

Issue 131  
June 2024

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

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



PLATINUM JUBILEE YEAR  
70  
Glorious Years  
1954-2024



## “साइबर सुरक्षा जागरूकता” पर कार्यशाला

प्लाज्मा अनुसंधान संस्थान द्वारा दिनांक 26.04.2024 को सेमिनार हॉल में “साइबर सुरक्षा जागरूकता” पर एक हिंदी कार्यशाला का आयोजन किया गया। इस कार्यशाला में बड़ी संख्या में संस्थान के अधिकारियों एवं कर्मचारियों ने भाग लिया। कार्यशाला की वक्ता श्रीमती कीर्ति महाजन, वैज्ञानिक अधिकारी तथा संस्थान के कंप्यूटर प्रभाग के वैज्ञानिक अधिकारी श्री गोविंद लोखंडे थे। प्रथम सत्र में श्रीमती कीर्ति महाजन, वैज्ञानिक अधिकारी – एच ने पावरपॉइंट प्रस्तुति के माध्यम से साइबर सुरक्षा का परिचय देते हुए इसकी आवश्यकता के बारे में विस्तृत जानकारी प्रदान की और साथ ही साइबर सुरक्षा के प्रति जागरूकता पर बल देते हुए बताया कि वर्तमान में कंप्यूटर, मोबाइल एवं इंटरनेट का उपयोग हमारे जीवन का एक महत्वपूर्ण अंग बन गया है। हमारे दैनिक जीवन का काफी समय आभासी दुनिया में व्यतीत हो रहा है और वास्तविक दुनिया के खतरे हमें दिखाई देते हैं, लेकिन आभासी दुनिया के नहीं। उन्होंने कुछ हिन्दी वीडियो के माध्यम से बताया कि कैसे हम साइबर क्राइम से बच सकते हैं।

दूसरे सत्र में वैज्ञानिक अधिकारी श्री गोविंद लोखंडे ने साइबर अपराध संबंधी विस्तृत जानकारी दी और साथ ही बताया कि कैसे आजकल हैकर्स अपनी पहचान छुपाकर सोशल मीडिया, ईमेल, चैटरूम इंस्टेंट मैसेजिंग, गेमिंग प्लेटफॉर्म का उपयोग करके नए तरीके अपना रहे हैं और हमें शिकार बनाते हैं और ऐसे कार्य करने के लिये प्रेरित करते हैं, जिससे वे हमें आसानी से फंसा सकें। उन्होंने श्रोताओं को अवगत कराया की साइबर अपराध से बचने के लिये किसी अनजान से संपर्क नहीं करना चाहिए तथा अपने बारे में कितनी इंफॉर्मेशन कब, कैसे और कहाँ शेयर करनी है, शेयर करनी भी है या नहीं, इस पर सतर्क रहना चाहिए। इस अपराध को अंजाम देने वाला हमारा परिचित, रिश्तेदार, मित्र या कोई अनजान व्यक्ति भी हो सकता है। दोनों वक्ताओं ने कुछ सुझाव दिए कि पैसे की लेनदेन या व्यवसाय संबंधी, बैंक खाते आदि के पासवर्ड को कम से कम 12 अक्षरों का रखें तथा सार्वजनिक स्थानों पर फ्री वाईफाई के उपयोग से बचे तथा ऐसी जगह पर मोबाइल को चार्ज न करें और यह भी बताया की हाई-डेफिनेशन सेल्फ्री इमेज को स्केन करके आपके फिंगर प्रिंट का भी साइबर अपराधी उपयोग कर सकते हैं, अतः इस नये ईजाद किए गए तरीकों से सब श्रोतागण को परिचित करवाया और साइबर अपराध से बचने के लिए जागरूक होने के लिए आगाह किया। कार्यशाला के समापन पर संस्थान के वैज्ञानिक अधिकारी श्री राजसिंह तथा मुख्य प्रशासनिक अधिकारी, श्री निरंजन वैष्णवजी ने दोनों वक्ताओं को स्मृति चिन्ह भेंट किया। धन्यवाद ज्ञापन के साथ इस कार्यशाला का समापन हुआ।



हिंदी कार्यशाला की कुछ झलकियाँ (L) श्रीमती कीर्ति महाजन (R) श्री गोविंद लोखंडे अपने व्याख्यान देते हुए





