The 4th State

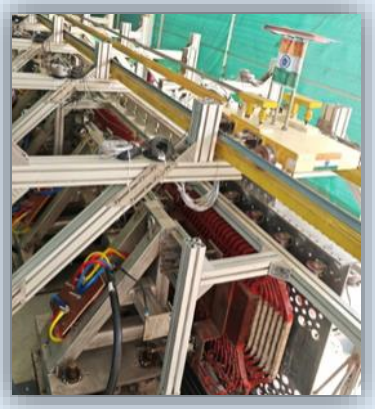
Newsletter of the Institute for Plasma Research, Gandhinagar, Gujarat (India)

Issue 154 **May 2026**

Highlights of the Issue

IVIS System for SST-1

8kN Electromagnetic Launcher



LIGO-India –Status Update

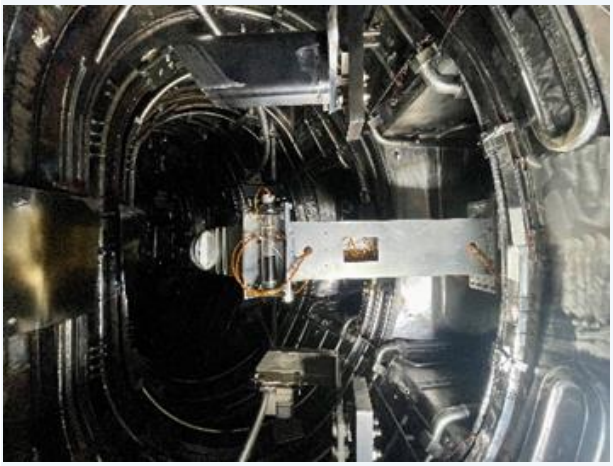
Inside the Issue...

In-Vessel Inspection System (IVIS) Deployed and Tested in SST-1

An articulated In-Vessel Inspection System (IVIS) has been developed at IPR to perform the remote in-service inspection inside toroidal vacuum vessel. The IVIS is compatible to 1e-7 mbar pressure and 100°C temperature. The IVIS system consists of a 6-DOF articulated arm with reach up to 4m, mounted on a linear guide and a storage vacuum chamber. The arm has an optical camera as the payload.

The IVIS was installed at radial port #07 of the SST-1 vacuum vessel for testing and demonstration. The kinematic simulations for deployment of IVIS into the toroidal vessel were performed using Virtual Reality (VR). The IVIS with a camera at the tip was accurately deployed to the intended inspection locations in the vessel with a repeatability of ±2 mm, demonstrating its capability of precise inspection. This achievement strengthens in-house capabilities in developing such long-reach articulated arms for future tokamaks.

In-vessel Inspection System (IVIS)



IVIS deployed in SST-1

Image taken from camera mounted on IVIS

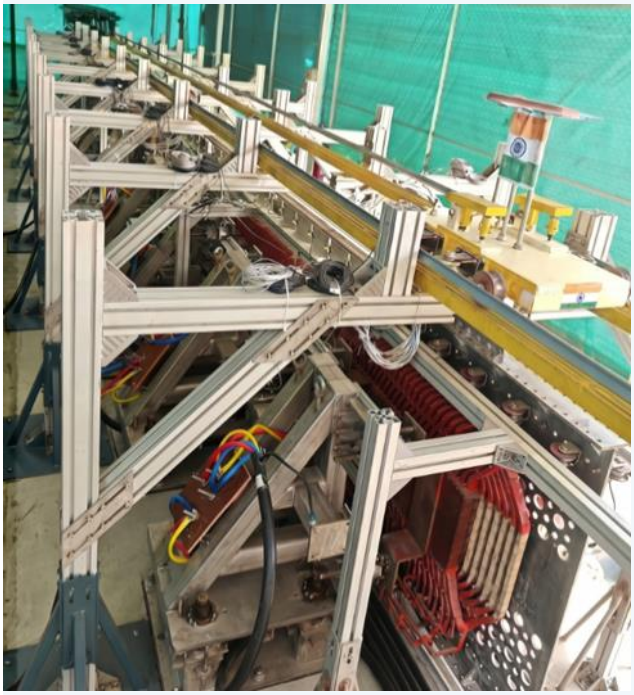
IVIS Mounted at Port #7 of SST-1 VV

Successful demonstration of fully integrated 8kN Electromagnetic Launcher (EML)

