

IPR National Science Day 2016

As part of IPR's scientific outreach programme, the National Science Day was celebrated at IPR main campus on the 8th and 9th January 2016. The event was inaugurated by Dean IPR, Prof. R Jha by cutting the ribbon and lighting the ceremonial lamp. More than 85 working and non-working science models were exhibited from schools all over Gujarat. IPR staff members also showcased interesting 25 science projects which were very popular with the 2500 odd visitors during the two days. Other than the science exhibition, a variety of competitions were also organized by IPR as part of the NSD programme for school students. The concluding ceremony and prize distribution was held on 9th January. Prof Dhiraj Bora, Mrs. Bora and Prof. Shishir Deshpande presided over this function and also distributed the prizes.



Professor R Jha inaugurating the National Science Day 2016 at IPR campus



View of the visitors at the stalls of school students





View of the school students during the concluding ceremony & prize distribution.

APFA-2015

IPR hosted the prestigious 10th **Asia Plasma Fusion Association (APFA)** conference at the Narayani Heights hotel situated adjacent to IPR during 14-18th December, 2015. Asia Plasma and Fusion Association (APFA) was established under the cooperation of the academic societies and research laboratories related to plasma and nuclear fusion researches in Japan, China and South Korea in 1998 and India joined in 2003.

This is the second time when IPR hosted APFA conference (first one was held in 2007). Total 269 scientists & engineers form countries across the globe have presented their work during this conference. Prof. Jean Jacquinot delivered the plenary talk on the "Progress of ITER and way beyond" on behalf of ITER Director General Prof. Bernard Bigot. Prof. Dhiraj Bora delivered an invited talk on "Fusion research in India". There were a total of 11 invited talks, 23 contributory oral presentations and 231 posters spread over five poster sessions during the conference. Mr. P. Yuvakiran & Ms. Harshita Raj were awarded the "Young Scientist Award" of the conference for their presentations.

A popular talk on "Exploration of the solar system and beyond -The Indian scene" was delivered by ex- PRL director Prof. J. N. Goswami on 16th December and was followed by Director's dinner & cultural program. Several Indian industries exhibited their products during the conference.



Group photo of APFA 2015 conference participants



(L-R) Prof. Kaw lightening the lamp during opening ceremony, Prof. Dhiraj Bora delivering Opening Remark, Prof. Jean Jacquinot inaugurating Exhibitions



(L-R) Dr. S. Pradhan, Prof. J.N. Goswami and Prof. Keeman Kim delivering their talks at APFA-2015

Republic Day Celebrations

The 67th Republic Day of the nation was celebrated with gaiety and enthusiasm with large number of IPR staff and their family attending the program. Prof. Dhiraj Bora hoisted the national flag and received the guard of honour on the occasion. The event started with a "Republic Day Walk". The day also saw the culmination of the month long sports activities organized by the IPR Staff Club. Fun games included sack race, lemon and spoon, slow cycling race, and musical chair competitions were held. Lots of prizes were distributed to winners of various competitions including Volley Ball and Badminton tournaments winners.

Apart from the exciting programmes that marked the Republic Day Celebrations, prizes were also distributed to winners of the various tournaments organized by the IPR Staff Club during its month long sports competitions.



the gathering and leading the "Republic Day Walk"



(L-R): Mrs. Bora trying one of the games. Mrs Bora and Shri P K Atrey distributing the prizes to the winners of the competitions organized by IPR Staff Club.

India @ ITER

Mr. Anil Bhardwaj and Mr. Amit Pawar joined IO as staff members in the month of January. Mr Bhardwaj joined as Mechanical Engineer in Tokamak Engineering Department (TED) and Mr. Pawar Joined as Structural Analyst in Central Integration office (CIO). With this addition now total strength of Indian staff at IO is 24 out of which 17 are from our Institute and 7 from other institutes.