## उपलब्धि - राजभाषा शील्ड

नगर राजभाषा कार्यान्वय समिति गांधीनगर की 22वीं छमाही बैठक दिनांक 30 अप्रैल 2024 को बड़ौदा एपेक्स अकादमी गांधीनगर में आयोजित हुई। यह बैठक श्रीमती सुष्मिता भट्टाचार्य, उप निदेशक, पश्चिम क्षेत्रीय कार्यान्वयन कार्यालय, राजभाषा विभाग, गृह मंत्रालय, भारत सरकार के मार्गदर्शन में आयोजित हुई। श्री सुनिल सिन्हा, अध्यक्ष, नराकास, गांधीनगर ने इस बैठक की अध्यक्षता की एवं बैठक में उपस्थित नराकास, गांधीनगर के विभिन्न केन्द्रीय कार्यालयों/संगठनों/बैंको के कार्यालयाध्यक्षों, राजभाषा अधिकारियों एवं प्रतिनिधियों को संबोधित किया। इस बैठक में सदस्य कार्यालयों की छमाही रिपोर्ट की समीक्षा की गई एवं राजभाषा कार्यान्वयन में निर्धारित लक्ष्य प्राप्त करने हेतु उचित मार्गदर्शन दिया गया। इस बैठक में प्लाज्मा अनुसंधान संस्थान की ओर से डॉ. शशांक चतुर्वेदी, निदेशक एवं डॉ. संध्या दवे, हिंदी अधिकारी ने भाग लिया। इस बैठक में मंचासीन महानुभावों द्वारा गांधीनगर की हिंदी पत्रिका "गांधीनगरी" के दूसरे अंक का विमोचन किया गया। संस्थान के कार्मिकों द्वारा लिखी गई पाँच रचनाएँ इस पत्रिका में प्रकाशित हुई हैं। बैठक के अंत में वर्ष 2023-24 के लिए राजभाषा शील्ड पुरस्कार के अंतर्गत नराकास, गांधीनगर के सदस्य कार्यालयों को राजभाषा कार्यान्वयन में उत्कृष्ट कार्य हेतु पुरस्कृत किया गया। राजभाषा के उत्कृष्ट कार्यान्वयन के लिए स्वायत्त संस्थान/शैक्षणिक संगठन की श्रेणी के अंतर्गत प्लाज्मा अनुसंधान संस्थान को वर्ष 2023-24 के लिए राजभाषा शील्ड पुरस्कार के तहत द्वितीय पुरस्कार प्राप्त हुआ है। इस बैठक में नराकास, गांधीनगर के मंच से भाषा सम्मान की शुरुआत की भी गई। इस अवसर पर स्थानीय साहित्यकार एवं गुजरात विद्यापीठ के सेवानिवृत्त प्रोफेसर डॉ. जशवंत बी पंड्या को भाषा सम्मान से सम्मानित किया गया। अक्टूबर 2023 से मार्च 2024 के दौरान नराकास, गांधीनगर स्तर पर आयोजित विभिन्न प्रतियोगिताओं के विजेताओं को पुरस्कृत किया गया। इस बैठक में प्लाज्मा अनुसंधान संस्थान के निम्नलिखित स्टाफ सदस्यों ने विभिन्न पुरस्कार प्राप्त किये:

नाम	प्रतियोगिता एवं आयोजक कार्यालय का नाम	पुरस्कार
श्री गौरव पुरवर	सामान्य प्रश्नोत्तरी, बड़ौदा एपेक्स अकादमी	विजेता पुरस्कार
श्री रजनीकान्त भटासना	राजभाषा प्रश्नोत्तरी, बड़ौदा एपेक्स अकादमी	विजेता पुरस्कार
श्री विकास गौर	प्रश्नोत्तरी, केन्द्रीय जल आयोग	प्रथम पुरस्कार
श्री श्रवण कुमार	चित्र संवाद लेखन, बैंक ऑफ इंडिया	प्रोत्साहन पुरस्कार
श्री रोहित अग्रवाल	चित्र संवाद लेखन, बैंक ऑफ इंडिया	प्रोत्साहन पुरस्कार
श्री अनुज गर्ग	राजभाषा प्रश्नोत्तरी, गुजरात केन्द्रीय विश्वविद्यालय	प्रथम पुरस्कार
श्री गौरव पुरवर	राजभाषा प्रश्नोत्तरी, गुजरात केन्द्रीय विश्वविद्यालय	द्वितीय पुरस्कार





