://conferences.iaea.org/event/393/
- 13th IAEA International Conference on Inertial Fusion Sciences and Applications, Tours, France, 14- 19 September 2025; https://www.iaea.org/events/evt2404600
- 23rd International Vacuum Congress (IVC-23), Sydney, Australia, 15- 19 September 2025; https://ivc23.org/
- 69th IAEA General Conference 2025, Vienna, Austria, 15- 19 September 2025; https://www.iaea.org/about/governance/general-conference/gc69
- International Conference on Advances in Nuclear Power Plants (ICAPP 2025), France, 17- 19 September 2025; https://www.sfen.org/evenement/icapp-2025/
- 17th European Conference on Applied Superconductivity 2025 (EUCAS 2025), Porto, Portugal, 21- 25 September 2025; https://eucas2025.esas.org/
- 14th International Conference on Tritium Science and Technology (Tritium 2025), Ottawa, Canada, 21- 26 September 2025; https://tritium2025.com/
- 9th Asia-Pacific Conference on Plasma Physics (AAPPS-DPP2025), Fukuoka, Japan, 21- 26 September 2025; https://www.aappsdpp.org/DPP2025/
- AVS International Symposium and Exhibition (AVS 71), Charlotte, North Carolina, USA, 21- 26 September 2025; https://avs71.avs.org/
- 2nd International School on Atomic and Molecular Data Evaluation and Curation, University of Valladolid, Spain, 22 – 24 September 2025; https://eventos.uva.es/129130/detail/2nd-international-school-on-atomic-and-molecular-data-evaluation-and-curation.html
- 6th European Nuclear Physics Conference (EuNPC 2025), Caen, France, 22- 26 September 2025; https://www.iaea.org/events/evt2502864
- 20th International Workshop on Plasma Edge Theory in Fusion Devices (PET-20), Leuven, Belgium, 23- 26 September 2025; https://pet2025.com/
- 21st European Fusion Theory Conference, Aix-en-Provence, France, 23- 26 September 2025; https://indico.global/event/13788/
- 22nd International Conference on Fusion Reactor Materials (ICFRM-22), Shizuoka, Japan, 28 September 2025 - 03 October 2025; https://www.icfrm-22.com/
- International Nuclear Graphite Specialists Meeting (INGSM-25), Vienna, Austria, 29 September- 3 October 2025; https://www.iaea.org/events/evt2406378

Conference Presentations

Joint APiP 2025 and NIFS Conference

Ms. Geethika B R, gave a poster presentation on "***Origin of Polarized Emission from Laser Produced Plasma***" at Joint Conference of the 22nd International Conference on Atomic Processes in Plasmas (APiP 2025) and the NIFS Conference on Atomic and Molecular Processes in Plasmas, Tokyo, Japan, 21-25 July 2025.

She has received "**Best Student Poster Award**" for her presentation.

Congratulations!!

