



ANNUAL REPORT

2023-2024



होमी भाभा राष्ट्रीय संस्थान HOMI BHABHA NATIONAL INSTITUTE

(परमाणु ऊर्जा विभाग की एक सहायता प्राप्त संस्था एवं यूजीसी अधिनियम 1956 की धारा 3 के तहत एक मानद विश्वविद्यालय है)

(A Deemed to be University u/s 3 of UGC Act 1956 and a Grant-in-Aid Institute of the Department of Atomic Energy, Govt. of India)

वार्षिक प्रतिवेदन
2023-2024

❖ Note on Persons with Disabilities

Homi Bhabha National Institute is deemed to be a university and is a Grant-in-Aid institution of the Department of Atomic Energy. HBNI is a research university that educates students at the doctoral and master's level, and pursues research in accordance with its mandate. It has ten Constituent Institutions (CIs) and an Off-Campus-Centre (OCC) and they submit their annual reports. Faculty, students, and non-teaching staff are on the rolls of CIs/OCC. In HBNI, there are only three sanctioned posts. These are Vice Chancellor, Dean and Registrar. The institute is sensitive to the subject of recruitment of persons with disabilities and would support such persons as and when the occasion arises.

❖ Vigilance

There is nothing to report from a vigilance point of view for the period April 1, 2023 to March 31, 2024.

❖ Events at the HBNI Central Office

• National Technology Day

HBNI celebrated National Technology Day on May 11, 2023 in hybrid mode. Shri D. K. Shukla, Chairman, Atomic Energy Regulatory Board (AERB) was the Chief Guest on the occasion and gave a talk on the topic "Nuclear Regulation in India: Evolution to Maturity".

The program began with a welcome address by Dr. P. C. Selvin, Registrar, HBNI. In his introductory remarks, Prof. P. D. Naik, Dean, HBNI emphasized on the importance of converting high impact knowledge to technology and how HBNI is taking efforts to facilitate knowledge sharing among its CIs/OCC. Prof. U. Kamachi Mudali, VC, HBNI talked about the model of circular economy in which products are designed for durability, reuse and recyclability, and materials for new products come from old products. He also talked about adopting circular economy principles and practices for India's nuclear power plants for the maximum use and indicated how safety regulations will play an important role in it.

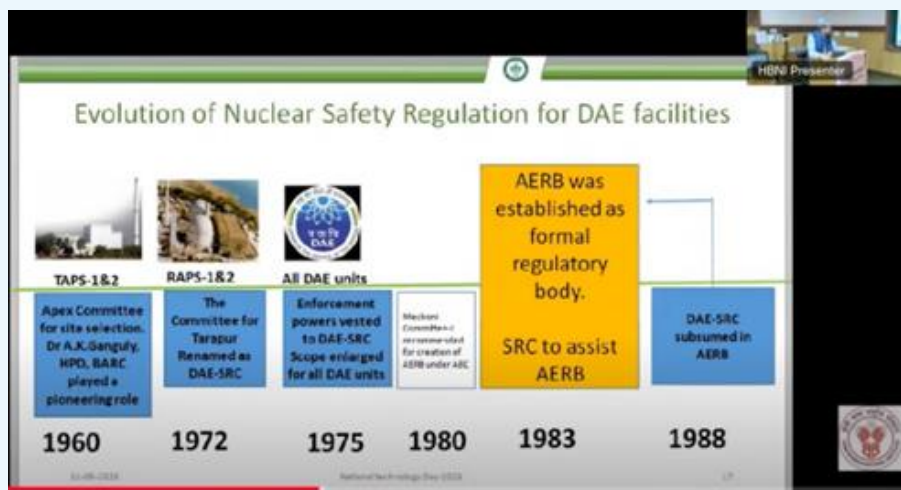


Prof. U. Kamachi Mudali, VC, HBNI welcoming Shri D. K. Shukla, Chief Guest on National Technology Day celebration at HBNI



Prof. P. D. Naik, Dean HBNI welcoming the gathering (left) and Prof. U. Kamachi Mudali VC, HBNI addressing the gathering on the occasion of National Technology Day celebration at HBNI

In his talk, Shri D. K. Shukla gave a detailed account how since its inception in 1983 AERB has grown into an effective and vibrant regulatory body of international repute and procedures followed by AERB for the purpose of safety review and surveillance of the nuclear facilities including Nuclear Power Plants and fuel cycle facilities and non-DAE facilities. He concluded his talk by stating that AERB is completely geared up to face the future regulatory challenges for regulating diverse design nuclear power plants and wide spread applications of radiation.



Shri D. K. Shukla delivering his talk on National Technology Day celebration at HBNI

- **Prof. Srikumar Banerjee Memorial Programme**

A second memorial programme in honour and remembrance of late Prof. Srikumar Banerjee, Former Chancellor, HBNI who was a great metallurgical scientist, academician par excellence, outstanding mentor and an institution builder was organised on May 19, 2023 by HBNI. Prof. G. K. Dey, Former Director, Materials Group, BARC was the chief guest on the occasion. He gave an interesting and informative talk on the topic, “Role of Basic Research in Development of Materials,” where in he elaborated about the role of basic research in alloy development and product making, understanding the unresolved structure of very common materials, and manufacturing process development.



*Prof. U. Kamachi Mudali, VC, HBNI addressing the gathering
& Prof. G. K. Dey delivering his talk*

- **Eighteenth Foundation Day Celebration of HBNI**

The 18th Foundation Day of the Homi Bhabha National Institute (HBNI) was celebrated in hybrid mode at the DAE Convention Centre in Anushaktinagar, Mumbai on June 3, 2023. Prof. Subhasis Chaudhary, Director, Indian Institute of Technology (IIT), Bombay was the chief guest on the occasion. Dr. Ajit Sapre, Group President, Reliance Technology Group, Reliance Industries Pvt. Ltd., Mumbai was invited to deliver Prof. J. B. Joshi Research Foundation Endowment Lecture. Prof. A. K. Mohanty, Secretary DAE & Chairman AEC and Chairman, Council of Management, HBNI presided over the function. Outstanding students of the institute in various academic programmes and students selected for J B Joshi Research Foundation Innovation Awards for the year 2022 were also honoured on the occasion. Prof. Anil Kakodkar, Chancellor, HBNI, Prof. Vasudeva Rao, Former Vice Chancellor, HBNI, Directors and Functionaries of HBNI at various CIs/OCC and Central Office, and a large number of faculty, alumni, and students of HBNI participated in function, in both online and offline mode.

The event began with the welcome address by Prof. P. D. Naik, Dean, HBNI. Prof. U. Kamachi Mudali, Vice chancellor, HBNI presented the annual report of HBNI for the period 2022-23. Prof. A. K. Mohanty gave presidential address and released two books titled, “Nuclear Reactor Thermal Hydraulics” edited by A. K. Nayak, G. Vaidyanathan, K. Velusamy, A.K. Dureja, Naveen Kumar, A.M. Vaidya, Mukesh Dhiman and A. J. Gaikwad and “Nuclear Fuel Cycle” edited by B. S. Tomar, P. R. Vasudeva Rao, S. B. Roy, Jose P. Panakkal, Kanwar Raj, and A. N. Nandakumar.