Hyper-redundant manipulators are an alternative to serial manipulators that can be used for inspection and maintenance in constrained locations. In conventional serial robots, each link moves in a 2D plane that is normal to its actuation axis that is controlled by a motor-gearbox assembly. Thus the number of DOFs for a conventional robot is defined by the number of joints. Hyper-redundant robots, on the other hand, have joints that are defined by a spherical workspace – similar to a ball bearing, and the actuation is controlled using cables. As a result, each joint is not restricted to a 2D plane and can actuate the in a 3D workspace. An 18 axes HyRIS system with additional 01 translational motion has been developed in-house. This is a dexterous tendon driven robotic arm (similar to an elephant trunk). It is highly suitable for inspections in tokamak environment, where the robotic systems need to have multiple degrees of freedom, light weight, fast deployment and retrieval mechanism with high dexterity. The system has been successfully developed and tested with 06 actuators. A modular control system also developed. As the actuators are placed away from the arm and outside the working environment, this system can also be used for pipe inspection applications, inspection through narrow spaces & challenging environment etc. A vacuum compatible version is also designed and being developed.



The Hyper Redundant Inspection System developed at IPR

## Development of Bi-Metallic Joints for Cryogenic, Fusion & Space Applications

In-house development activity of a Bi-metallic joint of dissimilar materials of aluminum and stainless steel has been initiated and is progressing at the cryogenic division. This joint could be an alternative selection of commercially available explosive, friction and splash welded joints. Different sizes like  $\frac{3}{4}$ " and 1" NB sizes of Bi-metallic joint has been fabricated by crucial technique of bonding with cryogenic grade epoxy resin system. The developed joints have been undergone rigorous testing at liquid nitrogen temperature. The test results of joints found in acceptable limit at 300 K and 77 K. These joints can overcome the issues of distortion, high temperature, wear and tear on contacting surfaces and reduction the life of machine parts and high cost factor. The mechanical tensile pull load test was performed, the joints were fractured at parent material location of Al and SS tube cross-section, no joints were broken at the bonding of epoxy resin section. The batch wise fabrication and mechanical testing is under progress for repeatability of acceptance and reliability of the product. The custom design of Bi-Metallic joints can be made as per the system requirement. These can be used in a variety of applications including cryogenic heat exchanger, electrical isolation & cryogenic services, in cryogenic rocket engines, cryogenic fuel tanks etc,

### Salient Features :

- Bi-metallic joint type: Cryogenic epoxy resin based
- Materials grade: SS 304 L + Al 6082/HE30
- Temperature range: 300 -77 -4.2 K
- Fabricated size:  $\frac{3}{4}$ " and 1" NB
- Helium leak tightness (i) at 300 K: 3.7E-09 mbar l/s (ii) after thermal shock at 77 K in dipped condition: 1.3 E-09 mbar l/s (iii) In LN2 dipped condition at 10 bar (g) helium pressure inside: 1.0E-08 mbar l/s
- $\frac{3}{4}$ " NB joint (AL + SS 304L): Tensile strength: 220 MPa, 1" NB joint (AL + SS 304L): Tensile strength: 195 MPa;  $\frac{1}{2}$ " NB joint (SS 304L + Glass fibre): Tensile strength: 70 MPa



(L) SS-Al bi-metallic joints (R) SS-Al bi-metallic joint after tensile pull test



Student participants of ISRO's YUVIKA (YUva Vigyani KARYakram (Young Scientist Programme) program visited IPR on 20th May, 2024. These 50 students, picked from the western states of India, get to spend a few weeks at ISRO centers. At IPR, YUVIKA students were given an introductory lecture on plasma By Dr. A V Ravi Kumar and then they were shown the various exhibits on plasma by the Outreach team. They were also taken to visit both Aditya and SST-1 tokamaks.