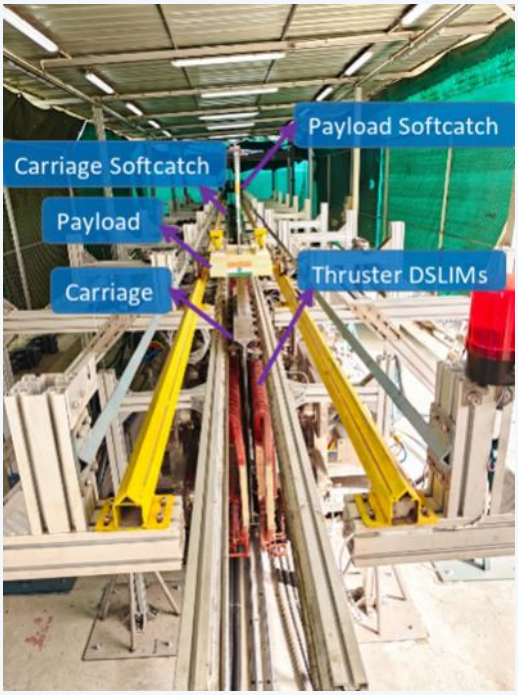
The Electromagnetic Launcher (EML) team achieved a major milestone with the successful demonstration of its fully integrated 8kN EML prototype. This indigenous system marks a foundational step toward scalable Linear Induction Motor (LIM) technologies for defense and industrial applications.

This prototype delivers ~20 m/s launch speeds for a ~170 kg moving mass (60 kg carriage + 110 kg payload), powered by four sets of thruster Double Sided LIMs plus one Breaking Double sided LIM set. Also it include Hybrid Carriage softcatch Breaking system for smooth deceleration and Frictional capture mechanism for payload deceleration. All components successfully designed, fabricated, assembled, integrated, tested, and operated, building on prior 12N and 170N lab-scale successes. Recently, 18 m/s carriage speed demonstrated in operational tests and 8kN thrust validated through blocked tests.

EML systems useful for naval ships, enabling shorter runways compared to steam catapults also, these can be useful in Industries for High-velocity rock pulverizing in mines, material transport automation.



Isometric View of 8kN EML Setup



8kN EML Setup

Power Panel

Colloquium at IPR

Colloquium #351 was organized on 27 March 2026 at IPR. The colloquium talk was delivered by Prof. Rabindranath Pal, Retired Professor, Saha Institute of Nuclear Physics (SINP), Kolkata. The title of the talk was "**Step by step towards fusion reactor**"

Read the abstract: https://www.ipr.res.in/documents/colloquium351.html

Colloquium #352 was organized on 21 April 2026 at IPR. The colloquium talk was delivered by Prof. Nikhil Chakrabarti, Retired Professor, Saha Institute of Nuclear Physics (SINP), Kolkata. The title of the talk was "**Rethinking Ion Acoustic Waves: The Role of Finite Ion Temperature in Dispersion and Nonlinearity** "

Read the abstract: https://www.ipr.res.in/documents/colloquium352.html

55th National Safety Month Campaign - Conclusion

The 55th National Safety Month Campaign was successfully observed at IPR from 5th March to 30th March 2026, in alignment with the initiatives of the National Safety Council of India. The campaign was conducted across all units of IPR, including FCIPT, ITER –India and CPP-IPR with enthusiastic participation from staff and safety coordinators. To promote awareness and encourage participation, various competitions such as Slogan, Essay writing and Quiz were organized across IPR, FCIPT, ITER –India and CPP-IPR. A number of informative talks by experts were also organized.