Dignitaries on the dais during HBNI Foundation Day Celebration on June 3, 2023



Prof. P. D. Naik (left), Prof. Kamachi Mudali (center) and Prof. A. K. Mohanty (right) addressing the gathering on the occasion of HBNI Foundation Day



A book titled, “Nuclear Reactor Thermal Hydraulics” being released by Prof. A.K. Mohanty, Secretary, DAE and Chairman, Council of Management, HBNI

Prof. Subhasis Chaudhary distributed the degree certificates and also presented the awards to outstanding students of Ph.D., M.Tech, M.D., D.M. and M.Ch programmes. He congratulated the award winners and students who received their degrees on the occasion and shared his nuggets of wisdom with them. Dr. Ajit Sapre presented the J B Joshi Research Foundation Innovation Awards and delivered an inspiring and thought-provoking lecture titled, “Climate Change, Sustainability, and Energy transition: One perspective.” He said that Global energy demand is expected to rise about 25% by 2040, mainly driven by developing countries, and thus there is a greater need of clean energy sources that can take care of the rising energy demand as well as emit less/zero CO₂ emissions in the atmosphere. He also elaborated on the technologies which are being implemented and being developed by Reliance Industries (RIL) to help meet RIL’s net zero goals. These technologies include advances in the areas of biofuels, chemicals, synthetic biology, advanced materials, novel catalysts, and reactors.



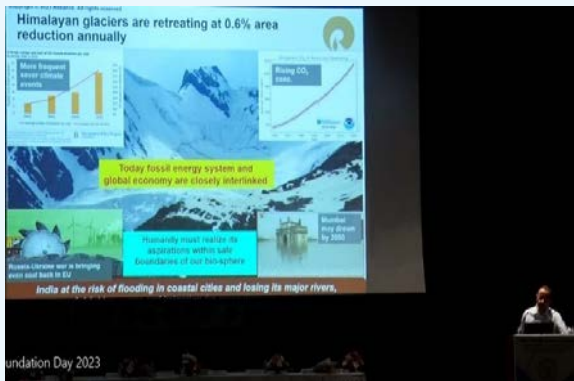
Prof. Subhasis Chaudhary delivering his address



Outstanding Student Award winners receiving their awards from Prof. Subhasis Chaudhary



J B Joshi Research Foundation Innovation Awardees receiving their awards from Dr. Ajit Sapre



Dr. Ajit Sapre delivering the talk



Dr. Selvin proposing vote of thanks



Glimpses of the cultural program presented by HBNI students, staff, and faculty members

- **Independence Day Celebration**

The 77th Independence Day was celebrated with great zeal and patriotic fervour at HBNI on August 15, 2023 through hoisting of the National Flag by Prof. U. Kamachi Mudali, VC, HBNI in the presence of HBNI functionaries and staff. In his address to the gathering, Prof. Mudali paid homage to the freedom fighters and great national leaders whose brave and untiring efforts liberated India from the clutches of slavery and paved the way to a prosperous and progressive nation, making India a global leader in several domains. He also recalled the contributions of founders, mentors, and predecessors, who have been instrumental in the birth, growth, and successes of the Homi Bhabha National Institute (HBNI). He briefed about the achievements and initiatives taken by HBNI during the past year and said that as a VC of HBNI, he will ensure that the institute continues to enhance its academic performance and work towards achieving its mandate by introducing new innovative programs and policies. The program ended with the recitation of the National Anthem.



Prof. U Kamachi Mudali, VC, HBNI hoisting the National Flag (left) and addressing the gathering (right) on 77th Independence Day celebration at HBNI

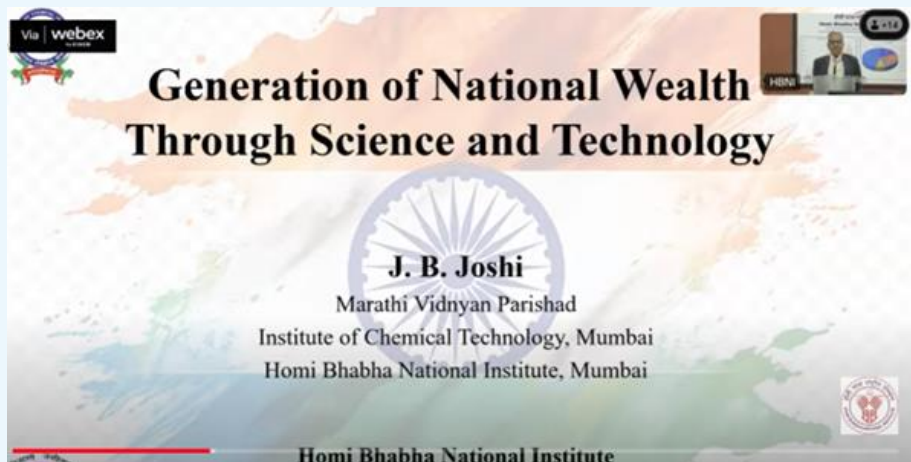
- **Teachers' Day Celebration**

Teachers' Day was celebrated at the Central Office on September 5, 2023 in a hybrid mode. Prof. J. B. Joshi, Distinguished Emeritus Professor, HBNI and Former Director, Institute of Chemical Technology, Mumbai graced the occasion as the Chief Guest.

Prof. P. D. Naik, Dean, HBNI welcomed the gathering. Prof. U. Kamachi Mudali, VC, HBNI gave the opening remarks and emphasized the role of the teachers as “nation builders.”

Prof. J. B. Joshi gave an inspiring and motivating talk on the topic, “Generation of National Wealth through Science and Technology.” In his talk, he emphasized the need to develop technologies for the growth of the nation and serving the society by converting scientific knowledge to wealth. He shared many innovative ideas and success stories from his own research work.

The program concluded with vote of thanks proposed by Prof. P. C. Selvin, Registrar, HBNI.



Prof. J. B. Joshi delivering his talk on the occasion of celebration of Teacher's Day at HBNI

- **Workshop on Publishing Books and Research Papers conducted at HBNI**

HBNI conducted a one-day workshop on the topic “Publishing Books and Research Papers” for the benefit of its students and faculty across all CIs/OCC in hybrid mode on September 12, 2023. The major aim of the workshop was to help in developing/enhancing skills for writing technical papers and books for the participants which included HBNI doctoral students, post-doctoral fellows, and faculty members across all its CIs/OCC. Through her talk, Ms. Swati Meherishi, Editorial Director at Springer Nature enlightened the participants about the publication process for publishing books. In her talk, she also gave an overview of basic scientific writing principles, a detailed description of the sections of an original research article, and practical recommendations for selecting a journal and responding to peer review comments. A large number of HBNI students and faculty members attended the workshop both in offline and online mode and benefitted from it.