Participants of the YUVIKA 2024 program of ISRO, during their visit to IPR



## MoU between IPR and PDEU

A Memorandum of Understanding (MoU) has been established between the esteemed Institute for Plasma Research (IPR) and Pandit Deendayal Energy University (PDEU), for advancing academic and scientific research for progressive exploration and development of plasma science, technology, and associated disciplines. IPR has a comprehensive R&D roadmap for fostering indigenous expertise in fusion and plasma technologies, with a view to addressing societal needs. Notably, the establishment of an Atal incubation center at IPR further strengthens its support framework for startups and innovators, facilitating the accelerated maturation of plasma technologies for fusion and broader societal applications. Pandit Deendayal Energy University (PDEU), known for its wide-ranging academic offerings in engineering, arts, and management, boasts a strong research and development setup. PDEU's emphasis on cutting-edge areas like Energy, Environment, Additive Manufacturing, and 3-D printing highlights its commitment to innovation and sharing knowledge. The collaboration between IPR and PDEU will deliver substantial mutual benefits, fostering synergies in research endeavors, academic pursuits, and the expeditious implementation of plasma technologies and development of skilled human resource for achieving these objectives. This collaboration holds great potential for transformative progress in academic, technological, and societal spheres.



## Congratulations!



**Dr. Swarnima Singh** was awarded the “**Outstanding Student Award**” for the year 2023 in Physical Sciences by the Homi Bhabha National Institute for her PhD thesis entitled “*Experimental Study of a Quasi Two-Dimensional Complex Plasma*”. She completed her PhD at IPR under the guidance of Dr. Pintu Bandyopadhyay. She is currently a Post-Doctoral fellow at University of California, San Diego, USA.

**Dr. Vikas Rathore** was awarded the “**J.B. Joshi Research Foundation Innovation Award**” for the year 2023 in Engineering Sciences by the Homi Bhabha National Institute for his PhD thesis entitled “*Study of Plasma Activation of Water and its applications in Antimicrobial and Agricultural activities*”. He completed his PhD at IPR under the guidance of Dr. S. K. Nema. He is currently a Post-Doctoral fellow at IPR, working in the field of field of plasma hydroponics and vertical farming.



The plume, a cloud of water vapor, emerging from one of the cooling tower cells (as shown in the image), is a visible indicator of the activation of systems supplied by India. The heat generated by few helium compressors was rejected to the atmosphere with simultaneous operation of Component Cooling Water System (CCWS)-2D and Heat Rejection System (HRS) loops involving key equipment such as cooling tower, horizontal centrifugal pumps, vertical turbine pump and plate type heat exchangers.

The cooling tower, designed and manufactured by M/s Paharpur Cooling Towers Ltd., was tested with one of the cells rejecting heat to the atmosphere. The cooling tower is made of 10 cells, with a heat rejection capacity of ~510 MW and having dimensions of ~ 80m (L) X 32m (W) X 20 m (H). This is probably the largest capacity cooling tower made by an Indian company using Fiber-Reinforced Polymer (FRP) structures.



(L) The installed cooling tower (R) First plume from the tower

## Successful Installation of Seismic Decoupling Spool @ ITER Site

The ~8.3m long decoupling spool supplied by India has been successfully installed in the cryo-bridge at ITER site by positioning at its final location within required accuracy, overcoming the site constraints and handling challenges. Weighing ~9 tonnes, this decoupling spool is specifically designed to take care of high relative movements between Tokamak building and cryo-bridge during Seismic Level-2 event (high intensity earthquake with relative displacements up to 150 mm) by incorporating combination of cryogenically compatible axial bellows and gimbal/universal joints in all process pipes as well as in outer vacuum jacket. The decoupling elements of this spool work like hip joint of human body, with careful design to ensure required degrees of freedom in all three directions.

The installation of this double set of cryolines in the cryo-bridge—the largest measuring one metre in diameter—began in February. Earlier this month, the teams successfully performed one of the most challenging operations of the whole installation process: the precise positioning of a 9-tonne cryoline spool designed to decouple displacements between the cryo-bridge and the Tokamak Building in case of a seismic event.

The decoupling spools, total six in number, are part of complex ITER cryolines system designed and manufactured by ITER-India through M/s Air Liquide. All the 181 spools of the cryolines (up to 1 m diameter vacuum jacket with 5 to 7 process pipes and thermal shield) system have been successfully tested at the factory and supplied to ITER. The installation started in 2019 at ITER site and presently ~ 70% of installation work has been completed. Upon installation of all the spools, this cryolines system will form ~ 1.5 km long network.