The Campaign concluded on 30th March 2026. The 55th National Safety Month Campaign at IPR and its units successfully fostered awareness, strengthened safety practices, and encouraged active participation among employees. The wide range of activities—from technical talks to hands-on training—contributed significantly to building a strong and sustainable safety culture within the organization.



Hands-on training sessions at IPR (L&C) and ITER-IN (R)


Safety Officer, Shri Devendra Modi (L) giving concluding speech. Members of Safety Committee and other staff members during the concluding session (R)

LIST OF THE WINNERS OF VARIOUS COMPETITION

Competition	Winners (First)	Winners (Second)	Winners (Third)
Gujarati Slogan	Yagnesh Trivedi	Hemant Kumar Hadiel	Rajnikant Bhatasana
Hindi Slogan	Anil Tyagi	Aroh Srivastava	Sandhya Dave
English Slogan	Naveen Rastogi	Alphonsa Joseph	Amit Ojha
Gujarati Essay Writing	Murtuza Vora	Chirag Bhavsar	Sugam Parmar
Hindi Essay Writing	Sagar Agrawal	Sandeep Gupta	Ashutosh Pandey
English Essay Writing	Stefi Simon	Ambati Siva Reddy	Satyaprasad Akkireddy
Quiz	Gopi Chaudhary	Abhishek Sharma	Dheeraj Sharma

LIGO-India Project Status Update

The LIGO-India project team has successfully concluded the public tender process for the Engineering, Procurement, and Construction (EPC) of civil and vacuum infrastructure required to establish the LIGO-India Observatory at Aundha, Hingoli District, Maharashtra, India, under EPC Mode-I.

The LIGO-India Project has taken a significant step forward in establishing the LIGO-India Observatory at Aundha, Hingoli district in Maharashtra State. On 16th April 2025, the project team issued a public tender, (Estimated cost put to the tender ₹1600 crore) for the Engineering, Procurement, and Construction (EPC) of civil and vacuum infrastructure at Aundha, Hingoli, under EPC Mode-I. To ensure the highest standards, the tender process adopted the Quality-cum-Cost Based Selection (QCBS) methodology, giving due weightage to quality in procurement.

The IPR LIGO Division played a crucial role in shaping the vacuum infrastructure scope of the tender. The contributions included drafting tender documents, addressing pre-bid queries, and delivering a comprehensive scope appraisal presentation that highlighted critical features of the vacuum infrastructure requirements. Following the opening of technical bids, the LIGO Division contributed to the evaluation of the technical bids for compliance with the tender scope, eligibility and QCBS criteria and compilation of QCBS scores for the bidders. The contract is finally placed and Project execution commenced with a Kick-off Meeting held in the office of DCSEM, Mumbai on 12 March 2026.

This milestone marks the beginning of an exciting new chapter in India's contribution to global scientific research, as the LIGO-India Observatory moves closer to realization.

Kick-off Meeting held on 12 Mar 2026 at DCSEM, Mumbai

Discussions at the Project site in Aundha

Bird's Eye View of Proposed LIGO-India site

One-Day Seminar on “Tokamak Plasma & Basic Plasma Physics”

One-Day Seminar on “Tokamak Plasma & Basic Plasma Physics” was be held on 26 March 2026 at the Institute for Plasma Research, Gandhinagar.

The seminar will featured a series of scientific talks along with celebrating the distinguished career, scientific contributions, and mentorship of Prof. Prabal Kumar Chattopadhyay.