Ms. Swati Meherishi, Editorial Director, Springer Nature giving her talk

- **Celebration of Engineer’s Day at HBNI**

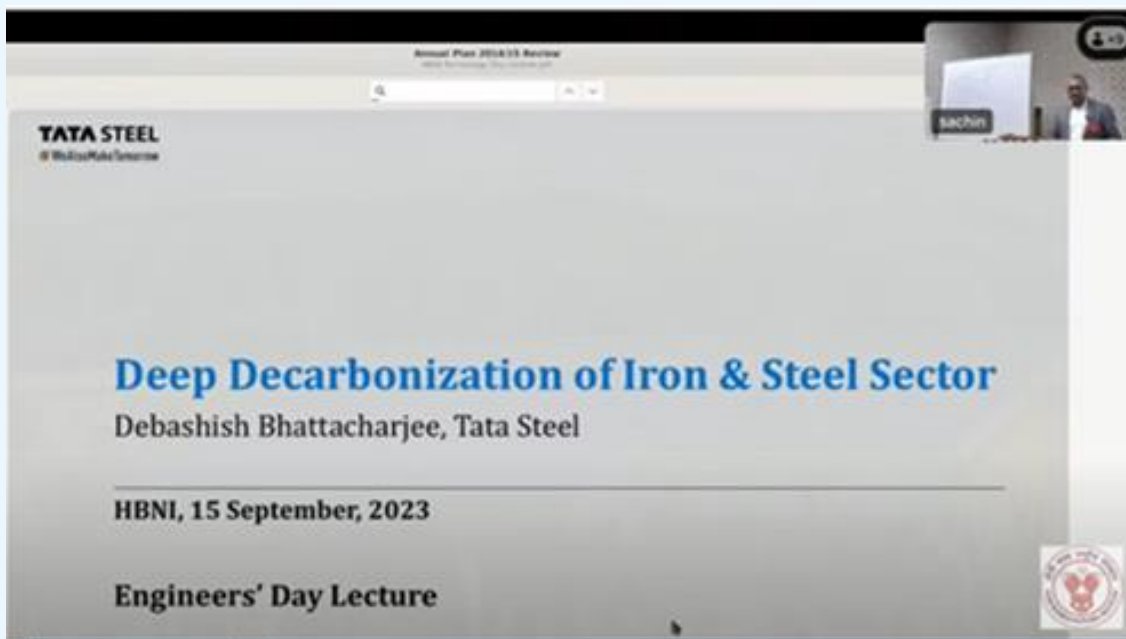
HBNI celebrated the Engineer’s Day on September 15, 2023 at D-Block auditorium, Bhabha Atomic Research Centre, Mumbai in hybrid mode. Dr. Debashish Bhattacharjee, Vice President, Technology and R&D, Tata Steel Limited was the Chief Guest on the occasion.

Prof. P. D. Naik, Dean HBNI welcomed the gathering. In his introductory remarks, Prof. U. Kamachi Mudali, VC, HBNI highlighted the importance of engineering and industry, in particular steel industry for the development and growth of the nation and fulfilling certain sustainable development goals. Dr. Bhattacharjee gave an interesting talk on the topic, “Deep Decarbonization of Iron and Steel,” in which he elaborated upon the needs, challenges faced and strategies used for decarbonization of iron and steel.

Prof. Naveen Kumar, Associate Dean, HBNI, proposed the vote of thanks.



Prof. P. D. Naik welcoming the gathering (left); Prof. U. Kamachi Mudali giving Introductory Remarks (right)



Dr. Debashish Bhattacharjee delivering his talk

- **हिन्दी दिवस समारोह**

हिन्दी दिवस के अवसर पर होमी भाभा परिषद कक्ष में दिनांक १४ सितम्बर 2023 को दोपहर 3:00 बजे एक समारोह का आयोजन किया गया। इस अवसर पर डॉ. वी. सी. साहनी, पूर्व निदेशक, आरआरसीएटी, इंदौर और पूर्व निदेशक, भौतिकी समूह, बीएआरसी मुख्य अतिथि थे।

समारोह की शुरुआत प्रोफेसर बी. के. नायक, अध्यक्ष, राजभाषा कार्यान्वयन समिति, एचबीएनआई द्वारा स्वागत भाषण देने के साथ हुई। तत्पश्चात्, प्रो. यू. कामाची मुदली, कुलपति, एचबीएनआई ने सभा को संबोधित किया और अपने भाषण में हिंदी भाषा के प्रचार एवं प्रसार के महत्व पर ज़ोर दिया। मुख्य अतिथि डॉ. वी. सी. साहनी ने हिंदी दिवस के उपलक्ष्य पर सभा को सम्बोधित किया और आरआरसीएटी के निदेशक के रूप में अपने अनुभव और दिलचस्प किस्से साझा किए। उन्होंने 13 सितंबर को एचबीएनआई द्वारा आयोजित हिंदी श्रुतलेखन और अंग्रेजी-हिंदी अनुवाद प्रतियोगिता के विजेताओं को पुरस्कार भी वितरित किए। श्री बी. के. शर्मा, सचिव, राजभाषा कार्यान्वयन समिति, एचबीएनआई ने धन्यवाद प्रस्ताव प्रस्तुत किया और राष्ट्रगान के गायन के साथ कार्यक्रम का समापन हुआ।



परिषद कक्ष में हिंदी दिवस समारोह में भाग लेते एचबीएनआई के पदाधिकारी एवं कर्मचारी



सभा को सम्बोधित करते हुए डॉ. वी. सी. साहनी (बाएं); हिंदी प्रतियोगिता की विजेता डॉ. वी. सी. साहनी से पुरस्कार प्राप्त करते हुए (दाएं)

- Dr. Sekhar Basu Memorial Programme**

HBNI organized a Memorial Programme in honour and remembrance of late Dr. Sekhar Basu, Former Secretary, Department of Atomic Energy and Former Chairman, Council of Management, HBNI on September 25, 2023 in hybrid mode. Shri S. K. Sharma, Former Chairman and Managing Director, Nuclear Corporation of India Limited (NPCIL) was the chief guest on the occasion. The programme was attended by Dr. R. Chidambaram, Former Principal Scientific Advisor, GoI and Former Secretary, DAE, Prof. R. B. Grover, Emeritus Professor, HBNI, Shri A. K. Anand, Former Director Reactor Projects Group BARC, and Mrs. Basu, wife of late Dr. Sekhar Basu along with all HBNI officials and staff.



Dignitaries present on Dr. Sekhar Basu Memorial Program (left); An audio-visual feature on Dr. Basu being shown on the occasion (right)

Shri S. K. Sharma delivered Dr. Sekhar Basu Memorial lecture titled, “Role of Nuclear Power in Decarbonization of Energy Mix.” The big takeaway from his talk was that the nuclear power has a vital role to play in decarbonization of power sector and thus helping to address the global climate emergency.



Prof. U. Kamachi Mudali addressing the gathering



Shri S. K. Sharma delivering his talk

- **Observance of “Swachhata Hi Seva” Campaign**

HBNI organized various activities during the period from September 15 to October 2, 2023 under the “Swachhata Hi Seva” campaign. As a part of campaign, the Swachhata pledge was taken by all the staff and officials of HBNI on September 26, 2023 making a commitment to uphold cleanliness and environmental integrity. A street play titled, “Itne Se Kya Hoga,” was staged on September 27, 2023 to raise awareness about maintaining cleanliness in and around our surroundings to live healthy and better lives.