Installation of the seismic decoupling spool being carried out at ITER site



Institute for Plasma Research (IPR), Gandhinagar (Gujarat), in association with Gujarat Science City, Ahmedabad and GUJCOST celebrated the National Technology Day by organizing a series of events at the Gujarat Science City, Ahmedabad on 11th May, 2024 with the theme "Technology for Viksit Bharat". This program is a part of IPR's scientific outreach activity under the auspices of "70 years of DAE" celebrations. The event was inaugurated by Dr. Narottam Sahoo, Advisor and Member Secretary, GUJCOST.

The programme consisted of an exhibition on plasma, its applications as well as introductory talks on plasma for visiting students and training program on plasma, its applications and nuclear fusion for science teachers, students and public. UG students of MG Science college Ahmedabad participated as student volunteers for the exhibition. Over 1500 people visiting the science city also visited the exhibition. More Details [HERE](#).



Inauguration of the exhibition by Dr. Narottam Sahoo, Advisor and Member Secretary, GUJCOST.





Institute for Plasma Research (IPR), Gandhinagar (Gujarat), in association with Rabindranath Tagore University (RTU), Hojai (Assam), organized an exhibition on Plasma, the fourth state of matter during 18-22 March, 2024. This program is part of IPR's rural scientific outreach activity in various states of India. This is the first outreach activity of IPR to be held in rural Assam. The programme consisted of an exhibition on plasma, its applications as well as introductory talks on plasma for visiting students. A quiz program was conducted for school students and Tokamak assembly competition was also conducted for the volunteers.

The event was inaugurated by Prof. Amalendu Chakrabarty, Vice Chancellor, Rabindranath Tagore University. For this exhibition, 100 students of various BSc courses of RTU were trained by IPR team to explain the exhibits to visiting students in their local language. Over 650 students and general public visited the exhibition at RTU. IPR's Outreach event at Hojai was coordinated by Dr. Swathi Baruah and Dr. Laba Kumar Thakuria of the Department of Physics, Rabindranath Tagore University. Staff and research scholars from CPP-IPR also participated in this event. Click [HERE](#) for more details of the event.



The plasma exhibition at Rabindranath Tagore University (RTU), Hojai



Inauguration of the event by the Vice Chancellor, Rabindranath Tagore University



The Vice Chancellor, Rabindranath Tagore University, visiting the exhibition



Student volunteers of RTU explaining the exhibits to visitors





Student volunteers of RTU explaining the exhibits to visitors



Quiz program being conducted for school students during the event



Students experiencing virtual reality at the exhibition



Tokoy assembly competition in progress during the event



IPR staff club held its annual General Body Meeting on 20-May-2024. During this event, the outgoing committee presented its annual report and budget and after elections, the new Executive committee took charge of the Staff Club operations for the coming year.



Raj Singh  
President



Vijay Bedakihale  
General Secretary



Badal Sevak  
Treasurer



Vijay Vasava  
Cultural Secretary



Sandeep Gupta  
Sports Secretary





Institute for Plasma Research (IPR), Gandhinagar (Gujarat), in association with Geetanjali Institute of Technical Studies (GITS), Udaipur (Rajasthan), organized an exhibition on Plasma, the fourth state of matter during 15-19 April, 2024. This program is part of IPR's scientific outreach activity in various states of India under the auspices of "70 years of DAE" celebrations. The event was inaugurated by the Director of GITS, Dr. Narendra Singh Rathore.

The programme consisted of an exhibition on plasma, its applications as well as introductory talks on plasma for visiting students and training program for teachers. Sixty one students of 1st year engineering from GITS were trained by IPR staff to explain the various exhibits to visiting public. In the training program on plasma and its applications for science teachers, over 60 teachers from Udaipur participated and were provided with resource materials and tokotoy. A quiz program was also conducted for school students and Tokamak assembly competition was conducted for the volunteers. Over 4000 students from over 50 schools and colleges in Udaipur visited the exhibition. The event was coordinated by Dr Hina Oza and Dr. Vishal Jain of GITS. For more details, click [HERE](#)



Plasma exhibition at GITS, Udaipur



Inauguration of the event (L) Lighting the lamp (M) Dr. N. S. Rathore (Director, GITS) (R) Dr. A V Ravi Kumar, IPR