The Morning Session was dedicated to Scientific Talks. This session was coordinated by Dr. Joydeep Ghosh and the following talks were presented:

Speaker	Title of the Talk
Dr. Rakesh Tanna, IPR	Latest Research Results of Aditya-U
Dr. Daniel Raju, IPR	SST Tokamak Research
Prof. R. Ganesh, IPR	Microturbulence and transport in Tokamaks
Prof. Pintu Bandyopadhyay, IPR	Fundamental Plasma Experiments
Prof. Ramesh Narayanan, IIT Delhi	Negative ion production studies in ECR plasmas

The afternoon felicitation session was dedicated to the scientific contributions of Prof Prabal Chattopadhyay. This session was coordinated by Dr. Paritosh Chaudhuri. In this session, several senior colleagues, students and collaborators of Prof Prabal shared their thoughts, experiences in the scientific journey.

Glimpses of the event

Prof A K Sundaram Memorial Lecture

The 5th A K Sundaram Memorial Lecture was delivered by **Professor Ramit Bhattacharyya**, Senior Scientist, Udaipur campus, Physical Research Laboratory (PRL), Ahmedabad on 16th April 2026 on "**Alfvén's theorem, magnetic reconnection, and Solar Transients: A tale of two scales**"

Prof Abhijit Sen gave a brief background about the memorial lecture series. He mentioned that, to honour Prof Sundaram's memory, his family has contributed funds to establish this annual memorial lecture to be organized by Plasma Science Society of India (PSSI). The lecture is delivered by an eminent scientist preferably on a topic of research interest of Prof Sundaram.

Prof Sen then introduced the speaker of 5th A K Sundaram Memorial Lecture.

About the Speaker: **Professor Ramit Bhattacharyya** is a renowned plasma physicist working at the Physical Research Laboratory, Ahmedabad, India. Professor Bhattacharyya has obtained his PhD in Physics from Jadavpur University, Kolkata on his work carried out at the Saha Institute of Nuclear Physics, Kolkata, India. He was awarded the prestigious Advanced Study Program scholarship to work at the High Altitude Observatory at the Boulder, Colorado USA, Over the years, Professor Bhattacharyya has contributed immensely in the field of magnetohydrodynamics of solar corona through state-of-the- art numerical simulations.

His research interests include understanding the solar coronal heating problem and the underlying physics of various solar eruptions using computational means. He has extensively worked on the process of coronal heating occurring through the Ohmic dissipation of spontaneously developed current sheets: two dimensional ribbons of intense current.

He has established the role of plasma relaxation towards understanding the fundamental physical processes involved in solar eruptive events using computer simulations. He has contributed significantly in constructing the coronal magnetic field from photospheric observations and developed theory behind one of the Non Force-Free extrapolation models. Such models are important for understanding for constructing three-dimensional coronal magnetic as no reliable direct measurements of this field are available. Professor Bhattacharyya has authored more than 50 publications in International journals and has guided several PhD students.

Dean R&D, Dr. Paritosh Chaudhuri welcoming the audience (L), Prof Abhijit Sen giving a brief about the memorial lecture series (C). Director IPR, Dr. Tapas Ganguli felicitating the speaker (R)

Professor Ramit Bhattacharyya delivering his lecture

Audience attending the lecture

Demo of the newly introduced Online Gate Pass Module

IPR Stores, in collaboration with Computer Division developed a new software module on the Intranet for managing Gate Pass. An introductory talk to showcase the features and functionalities was organized on 08th April 2026. The talk was delivered by Shri Dixit Faneja and Shri Gaurav G. Bhatt from the Stores Section. The presentation provided an overview of the overall function of Gate Pass and the end-to-end gate pass approval process for IPR and FCIPT. It covered the types of gate pass in use, limitations of the earlier manual process of Gate Pass, and advantages of newly launched Gate Pass module. The speakers explained the workflow of newly launched online module, defined roles of requester, approver, preparing person and authorizing person and their responsibilities, and overall benefits. The session concluded with glimpses of the new Online Gate Pass Module, aimed at improving efficiency, transparency, and ease of gate pass issuance.