The institute also led a profound cleanliness drive on October 1, 2023 wherein HBNI officials and staff came together to clean the areas in and around HBNI administrative office, garden areas, and other common spaces. Flex banners with slogan “Swachhata Hi Seva” were displayed and a plantation drive was also carried out to plant herbal plants.



Dr. P. C. Selvin, Registrar and Prof. H. Mishra administering Swachhata Pledge to HBNI Officials and staff on September 26, 2023

- **Observance of Vigilance Awareness Week**

As per the directives of the Central Vigilance Commission, HBNI observed Vigilance Awareness Week from October 30 to November 5, 2023, on the theme of "Say No to Corruption, Commit to the Nation." The observance of Vigilance Awareness Week 2023 commenced with the integrity pledge being taken by HBNI officials and staff on October 30, 2023. During the awareness week, many events were held at the institute which included, (a) Essay writing competition in English and Hindi on the topic, "Say No to Corruption, Commit to the Nation", (b) Invited Talk by Shri Sanjeev Mishra, Assistant Director, Intelligence Bureau on "Ethics and Integrity in Governance", (c) Slogan writing competition in English and Hindi (d) Extempore speech on the topic, "Is Corruption Inborn or Learnt", (e) Rangoli competition and (f) Poster competition. The prize distribution function to award the winners of each competition was held on November 3, 2023 and Prof. Tapan Kumar Ghanty, Director, Biosciences Group, Bhabha Atomic Research Centre gave away the prizes.



HBNI officials and staff undertaking Integrity pledge on October 30, 2023

- **Republic Day Celebration**

The 75th Republic Day was celebrated at HBNI on January 26, 2024. Prof. U. Kamachi Mudali, Vice Chancellor, HBNI unfurled the National Flag followed by singing of National Anthem by HBNI functionaries and staff members present on the occasion. Prof. Mudali then addressed the gathering of the HBNI functionaries and staff members. In his address, he talked about the achievements of the country in the field of education since its independence, National Education Policy-2020 and Viksit Bharat@2047, a vision of Govt. of India. Prof. R. B. Grover, Emeritus Professor, HBNI also addressed the gathering. This was followed by soulful performances of patriotic songs by staff and students of HBNI.



Prof. U. Kamachi Mudali, VC, HBNI saluting the National Flag after unfurling it

- **Interactive Workshop on “Advances in Chemical, Physical and Life Sciences”**

HBNI organized an interactive workshop on “Advances in Chemical, Physical and Life Sciences,” jointly with Madurai Kamaraj University, Madurai during February 8-10, 2024. The major objectives of the workshop were to foster a deeper understanding of scientific concepts, promote interest in STEM fields, and engage the university students and faculties in frontier educational and research activities. The event was coordinated by Prof. B. K. Nayak, Associate Dean, HBNI and Prof. P. Suresh from Madurai Kamaraj University.

The event was inaugurated by Prof. J. Kumar VC, Madurai Kamaraj University and presided over by Prof. U. Kamachi Mudali, VC, HBNI. The three-day workshop had presentations highlighting the latest advancements in chemical, physical and life Sciences from renowned scientists invited from different constituent institutions/off-campus centre of HBNI and four plenary presentations by VC, HBNI, Prof. B.Venkatraman, Director, IGCAR, Prof. G.Bhattachatyya, Director, SINP, and Prof. V. Ravindran, Director, IMSc. An exhibition on the atomic energy program of Department of Atomic Energy (DAE) was also organised by IGCAR, Kalpakkam during the event. Research scholars, PG students (total 220) and science faculty members (50) of the university attended the workshop and benefitted from it. The event not only contributed to educational enrichment but also solidified the institution's commitment to making a positive impact beyond the academic realm.



Dignitaries present on the occasion



Scientific session in progress



Exhibition on Atomic Energy Programme of DAE by IGCAR



Participants of the workshop

Glimpses of the interactive workshop “Advances in Chemical, Physical and Life Sciences” held at Madurai Kamaraj University during February 8-10, 2024

- **Observance of Swachhata Pakhwada 2024**

As per the directives of the Cabinet Secretariat, New Delhi, HBNI observed Swachhata Pakhwada from February 16-29, 2024. The observance of Swachhata Pakhwada 2024 commenced with the Swachhata Pledge being taken by HBNI officials and staff on February 16, 2024. Aligning with the Swachhata Pakhwada vision, a comprehensive cleanliness drive was conducted at HBNI wherein HBNI officials and staff enthusiastically engaged in cleaning of office premises. A special campaign to segregate old records, scrapping unwanted papers and documents and digitisation of records was also undertaken.



Prof. P. C. Selvin, Registrar, HBNI and Prof. Naveen Kumar, Associate Dean, HBNI administering Swachhata Pledge to HBNI Officials and staff on February 16, 2024

- **International Women’s Day Celebration**

The Women’s Cell of HBNI organized International Women’s Day on March 26, 2024 at DAE Convention Centre, Anushaktinagar, Mumbai by organizing special talks and panel discussion keeping in mind the UN theme for the year, “Invest in Women: Accelerate Progress.” Prof. Archana Sharma, Distinguished Scientist and Director, BTDG, BARC delivered an inspiring talk on the topic, “Women in Engineering,” wherein she highlighted the contributions of women engineers from pre-independence to present times including those from DAE who shattered glass ceilings, defied societal norms, and showcased their brilliance in diverse engineering disciplines. Prof. Vandana Nanal, Senior Professor, Tata Institute of Fundamental Research, Mumbai gave a talk titled, “Career in STEM-Challenges for Women,” summarizing various factors which hinder women from entering the STEM workforce and ways to overcome them. The talks were followed by an enlightening panel discussion on the topic, “Women Partnership & Women Leadership,” wherein panellists put forth their viewpoints about the need and measures to be taken for the advancement of women in leadership positions.

Following the formal program, a colourful cultural program by HBNI students and staff members was presented.



Prof. Dipanwita Dutta, Associate Dean, HBNI welcoming the gathering. Dignitaries seated on the dais are Prof. D. K. Maity, Officiating Dean, HBNI, Prof. U. Kamachi Mudali, VC, HBNI, Prof. Archana Sharma, Director, BTDG, BARC, Prof. Vandana Nanal, Sr. Professor, TIFR and Prof. Aradhan Shrivastava, Chairman, Women’s Cell, HBNI (from left to right)



Prof. U. Kamachi Mudali, Prof. Aradhan Shrivastava, Prof. Archana Sharma and Prof. Vandana Nanal addressing the gathering on International Women's Day celebration at HBNI (from left to right)