Introducing plasma to visiting students



Training program in Plasma for teachers in progress





Student volunteers of GITS explaining the exhibits to visitors



Tokamak assembly competition in progress



Student volunteers from GITS Udaipur with IPR Outreach team



- ◆ **Talks presented at International Conference on Advances in Aerospace and Energy Systems (IAES-2024), Liquid Propulsion Systems Centre (ISRO), Thiruvananthapuram, Kerala, 4-6 April 2024**
  - **Mr. Jagabandhu Kumar**, gave a talk on "*Power Balance in Tokamak Fusion Reactor*"
  - **Mr. Sunil Bassi**, gave a talk on "*Computational Fluid Dynamics Modelling and Validation of Rotating Detonation Engine*"
- ◆ **Talks presented at 15th-ITER Neutronics meeting and Fusion Neutronics Workshop -2024, ITER Headquarters, France, 8-10 April 2024**
  - **Ms. Jyoti Agarwal**, gave a talk on "*Radiation conditions improvement in ITER tokamak complex due to leakage through penetrations*"
  - **Mr. H .L. Swami**, gave a talk on "*14 MeV Neutron Source Facility at Institute for Plasma Research: Characteristics and Applications*"
- ◆ **Ms. Anjana K P**, gave a talk on "*Generation of S-polarized Terahertz Radiation from Laser-Plasma Interactions*" at 10th Optical Terahertz Science and Technology, Philipps University, Marburg, Germany, 8-12 April, 2024
- ◆ **Talks presented at 22nd Joint Workshop on Electron Cyclotron Emission (ECE) and Electron Cyclotron Resonance Heating (ECRH), Daejeon, South Korea, 22-26 April 2024**
  - **Mr. Abhishek Sinha**, gave a talk on "*Design, Development and Characterization of Indigenously Developed High Temperature Black Body Source for Calibration of ECE Diagnostics*"
  - **Ms. Varsha Siju**, gave a talk on "*Recent Results from Electron Cyclotron Emission (ECE) Radiometer diagnostics in the presence of Electron Cyclotron Resonance Heating (ECRH)*"
- ◆ **Mr. Anjan Paul**, gave a talk on "*Coherent whistler interactions with bulk and beam plasma using Vlasov-Maxwell simulation*" on 25th April 2024
- ◆ **Dr. Gajendra Singh**, gave a talk on "*Investigation of Anomalous Intensity of VUV Line at 18.03 nm of Ar13+ ion in ADITYA-U tokamak*" on 26th April 2024
- ◆ **Dr. Jayanta Dutta**, Harish-Chandra Research Institute, Prayagraj, gave a talk on "*Formation and Evolution of the very First Stars (Primordial Stars) in the Universe*" on 26th April 2024
- ◆ **Dr. Manoj Kumar**, National Institute of Technology, Rourkela, gave a talk on "*Design and Development of Cryogenic Turboexpander, Indigenous Helium Liquefier and its Major Components*" on 3rd May 2024
- ◆ **Dr. Dhyey Raval**, gave a talk on "*Design and characterization of RF power measurement device for multi-electrodes large area plasma source*" on 06th May 2024
- ◆ **Dr. Vikas Rathore**, gave a talk on "*A Nitrogen Alternative: Use of Plasma Activated Water as Nitrogen Source in Hydroponic Solution for Radish Growth*" on 09th May 2024
- ◆ **Dr. Akhil Khajuria**, Dr. B.R. Ambedkar National Institute of Technology, Jalandhar, gave a talk on "*Effect of boron modification on microstructure in HAZ of P91 steel for better resistance to type IV cracking*" on 10th May 2024
- ◆ **Dr. Barti Malvi**, Indian Institute of Technology, Gandhinagar, gave a talk on "*Use of stable isotopes for failure detection and tracing of biomaterials*" on 13th May 2024
- ◆ **Dr. Hardik Vyas**, gave a talk on "*Study of Friction Weld Joints for Fabrication of Ion Extractor Grid*" on 16th May 2024
- ◆ **Mr. Milaan Patel**, gave a talk on "*Development of pulsed supersonic beam system for tokamak edge diagnostics and other applications*" on 20th May 2023