Shri Gaurav G. Bhatt and Shri Dixit Faneja (L) giving the talk. Audience attending the talk (R)

Industry-Academia-Government Brainstorming Session and Roundtable Discussion

MIT-WPU university in Pune in association with Department of Scientific & Industrial Research (DSIR), Govt. of India had organized an Industry-Academia-Government Brainstorming session and roundtable discussion on 6th March 2026, related to the emerging technological needs of the country and the policy recommendations required therein to support and reinforce the targeted growth milestones by the Government. Stakeholders from industry, academia, government and research institutions were invited for the event.

Dr. Nirav Jamnapara representing AIC-Plasmatech (IPR's Atal Incubation Centre) was invited as panel expert for the event. The topics of discussion revolved around semiconductor, photonics, electronics sectors and plasma processing, etc., and how all the ecosystem partners could contribute to the development of home grown technologies and suggestions to foster their deployment in the country were presented. The host institution would compile all the suggestions and submit the same to DSIR for further consideration.

Dr. Nirav Jamnapara (3rd from Left) attended the panel discussion

IPR Representation at the IP Summit 2026

Intellectual Property Summit 2026 on the theme of '**IP as a Business Asset**' was organized by Ahmedabad Management Association (AMA) on 19th February 2026 at Ahmedabad. The IP summit was participated by over 75+ participants including students, faculties, IP professionals and industry representatives. The summit involved panel discussions by experts from industry such as Mr. Anubhav Kapoor from SMIL, Harpreet Singh Banker as Indian Patent Agent, Dr. Hemang Shah from Applied Materials, Mr. Rajiv Mallik from LG Electronics, Ms. Sandhya Vasudevan - Former Managing Director Thomson Reuter Deusche Bank and Ms. Sarita Joglekar from Reliance Industries. Dr. Nirav Jamnapara representing AIC-Plasmatech (IPR's Atal Incubation Centre) was invited as a panel moderator which addressed how researchers, startups and industry should strategize utilizing IP as a moat for effective commercialization. Specifically, the role of IP in deeptech domain was also discussed."

Dr. Nirav Jamnapara (1st from Right) moderating the panel discussion

National Science Day 2026 @CPP-IPR

The Centre of Plasma Physics – Institute for Plasma Research (CPP-IPR), Sonapur celebrated National Science Day on 27 February 2026 with a day-long programme organized in collaboration with Indus Academy, Jagiroad. The event was conducted at the school campus at the inter-school level with the objective of promoting scientific awareness and encouraging students to develop interest in science and technology.

To mark the occasion, several competitions, such as drawing, quiz, and extempore speech were organized for school students. Around 200 participants, including students, teachers from different schools and members of CPP-IPR took part in the programme with great enthusiasm.

The programme began with a welcome address by Ms. Namita Sharma, Principal of Indus Academy, who highlighted the importance of celebrating science and fostering scientific temperament among young learners. Dr. S.S. Kausik spoke on the significance of National Science Day and highlighted women in science and catalysing Viksit Bharat. Prof. S. R. Mohanty, Centre Director, CPP-IPR, delivered the keynote address, emphasizing the role of science in national development and inspiring young minds to pursue scientific careers. Shri Hrishikesh Kalita of Jagiroad College highlighted the importance of scientific thinking and innovation among students. As part of the programme, Dr. Rakesh Moulick delivered an engaging popular talk on plasma physics, introducing students to the fascinating world of plasma and its applications.

A science exhibition was also organized during the event under the coordination of Dr. N. Aomoa from CPP-IPR. Students of Indus Academy enthusiastically demonstrated their science models and projects, and several models from CPP-IPR were also displayed for the benefit of the participants.

The programme concluded with prize distribution to the winners of the various competitions, making the celebration both educational and inspiring for the participating students.