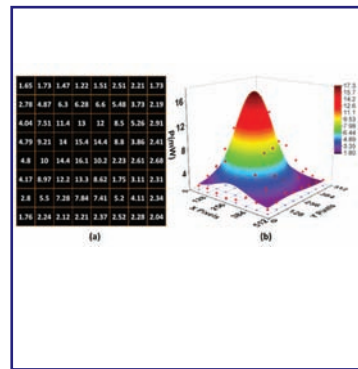
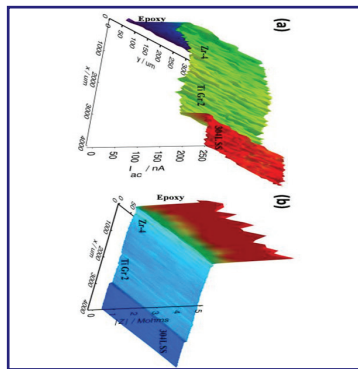
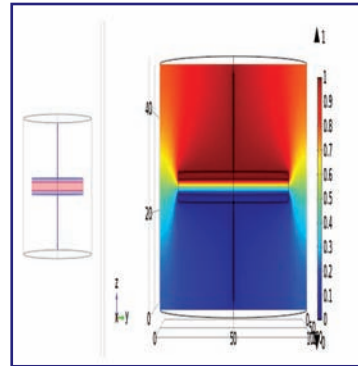


Cultural program being presented by HBNI staff and students on International Women's Day celebration at HBNI

❖ Events at the Constituent Institutions (CIs)/Off-Campus Centre (OCC)

• IPR-LDCE National Technology Day 2023

IPR, in association with L D College of Engineering, Ahmedabad conducted a 2-day program to celebrate the National Technology Day 2023 (NTD - 2023) at the LDCE campus at Ahmedabad during 18-19 May, 2023. This is the second year in succession that IPR and LDCE have jointly conducted this state level programme. The guests of the event were Shri Nilesh M. Desai (Director SACISRO), and Dr. Shashank Chaturvedi (Director IPR). The NTD - 2023 showcased several competitive events such as Quiz, Skit, Elocution, Code and Circuit Debugging, Technical Models and Drafting Dynamics. Student participants from engineering colleges across Gujarat also exhibited their scientific projects at the event.



CHAPTER V

Basic Research

VI.07 Public Awareness Activities in 2023

As part of 'Azadi Ka Amrit Mahotsav' the advancement in Science after the Independence was the chosen theme of our awareness activities. Awareness Programmes were planned and organized at different places. The awareness Programme consisted of various competitions held for the students and a technical exhibition showcasing the societal benefits of nuclear energy in addition to power generation.

National Mathematics and Science day celebration was held at Nethaji Subbasha Chandra Bose College of Arts and Science, Thiruvarur in association with Tamil Nadu State Council for Science and Technology, Govt of TN, from 31st -01st February 2023. 2500 School and college students visited the exhibits.

One day workshop and Technical exhibition "Walking with Atom" was held on 2nd Feb 2023 at DG Govt. college for women, Mayiladuthurai. – 150 college students and around 50 faculty members from neighbouring colleges attended the workshop

International Business Leaders meet (iBLME) and Exhibition (iCURE) was held from 4-6th Feb 2023 at Madurai Kamaraj University. The International Business Leaders Meet and Exhibition was a three day program alongside the International Conference on Consortium of Universal Research Erudition - 2023. It was inaugurated on 04 February 2023 by Hon'ble Minister of Commercial Taxes and Registration, Tamil Nadu, Shri P. Murthy, in the presence of the Vice Chancellor, Dr J Kumar and the Registrar, Dr.K Sadasivam, Madurai Kamaraj University. Around 2500 of students and general public visited the exhibition.

State level science exhibition as part of National Science Day celebration was held on 14th Feb 2023 at Chennai DG Vaishnava college, Chennai - The Science Exhibition was inaugurated by Dr. N. Sivaraman, Director, MCMFCG, IGCAR, Kalpakkam. 700 students from various schools and colleges visited the exhibition.

National Science Day celebrations at Sri Vidya Mandir Arts and Science college, Uthangarai, Krishnagiri was held from 16th and 17th Feb 2023. Around 5900 students from various schools and colleges visited the exhibition.

National Science & Mathematics day celebration was held on 16-17th February 2023 at Sri Sankara Vidyalaya Matriculation higher secondary school, Urapakkam in association with TNCST, Govt of TN. Around 1500

school students visited the exhibition and interacted with the volunteers.

Dr. A. P. J. Abdul kalam Satellite Launch Vehicle Mission – 2023 was held on 18-19th Feb 2023. At TTDC-Ground, Devaneri village, Mamallapuram. The Exhibition was inaugurated on 18th February 2023 by Dr Sultan Ahmed Ismail, presently Member, State Planning Commission, Government of Tamil Nadu. Dr. Anand Mogalingam, Space Zone India Foundation, presided over the programme. Dr. Tamilisai Soundararajan, Telangana Governor was the chief guest for the satellite launch and Dr Mayilsamy Annadurai, former director ISRO & Dr B Venkatraman, Director IGCAR were the guest of honour. Around 5000 School students from all over India participated in the event and visited the IGCAR exhibition.

National Science Exhibition cum workshop – at Adhiparashakthi college of Engineering college, Chennai. The event was inaugurated on 22nd February 2023 by Smt. S. Rajeswari Head, SIRD, IGCAR, Dr. G.B Senthikumar, Correspondent, Adhiparasakthi Engineering College. Ms.S.Santhi, District Educational Officer, Madhurantagam was the Guest of Honors. Around 5000 college and school students visited the exhibition.

Chennai Science Festival 2023 at TNSTC campus held from 28th Feb – 1st March 2023. On 28th February 2023 Tmt. S. Malarvizhi, IAS Vice Chairperson, Science City and Dr Sultan Ahmed Ismail, presently Member, State Planning Commission, Government of Tamil Nadu inaugurated the Chennai Science Festival. Around 4000 General public, students from various colleges and schools visited our exhibition and interacted with the volunteers.

International Engineering Sourcing Show (IESS) held at Chennai from March 16-18, 2023 – EEPC India the apex body under Department of Commerce, Government of India is engaged in promoting exports, investments and trade for the engineering and manufacturing sector. In this regard, EEPC India organized the tenth edition of International Engineering Sourcing Show (IESS X) from 16th to 18th of March 2023 at Chennai Trade Centre, Chennai, India. Around 3000 college students, exhibitors, delegates and general public visited the exhibition. IGCAR-DAE won the best Pavilion award in the PSU category.

Indian Analytical Science Congress-2023 held at IMA House, Kochin Kerala, During 23-25th March 2023. The Indian Analytical Science Congress (IASC) Series is a grand Annual Land Mark Event of ISAS. The IASC-2023, scheduled during 23-25, March, 2023 at the IMA House, Kochi was themed, The Role of Analytical Science in Achieving India's Centenary Sustainable Development Goals . Around 200 registered participants of the conference visited the exhibition. IGCAR had participated as an exhibitor and had won the best Exhibition award for the display and the interactions with the visitors during the Conference.