## Upcoming Events

- ◆ 17th Kudowa Summer School "Towards Fusion Energy", Poland, 3-7 June 2024; <https://fusenet.eu/event/17th-kudowa-summer-school-towards-fusion-energy>
- ◆ Nuclear Innovation Conference (NIC2024), Amsterdam, 5-6 June 2024; <https://www.nuclearinnovationconference.eu/>
- ◆ ANS Annual Conference 2024, Las Vegas, United States, 16-19 June 2024; <https://www.ans.org/meetings/ac2024/>
- ◆ 2024 International Conference on Advances in Nuclear Power Plants (ICAPP), Las Vegas, United States, 16-19 June 2024; <https://www.ans.org/meetings/icapp2024/>
- ◆ 51st IEEE International Conference on Plasma Science (ICOPS) and the 4th Asia-Pacific Conference on Plasma and Terahertz Science (APCOPTS), Beijing, China, 16-20 June 2024; <https://www.icops2024.com/>
- ◆ 30th Symposium on Plasma Physics and Technology, Prague, Czech Republic, 17-20 June 2024; <https://www.plasmaconference.cz/>
- ◆ 11th National Conference on Recent Trends in Materials Science and Technology (NCMST-2024), Indian Institute of Space Science and Technology Thiruvananthapuram, 25-27 June 2024; <https://events.iist.ac.in/ncmst2024/>
- ◆ 16th International Conference on Material Processing and Characterizations (ICMPC2024), Nirma University, Ahmedabad, 27-29 June 2024; <https://www.icmpc.com/index.php>
- ◆ National Conference on Role of Academic-driven Startups in developing Economy of J&K (RASE-2024), NIT Srinagar, 29-30 June 2024; <https://www.raseconferences.com/>



Title	Page No	Title	Page No
“साइबर सुरक्षा जागरूकता” पर कार्यशाला	01	Seismic Decoupling Spool @ ITER Site	06
उपलब्धि - राजभाषा शील्ड	02	National Technology Day 2024	07
Hyper Redundant Inspection System (HyRIS)	03	Plasma Exhibition @ Hojai (Assam)	08-09, 14
Development of Bi-Metallic Joints	03	IPR Staff Club	10
Academic Visits to IPR	04	Plasma Exhibition @ Udaipur (Rajasthan)	11-12
MoU between IPR and PDEU	05	Past Events @ IPR	13
Congratulations	05	Upcoming Events	13
First Plume @ ITER Site	06	KYC	14

### Know Your Colleague



Mr. Urmil Thaker

Mr. Urmil Thaker joined IPR as a TTP in the year 2010 after completing his B.Tech in electrical engineering from Nirma University in the year 2009. He worked for a decade in the Ultra High Voltage Systems Division. Later on in the year 2020, he joined the Power Supply Division (PSD). Urmil has expertise for the design, analysis and development of high-voltage low-current DC power supplies and high-current dc pulse power supplies for tokamak. He has been involved in the design and development of HVDC power supply and High Voltage Full-Wave Voltage Multiplier (FWVM) modular unit during his tenure in the Ultra High Voltage Division. For the past three years, while working in the Power Supply Division, he has successfully completed the design and development of TF (Toroidal Field), EF (Equilibrium Field), and OT (Ohmic Transformer) power supplies for the Small Scale Spherical Tokamak (SS-ST). Urmil completed his M.Tech by Research in High Voltage Engineering from Nirma University during the years 2020-2023. He has guided several B.Tech students for their final year engineering projects, as well as an ITSO student for his M.Tech project.

### Plasma Exhibition @ Hojai (Assam)



IPR team with the scientific volunteers from RTU, Hojai during the plasma exhibition

### The IPR Newsletter Team

Ritesh Srivastava	Tejas Parekh	Ravi A. V. Kumar	Priyanka Patel	Dharmesh Purohit	Pratibha Gupta	Saroj Das
Suryakant Gupta	Ramasubramanian N.	Supriya R Nair	Shravan Kumar	B. J. Saikia	Harsha Machchhar	Sandhya Dave

Institute for Plasma Research  
Bhat, Near Indira Bridge  
Gandhinagar 382 428,  
Gujarat (India)



Web : [www.ipr.res.in](http://www.ipr.res.in)  
E-mail : [newsletter@ipr.res.in](mailto:newsletter@ipr.res.in)  
Tel : 91-79-2396 2000  
Fax : 91-79-2396 2277