National Science Day 2026 @CPP-IPR







Glimpses of the National Science Day 2026 celebration at Indus Academy, Jagiroad, Assam

Academic Visits to IPR

Date	Institution	Visitors
24 Mar 2026	Adani University, Ahmedabad	65 Students, Engineering (F/N Batch)
24 Mar 2026	Adani University, Ahmedabad	74 Students, Engineering (A/N Batch)
25 Mar 2026	Charotar University, Anand	35 Students, B. E. Mechanical
26 Mar 2026	M S University, Vadodara	101 Students, MSc. Physics
01 Apr 2026	Silver Oak University, Ahmedabad	25 Students, BSc & MSc

IPR Participation at the DAE Vigilance Conclave

The IPR team recently participated in the two-day Department of Atomic Energy (DAE) Vigilance Conclave, hosted by the Electronics Corporation of India Limited (ECIL), Hyderabad. The event was organized at the Homi Jehangir Bhabha Auditorium, Atomic Minerals Directorate for Exploration and Research (AMD), Hyderabad, on April 23–24, 2026.

The conclave was a major nationwide event, featuring representation from more than 40 DAE units and institutions, including BARC, IGCAR, NPCIL, ECIL, NFC, UCIL, HWB etc. More than 200 executives attended various sessions, which were addressed by many senior DAE officials, including Dr. Ajit Kumar Mohanty, Secretary, DAE & Chairman, AEC. The inspiring address by Dr. Mohanty, motivated participants to uphold the highest standards of integrity, transparency, and accountability in vigilance practices.

Following members from IPR participated in this conclave:

- Mrs. Supriya Nair (ACAO)
- Mr. Devendra Modi (Head Procurement and Material Management Division)
- Ms. Falguni A. Shah (Accounts Officer)
- Mr. Hitesh Kumar Gulati (CVO)

The event reinforced several key areas vital to national governance standards, enhanced collaboration among DAE units, the accelerated adoption of digital tools, and the development of robust ethical frameworks.

IPR Team (L-R), Ms. Supriya Nair, Ms. Falguni Shah, Mr. Devendra Modi, Mr. Hitesh Gulati