National Technology Day celebration was held at Pragathi Maidan, Delhi for a week from 11th to 14th of May 2023. 4000 visitors interacted with IGCAR stall in the DAE pavillion

Exhibition on 'The Fourth State' - Plasma & 'Atoms in the service of the Nation'

Institute for Plasma Research, Ahmedabad, Gujarat, & Tamil Nadu Science and Technology Centre, Chennai, in association with Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam, organised a 5-day exhibition on 'Nuclear technologies and its applications' at Birla planetarium, Chennai, from July 3 to 7, 2023. The objective was to create awareness about the key role of nuclear energy in the energy security of the nation and applied research in Plasma Science and Technologies. The mandate was to develop expertise for Nuclear Fusion, a source of energy with two major TOKAMAK experiments, including India's First Indigenous TOKAMAK 'Aditya'.

The exhibition was inaugurated on July 3 by Prof. Nilesh J. Vasa Dean, Indian Institute of Technology (M), Chennai. It saw a footfall of 2,741 till July 7.

Anu Awareness Yatra 2023

An awareness programme named 'Anu Awareness Yatra – 2023' with the theme 'ATOMS IN THE SERVICE OF THE NATION' was organised by IGCAR in association with the National Council of Science Museum (NCSM), Ministry of Culture, Government of India, Vigyan Bharathi - Arival Sangam, Tamil Nadu, and Indian Association for Radiation Protection. The programmes were organised in nodal institutions in seven districts in Tamil Nadu and three in Kerala as part of Azadi Ka Amrit Mahotsav, to showcase the indigenous progress in science and technology. The objective was to highlight (i) the progress in nuclear science and technology in India, popularise technologies developed by the Department of Atomic Energy (DAE) for societal

application, and application of ionizing radiation in various walks of life; (ii) to create an interest among the youth in science subjects and to explore opportunities in DAE; (iii) Dispelling myths on nuclear energy.

The curtain raiser was organised at IGCAR, Kalpakkam, on July 24, 2023. The yatra was flagged off by Ms. K. A. Sadhana, Director, Visvesvaraya Industrial & Technological Museum (VITM), and Shri Gopal Parthasarathy, State Secretary, VIBHA, (Tamil Nadu Arival Sangam), in the presence of Director, IGCAR and senior officials. Dr. Ajit Kumar Mohanty, Chairman AEC & Secretary DAE, addressed the gathering through a message. The yatra culminated at IREL, Aluva, travelling more than 1,000km, covering Kancheepuram, Thiruvannamalai, Salem, Erode, Karur, Coimbatore, Palakkad, Thrissur and Kochi. In each of these places, a nodal institution was chosen in association with Vigyan Bharathi – Tamil Nadu Ariviyal Sangam and an awareness programme was organised in that institution for two days. The nodal centres coordinated with regional institutions of each district to ensure the active participation of about 2,000 students and the public in each venue. The programme comprised lectures, quiz competitions, art competitions, creative writing competitions, conceptual orations, and exhibitions showcasing nuclear reactor models and the application of ionising radiation in medical, engineering, and agricultural fields. This Yatra was unique in that a mobile science exhibition named "Science on Wheels" from VIT-M showcased working models on societal application of space technology. A total of 25,720 people visited the 10 venues. Photographs showing the highlights of the events are presented here.

Inter school science exhibition by Bala Vidya Mandir Senior Secondary School, Adyar, Chennai, was organised on August 12, 2023, with the participation of IGCAR & MAPS, highlighting 'Atoms in the service of the Nation' A footfall of .

A workshop on "Radiation Technology and its Applications" and "Exhibition on Nuclear Energy" was organized at Anna University, in association with Science and Technology centre, Chennai & Centre for Materials at Informatics, Anna University Chennai from 04.10.2023 –06.10.2023.

The exhibition had a footfall of 1500 comprising of school and college students "The Grand Odyssey", CPS expo 2023 was held at Chennai Public School Anna Nagar on 17.10. 2023. IGCAR has put a stall to create awareness among school students on the use of nuclear Energy.

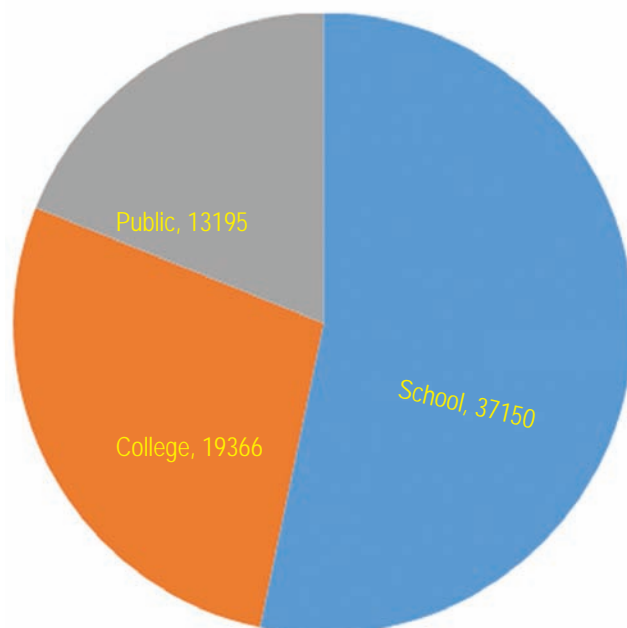
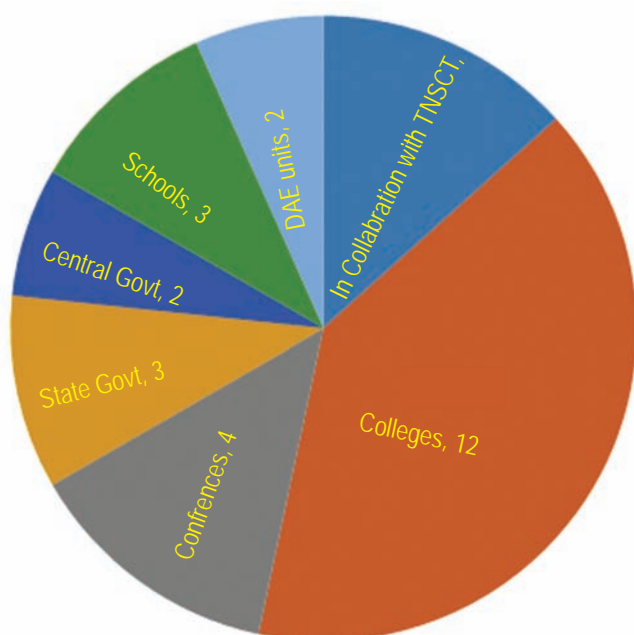
Target Audience		
School	College	Public
37150	19366	13195

Programmes in collaboration with

In Collaboration with TNSCT	4
Colleges	12
Confrences	4
State Govt	3
Central Govt	2
Schools	3
DAE units	2

The exhibition had a foot fall of 1000 comprising of students and general public. A Two-day ANU Awareness program – 2023 was organized in association with the Academy of sciences, Chennai & St Joseph’s college, Tiruchirapalli at St. Joseph’s college, from 30.11.2023-01.12.2023. The exhibition had a footfall of 2400 comprising of school students and college students.

A Three-day ANU Awareness program - 2023 was organized in association with Academy of sciences, Chennai & PSGR Krishnammal College for women at PSGR Krishnammal College, Coimbatore From December 20 to 22, 2023. There was a foot fall of 2300 students from schools and colleges .



Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam on 24 .07. 2023



Sri Sarada Nikaten College of Arts and Science, Karur during 04.08.2023-05.08.2023



Sri Sankara Arts And Science College, Kanchipuram during 25.07.2023-26.07.2023



Kumaraguru Engineering College, Coimbatore, during 07.08.2023-08.08.2023



Arunai Engineering College, Thiruvannamalai during 27.07.2023 – 28.07.2023



NSS College of Engineering, Palakkad during 09.08.2023-10.08.2023



AVS College of Arts & Science, Salem during 31.07.2023-01.08. 2023



Christ College Lringalakuda during 11-12. 08.2023.



Erode Sengunthar Engineering college, Erode during 02.08.2023-03.08.2023



IREL (India) Limited, Aluva on 14.08.2023

Annual Report
and
Audited Statement
of Accounts
2023– 24



Institute of Physics

Bhubaneswar

GLIMPSE OF G-20 JAN BHAGIDARI EVENT



IOP G-20 Janbhagidari Activities are on Argus News and Sambad Daily





Cylothan at IOP



Drawing Competition at IOP



Essay Competition at IOP



Walkathan at IOP



Science Outreach Program at E-Tech College Dhenkanal



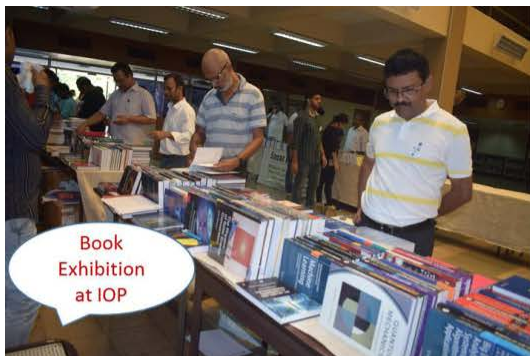
Swachha Aviyan at IOP



Yoga at IOP



Quiz Competition at E-Teach College, Dhenkaanal



Book Exhibition at IOP



Swachha Aaviyan at IOP



Swachha Aaviyan at Saptasajya



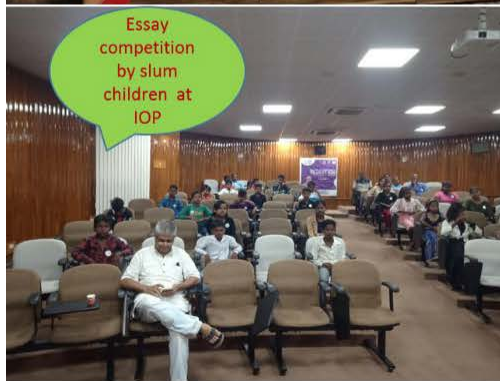
Drawing Competition by Slum Children at IOP



Science Outreach Program at Salipur College



Quiz completion at Salipur College



Essay competition by slum children at IOP



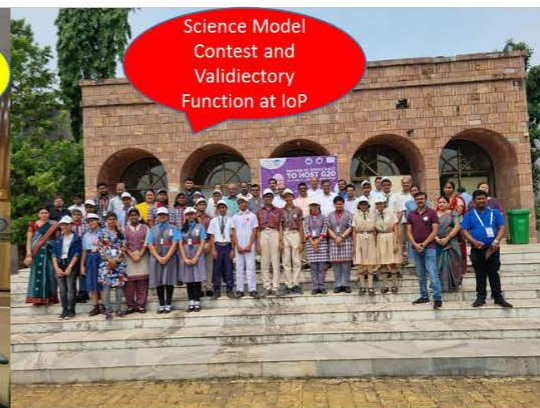
Cultural Program at IOP



Cultural Program at IOP



Seminar on Climate Change



Director, IOP - Prof K. K. Nanda and Nodal Officer Dr. S. N. Sarangi at G-20 Meeting, IMMT, Bhubaneswar



July 2024

- Institute for Plasma Research (IPR), Gandhinagar (Gujarat), in association with Smt. P.D.Shroff Sanskardeep Vidhyalaya, Ankleshwar (Gujarat) organized an exhibition on Plasma, "The Fourth State of Matter" during **09-11 July, 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 district collector, Mr. Tushar Sumera. 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. Thirty two students of 9th and 10th standard from the host school were trained by IPR staff to explain the various exhibits to visiting public. Over **1700** students and teachers from over **17** schools and colleges in Ankleshwar and Bharuch visited the exhibition.





August 2024

- Institute for Plasma Research (IPR), Gandhinagar (Gujarat), in association with **Parvathaneni Brahmayya Siddhartha College of Arts & Science, Vijayawada** (Andhra Pradesh) organized an exhibition on Plasma, "The Fourth State of Matter" during **05-09 August, 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 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. Seventy two students from the host college were trained by IPR staff to explain the various exhibits to visiting public. Over **5000** students and teachers from over **72** schools and colleges in and around Vijayawada visited the exhibition.





- Institute for Plasma Research (IPR), Gandhinagar (Gujarat), in association with Bhavan's Vivekananda College, Secunderabad (Telangana) organized an exhibition on Plasma, "The Fourth State of Matter" during **12-14 August, 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 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. **76** students from the host college were trained by IPR staff to explain the various exhibits to visiting public. Over **1750** students and teachers from over **19** schools and colleges in and around Secunderabad visited the exhibition





- Institute for Plasma Research (IPR), Gandhinagar (Gujarat), in association with Muktajivan English School, Maninagar, Ahmedabad (Gujarat) organized an exhibition on Plasma, "The Fourth State of Matter" during **21-23 August, 2024**. This program is part of IPR's scientific outreach activity in rural areas across Gujarat under the auspices of "70 years of DAE" celebrations. The event was inaugurated by the **Director, Muktajivan group of Education**. 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. 32 Students of 11th and 12th standard from the host school were trained by IPR staff to explain the various exhibits to visiting public. Over **1200** students and teachers from nearby schools visited the exhibition.



September 2024

- Institute for Plasma Research (IPR), Gandhinagar (Gujarat), in association with Sir Pratap School Idar (Gujarat) organized an exhibition on Plasma, "The Fourth State of Matter" during **25-27 September, 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 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 school and college students and teachers/faculty. Over **2000** students and teachers from over **22** schools and colleges in Idar visited the exhibition.