Conference Presentations

Ms. Geethika receiving her poster award

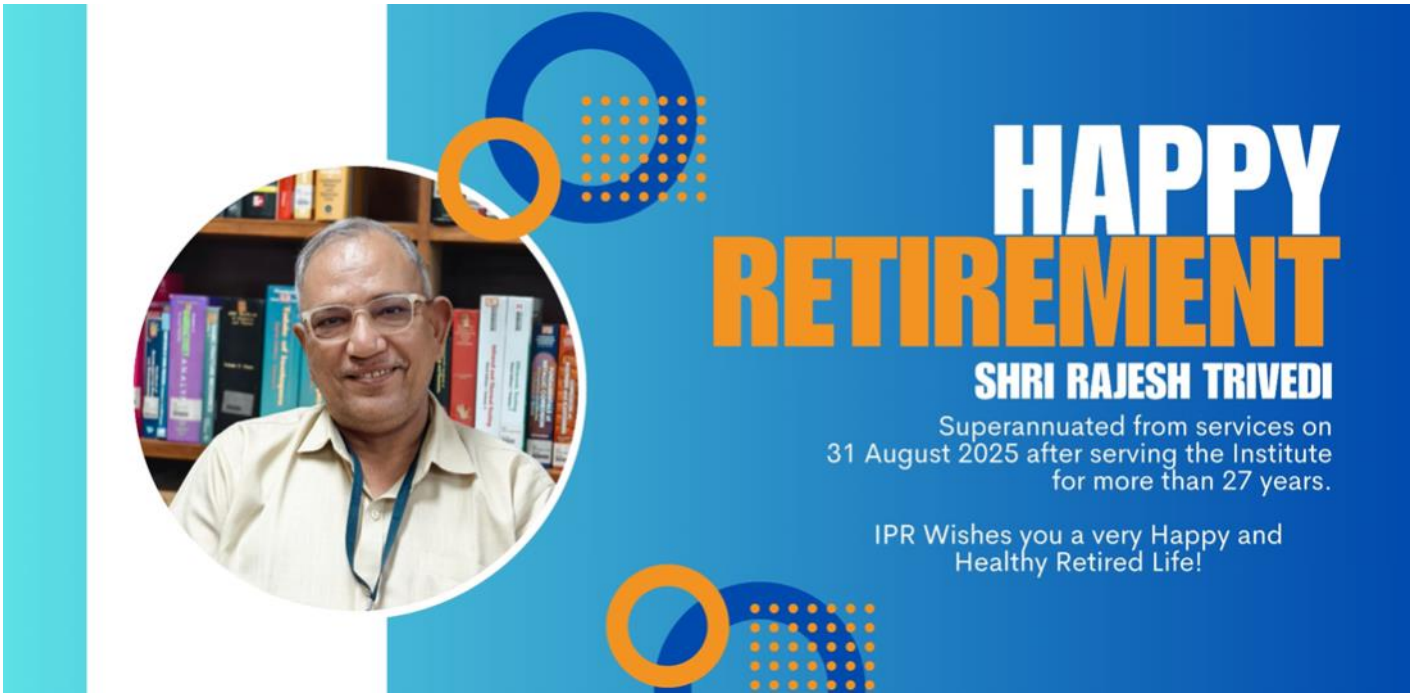
FLUTE-25 Conference

Dr. Mukesh Ranjan gave a keynote lecture titled "**Plasma Surfaces Modification for Water Harvesting**" in 3rd Biennial International Symposium Fluids and Thermal Engineering (FLUTE) -2025, organised Department of Mechanical Engineering Amity School of Engineering & Technology, Amity University, Noida, Uttar Pradesh.

IPR and Amity University jointly worked on a water harvesting device development under BRNS project.

Dr. Mukesh Ranjan delivering his invited talk (L) and being felicitated (R)

Superannuation



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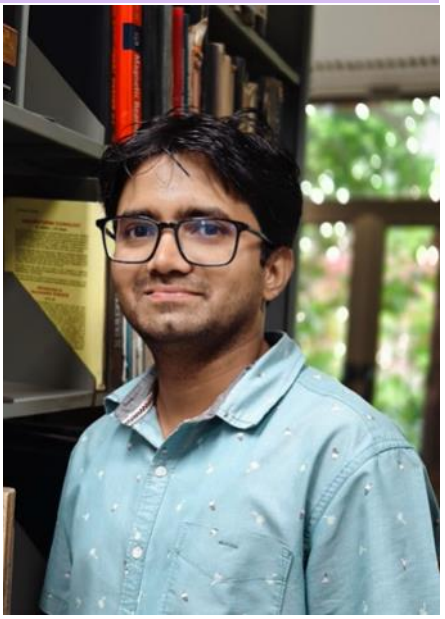
Know Your Colleague

Dr. Prabhakar Srivastav completed his M.Sc. in Physics from Banaras Hindu University (BHU) and earned his Ph.D. in Plasma Physics from IPR in the year 2019. During his doctoral research, he has worked on the Large Volume Plasma Device (LVPD), focusing on plasma turbulence and transport phenomena driven by Electron Temperature Gradient (ETG) instabilities. From 2019 to 2021, he served as a Postdoctoral Research Associate at West Virginia University, USA, where he worked on developing advanced plasma diagnostics, including Langmuir probes, B-dot probes, microwave interferometry, and Incoherent Thomson Scattering systems for the PHASMA (Phase Space Mapping) device. In December 2021, Prabhakar joined IPR as a Scientific Officer-D in the diagnostics division. His primary role focuses on the development and implementation of the Thomson Scattering diagnostic system for the Aditya-U tokamak. He has also contributed to diagnostic development for RF capacitive discharges and other laboratory plasma systems. His core interests include experimental plasma physics, plasma diagnostics, and low-temperature plasma modeling. In addition to his research responsibilities, Prabhakar is actively involved in academic activities such as teaching, mentoring students, and serving on Ph.D. advisory committees. Outside of work, he enjoys playing chess, reading science fiction, and exploring topics in human psychology.



Dr. Prabhakar Srivastav

Newsletters from IPR

GANANAM (गणनम्)

High Performance Computing Newsletter

प्लाज़्मा समाचार

PLASMA PROCESSING UPDATE

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