Past Events @ IPR

- ***Mr. Atikkumar N. Mistry,*** gave a talk on "Non-Destructive Examination of Process Chamber of Plasma Pyrolysis Plant" at 1st Annual Conference & Exhibition on Non-Destructive Testing and Supporting Technologies (NDT Expo 2026), “The Capitol - The Forum Celebration & Conventions, Club 07”, Forum Street, Shela, Ahmedabad, Gujarat, 01-02 March 2026
- ***Dr. Ipsita Chinya,*** gave a talk on "Plasma Surface Modification of Polyethylene Blend to Control Bacterial Adhesion for Biomedical and Food Packaging Applications" on 20th March 2026
- ***Mr Abhishek Sinha,*** gave a talk on "Absolute Calibration of Michelson Interferometer Diagnostic with an Upgraded Dry Cryogenic Detection System for Broadband ECE Measurements" on 23rd March 2026
- ***Dr. Varsha Siju,*** gave a talk on "Runaway Electron Behaviour during ECRH Termination as Observed by ECE in the ADITYA-U Tokamak" on 24th March 2026
- ***Dr. Siba Prasad Acharya,*** gave a talk on "Study of high frequency electrostatic drift waves in presence of ion-neutral collisions and investigation of self-organized critical and multifractal behaviour with implications in nonlocal transport of Aditya-U tokamak" on 24th March 2026
- ***Mr. Rosh Roy,*** gave a talk on "Experimental Investigation of Nonlinear Interactions among Low-Frequency Instabilities in a Linear Magnetized Plasma" on 24th March 2026
- ***Mr. Manu Bajpai,*** gave a talk on "Separation of Copper and Gold ions from a Beam Using E × B Centrifugation - A PiC Simulation" at National Seminar on “Science, Sustainability and Social Responsibility: A Natural Science Perspective", Gujarat Vidyapith, Ahmedabad, 24 March 2026
- ***Prof. Rabindranath Pal,*** Retired Professor, Saha Institute of Nuclear Physics (SINP), Kolkata, gave a talk on "Step by step towards fusion reactor" on 27th March 2026 (Colloquium #351)
- ***Dr. Ipsita Das,*** gave a talk on "High Temperature Superconductor based Current Leads for large scale fusion devices" on 01st April 2026
- ***Dr. Ajay C. J.,*** Nanyang Technological University (NTU), Singapore, gave a talk on "Role of Microinstability eigenmodes in magnetic confinement fusion devices" on 01st April 2026
- ***Mr. Aman Gauttam,*** gave a talk on "Study of Intrinsic Toroidal Rotation Measurements with tokamak plasma parameters in ADITYA-U Tokamak" on 07th April 2026
- ***Dr. Rajiv Sharma,*** gave a talk on "Preformation Assessment of Epoxy Based Glass Fiber Composite to Metal Joints for Superconducting Fusion Magnet Applications under High Neutron Irradiation" on 09th April 2026
- ***Dr. Rajiv Sharma,*** gave a talk on "Cryogenics and High-Pressure Systems at IPR: Safety, Preventive Measures, and Case Studies" on 09th April 2026
- ***Ms. V. Gayathri Devi,*** gave a talk on "Studies on Cryosorption of Hydrogen Isotopes on Zeolites for Application in Nuclear Fusion Systems" on 10th April 2026
- Shri Rohitkumar N. Panchal, gave a talk on "Recent Maintenance Experiences of Cryogenic Plant and Distribution System for SST-1" on 10th April 2026
- ***Dr. Vivek Pachchigar,*** University of Illinois Urbana-Champaign, Urbana, U.S.A., gave a talk on "Understanding Plasma-Material Interaction: From Fusion to Materials Processing" on 10th April 2026
- ***Dr. Ratimanasee Sahu,*** Indian Institute of Science Education and Research (IISER), Pune, gave a talk on "Structural and topological defects governing plasticity in amorphous solids" on 13th April 2026
- ***Dr. Zara Aftab,*** gave a talk on "Cross section Measurement of Tin and Rhenium Isotopes with Covariance Analysis and Simulation of Neutron Response Function for NE213 Scintillation Detector" on 17th April 2026

Past Events @ IPR

- ***Mr. Amit Kumar Singh,*** gave a talk on "A global gyrokinetic study of microinstabilities driven by steep profile gradients in ADITYA-U Tokamak" on 20th April 2026
- ***Dr. Sudhirsinh Vala,*** gave a talk on "14-MeV Neutron Irradiation Experiments for Fusion Applications" on 20th April 2026
- ***Prof. Nikhil Chakrabarti,*** Retired Professor, Saha Institute of Nuclear Physics (SINP), Kolkata, gave a talk on "Rethinking Ion Acoustic Waves: The Role of Finite Ion Temperature in Dispersion and Nonlinearity" on 21st April 2026 (Colloquium #352)