October 2024

- Institute for Plasma Research (IPR), Gandhinagar (Gujarat), in association with **Noble University, Junagarh (Gujarat)** organized an exhibition on Plasma, "The Fourth State of Matter" during **08-10 October, 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 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 school and college students and teachers/faculty. Students from the host school were trained by IPR staff to explain the various exhibits to visiting public. Over **4450** students and teachers from over **31** schools and colleges in and around Junagarh visited the exhibition



- The Outreach Division organized on 13-9-2024 an **induction programme** for the new recruits (TO-C, ITSO and SA-B) who joined on or after January 2024. The new recruits were informed about their responsibilities and obligations as per IPR's administrative rules & procedures which would include matters related to leave, attendance, conduct, pension and other general administrative matters to be followed by the staff. The speakers were

Dr. Paritosh Chaudhury

Mr. Gattu Ramesh

Mr. Niranjana Vaishnav, CAO

Mr. Tejas Parekh

Visit to IPR labs (Aditya, SST1, Neutronics, robotics & remote handling, ITER India labs) were also organized





- The Department of Atomic Energy (DAE) has significantly contributed to numerous national and international programs over the past seven decades. To honour these achievements and chart a course for future advancements, DAE organized its inaugural **Conclave from October 22-26, 2024, at National Institute of Science Education and Research (NISER) Bhubaneswar** as part of its Platinum Jubilee Celebrations. This landmark event brought together experts and participants from all DAE units and its aided institutions, offering a vibrant platform to showcase their scientific and

technological accomplishments. The institute actively participated in the Conclave, presenting its cutting-edge research and developmental activities through five posters and 16 videos, highlighting its contributions to advancing plasma science and technology. Additionally, many models were also presented by the IPR Outreach Division, further enhancing the interactive experience at the event. Director IPR has delivered a comprehensive talk, shedding light on its pioneering work and vision for the future. The following five posters were presented from IPR that included those from IPR Outreach Division:

1. Plasma Pyrolysis Technology for Safe Disposal of Organic Waste
2. AI & High-Performance Computing for Scientific Research & Medical Diagnosis
3. 14 MeV Neutron Generators: Bridging the Gap between Research
4. Fundamental Plasma Research Activities at IPR
5. TOKAMAK: A Pathway to Nuclear Fusion

This event underscored DAE's enduring legacy and its commitment to fostering innovation and collaboration across its institutions, paving the way for ground-breaking advancements in science and technology. The Outreach division of IPR also displayed their poster



November 2024

- IPR Gandhinagar participated in "**Amalthea 2024**", Annual Technology exhibition organized by Indian Institute of Technology (IIT), Gandhinagar during **9-10 November 2024**. Amalthea is a student-run annual technical summit. The event consisted of several tech exhibitions including robotics, AI and mobility based innovations. Several industry and national R & D institutions participated in the event. IPR exhibited working and static models related to Tokamak, ITER, Wiggler Experiment, Plasma for Grooming and Ion thruster. Around **800** visitors from schools, colleges and industry visited IPR exhibition stall during the event.



- Plasma Exhibition was organized in **Dr. B.C. Roy Engineering College (BCREC), Durgapur from 1 Nov'24 to 14 Nov'24**. The event was organized by Dept. of Basic Science and Humanities, BCREC in collaboration with IIPC, BCREC and The Viswagandha Society, Durgapur, whose mission is to enrich the scientific minds of Young Bengal through interfaces with Scientific Organizations of the country. The Inaugural Session comprised collective watering of sapling by distinguished guests, followed by a felicitation ceremony where the Principal BCREC, Dr. Sanjay S Pawar, Chief Advisor, BCREC Group of Institutions, Dr. Saikat Maitra, HOD BSH, Dr. Saurav Ranjan Das, HOD ECE, Dr. Mrinmoy Chakraborty, Shri and Madam Kabiraj did the honours. About 640 students and 70 teachers from different educational institutes attended the exhibition with great zeal.



- Plasma Exhibition was organized in **Rani Durgavati Vishwavidyalay (RDV)** Jabalpur by IPR Outreach. Member of Parliament (Jabalpur) Shri Ashish Dubey, Inaugurated the exhibition. The Vice Chancellor of RDV Prof. Rajesh Kumar Verma presided over the event, the faculty members of the Department Physics and Electronics of RDV (Prof. Rakesh Bajpai, Dr. R. K. Dubey, Dr. Rinkesh Bhatt, Dr. D. K. Pandey, Dr. (Mrs.) Pallavi Shukla, University staff members, faculty members of local degree and PG colleges, students and teachers of local schools, and foremost the science enthusiasts and volunteers among the students of UG & PG science courses of RDV. The overwhelming response of enthusiastic school and college students while going through the exhibitions was very pleasing, satisfying and encouraging. About **1600 students and teachers from about 30 colleges** and schools and members of **Ordinance Factory Jabalpur** visited the exhibition, which had both static and working models and resource materials and attended the lectures delivered by the members of Outreach Division.







- Institute for Plasma Research (IPR) Gandhinagar (Gujarat) in association with Shri Sardar Patel And Swami Vivekanand School (Ahmedabad) organized an exhibition on plasma, "The fourth state of matter" during **28th & 29th November 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 Shri Vadibhai Patel (ex. principal of GLS college Ahmedabad) and their past student Shri Deven Mistry and Shri Ajaybhai chokshi Managing Director of Shri Vivek Education Trust.** About 2200 students and teachers visited the exhibition and quenched their curiosities on plasmas.





December 2024

- For the first time a 2-day Hands-on **Basic Science Camp** for School students from class 10th to 12th was conducted by Outreach Division on **7th and 8th Dec 2024** (Sat & Sun) at Outreach Hall, IPR. The theme for this hands-on camp is **Electricity, Electromagnetism and Electromagnetic Induction**. For the first camp, the children of IPR staff were invited. 22 students registered and 20 students participated on both the days. The students were provided with practical booklet, writing materials, brief explanation about each experiment. The experiments were conducted in four half-day sessions supervised by scientists of IPR: Mr. Sunil Belsare, Mr. Prakash Parmar, Dr. Jyoti Sankar

Misra, Ms. Pramila, Ms. Praveena, Ms. Minsha Shah, Mr. Deepak kumar, Mr. Abhishek, Mr. Rahul Kumar, Mr. Pritesh Kumar Ray, Mr. Saurav kumar, Ms. Priyanka Patel and members from Outreach Division: Dr. Nirav Jamnapara, Mr. Manu Bajpai, Mr. Narendra Chauhan, Mr. Rahul Vishwkarma, Mr. Anand Kumar and Mr. Gattu Ramesh Babu. Special thanks to Mr. Dasharath Sonara and Ms. Aneesh for developing superconducting and temperature dependency experiment for this science camp.





- Plasma Exhibition in the 39th National Symposium on Plasma Science and Technology (Pandit Deendayal Energy University – PDEU) was organized. It was inaugurated by Shri K. N Vyas (Ex-Secretary, DAE). IPR-Director Dr. Shashank Chaturvedi was the guest of honour. Nearly 400 students and 20 teachers visited exhibition.





Celebration of World Environment Day, 5th June, 2024







Celebration of National Science day Feb 28, 2024



National Science Day celebration at VECC

National Science Day 2024 was celebrated on February 28, 2024, at VECC, Kolkata. The main theme of the celebration was "Indigenous Technologies for Viksit Bharat," A total of 12 schools participated (72 student and 12 teachers). The scientific segment commenced with lectures on accelerator and reactor physics, delivered by Dr. Chiranjib Das and Mr. Arijit Sen, which captivated the students' interest. Following this, Mr. Suman Guha delivered an



engaging and informative talk titled "Sustainable Solutions for Plastic Waste Management... It is a Call". Next the students participated in debate, quiz competition and visits to various research facilities and laboratories at VECC.

The event concluded with the national anthem, leaving the students brimming with joy and inspiration. Their enthusiasms were electrifying and all volunteers VECC were touched by it.