Upcoming Events

- Joint ICTP-IAEA School on Atomic and Molecular Processes in Plasmas, Trieste, Italy, 4-8 May 2026; https://indico.ictp.it/event/11140/
- Plasma Processing and Technology International Conference (Plasma Tech 2026), Prague, Czech Republic, 6-8 May 2026; https://www.setcor.org/conferences/plasma-tech-2026
- Joint ICTP-IAEA Fusion Energy School, Trieste, Italy, 11-22 May 2026; https://indico.ictp.it/event/11142
- 27th International Conference on Plasma-Surface Interactions in Magnetic Confinement Devices (PSI-27), Regensburg, Germany, 17 -22 May 2026; https://www.ipp.mpg.de/psi27
- 17th International Particle Accelerator Conference (IPAC 2026), Deauville, France, 17-22 May 2026; https://www.ipac26.org/
- 15th IAEA Technical Meeting on Control Systems, Data Acquisition, Data Management and Remote Participation in Fusion Research, Culham, Oxfordshire, Great Britain, 18-22 May 2026; https://www.iaea.org/events/evt2504042
- 23rd Joint Workshop on Electron Cyclotron Emission and Electron Cyclotron Resonance Heating (EC-23), Barcelona, Spain, 18-22 May 2026; https://app.swapcard.com/event/ec-23
- 2026 Innovative Concepts for Inertial Fusion Energy (IC-IFE), Livermore, California, USA, 20 -22 May 2026; https://cer.ucsd.edu/events/2026-ic-ife.html
- Technological Innovations in Nuclear Civil Engineering (TINCE'26), Tours, France, 20-22 May 2026; https://www.sfen.org/evenement/tince26/
- 18th International Workshop on Hydrogen Isotopes in Fusion Reactor Materials (HWS-18), Garching, Germany, 25 -28 May 2026; https://www.ipp.mpg.de/hws18.html
- 2026 Annual Conference of the American Nuclear Society, Denver, Colorado, USA, 31 May 2026 - 3 June 2026; https://www.ans.org/meetings/ac2026/
- Technology of Fusion Energy (TOFE 2026), Denver, Colorado, USA, 31 May 2026 - 4 June 2026; https://www.ans.org/meetings/tofe2026/

Participation in 40th DAE Sports and Cultural Meet 2025-26

Ms. Priyanka Verma participated in the “On-the-Spot Painting” event as part of the Dwarka Team in the finals of the 40th DAE Sports and Cultural Meet 2025–26 (Cultural-II), held at NPCIL Kaiga, Karnataka, from 28th March 2026 to 1st April 2026. Cultural-II comprised three events: Poetry, On-the-Spot Painting, and One Act Play.

A total of eight teams representing various DAE units from across India took part in the competition. Ms. Priyanka Verma was awarded a Certificate of Appreciation for her participation, and the Dwarka Team received the Fair Play Award.

Ms. Priyanka Verma receiving the award

Know Your Colleague

Mr. Aditya Naugraiya completed his B.Tech in Electrical Engineering from Lakshmi Narayan College of Technology, Bhopal in 2019. He joined IPR in 2021 as an IPR Trainee Scientific Officer (ITSO) under the 65th BARC Batch. After completing his training, Aditya joined the Ultra High Voltage Systems Division (UHVSD) in 2022 as a Scientific Officer-C. He has completed his M.Tech in Electrical Engineering with specialization in Fusion Science and Technology from HBNI in 2024. He is currently working in UHVSD as Scientific Officer-D. His work primarily focuses on the design and development of a 300 kV single-aperture High Voltage Ion Extraction and Acceleration Grid System (HVIEAS) for the Neutral Beam Injector (NBI). Aditya has carried out electrostatic field simulations using COMSOL Multiphysics to evaluate the voltage withstand capability of the HVIEAS. He has also designed detailed 3D models and 2D engineering drawings of the system. He has performed several circuit simulations in MATLAB, including modelling of a 500 kV/2 A HVDC (High-Voltage Direct Current) Power Supply and its major subsections.

Aditya Naugraiya

Aditya has also worked on the in-house development and testing of a Variable Voltage Variable Frequency Power Supply (VVVFPS) for HV transformer testing, involving 3-phase power stack, layout optimization, and bus-bar design. He has been involved in the analysis and testing of high power converters, high frequency transformers, and testing of 500 kV system at UHVSD lab. Furthermore, he is involved in the in-house development of 27 kV and 50 kV DC bushings for HV applications. Aditya actively participates in various sports activities organized at IPR and has served as Joint Sports Secretary (2023–24). His hobbies include playing football and reading comics.

The IPR Newsletter Team

Dharmesh Purohit	Harsha Machchhar	Ngangom Aomoa	Pratibha Gupta	Priyanka Patel	Ramasubramanian N.
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