IPR Director Prof Bora visited ITER Organization to participate in the meeting of External Management Advisory Board (EMAB) during 20-21 January 2016. On 21st January, an "All-Staff" meeting was held at the IN-DA temporary Cryostat workshop where DG addressed all the IO Staff to give his new year greetings and also to give an opportunity to all IO staff to witness first-hand, the IN-DA supply components of Cryostat sent by L&T Ltd, India which are currently stored in the workshop.



Members of IN-DA and Indian's working in ITER during the all-staff meeting at ITER Commercialization of Plasma Technologies

An expression of interest (EoI) has been published by IPR for availing technologies developed by IPR at its FCIPT centre. Technologies such as atmospheric pressure plasma jet, plasma nitriding, plasma etching for improving brass-to-rubber bonding, low energy broad beam ion source, enthalpy probe diagnostics for measuring hot gas parameters and Langmuir probe for plasma diagnostics were showcased.

A technology transfer meet was arranged with the industries who expressed their willingness to avail the technologies. Out of 5 industries who expressed their interest in availing one or more technologies, 3 industries participated in the event and have confirmed their interest in availing the technology from IPR. The processing of the EoI for technology transfer to industries is in process.



Presentation of the various technologies during the EoI meeting.

LabVIEWTM Training @IPR

Considering the large number of users for LabVIEW in IPR, ITER-India and FCIPT, a five day, hands-on training for Lab-VIEW was organized at IPR seminar hall. 30 employees were trained for LabVIEW Connectivity, Data Acquisition and Signal Conditioning, Real Time and for FPGA. Actual applications from different groups were discussed and implemented. During the training, participants also were given hands-on training on real time and FPGA using training kits.



CPP-IPR Update

The negative hydrogen ions extraction laboratory of CPP-IPR was inaugurated by Prof. D. Bora, Director, IPR and Prof. S. Bujarbarua, Founder Director, CPP on 5th January 2016 in the presence of Prof. Y. C. Saxena, IPR, Prof. A.C. Das, Ex-Dean, PRL, Prof. K. S. Goswami, Centre Director, CPP-IPR, Mr. P.K. Atrey, ACAO, IPR and all the faculties/scientists & staff of CPP-IPR. The experimental facility fabricated at IPR Mechanical Workshop is efficiently producing vacuum ~10⁻⁷ mbar and plasma density ~10¹⁶ m⁻³. The laboratory is currently being upgraded to a floating high voltage negative hydrogen ion source under the leadership of Dr. B. K. Saikia and Dr. S. S. Kausik in collaborating with Prof. Y. C. Saxena, Dr. M. Bandyopadhyay and Mr. A. G. Gahlaut of IPR. The negative hydrogen ions produced by Cesium-coated Tungsten dust will be extracted in this experimental facility.

Prof. D. Bora, also delivered a talk on "Activities at Institute for Plasma Research" at CPP-IPR on January 5, 2016, during his visit to attend the Managing Board meeting of CPP-IPR on the same day. Starting with a brief history of plasma physics research in India in general and IPR in particular, Prof. Bora deliberated on various past and present R&D activities of IPR. He also illustrated the mammoth R&D responsibilities of India after its participation in ITER, as well as India's domestic programme for future fusion reactors, such as SST-2 and DEMO. The basic objective of this presentation was to familiarize the scientists and students of CPP-IPR with the activities where CPP-IPR can participate. The talk was followed by lively discussions on possible research areas where CPP-IPR scientists can contribute in collaboration with IPR scientists.



Inauguration of Negative Ions Extraction Laboratory at CPP-IPR by Professor Dhiraj Bora.

Encouraging Cycling *ⓐ* IPR !!

With an idea to improve fitness and also facilitate the employees and visitors to commute easily within the premises, Director IPR Prof Dhiraj Bora has introduced the concept of cycling within the premises *as a new year gift* !! Around 25 cycles have been arranged at 5 different locations-*Student facility Centre, Main Building Porch, New Building Porch, between SST-1 and ITER-India, Neutronics Lab and Water Tank* to facilitate the commuters. Prof. Amita Das inaugurated the facility on January 1, 2016 near porch of the New Building IPR where staff members actively participated and enjoyed the fun & health ride. Since then, IPR staff have enthusiastically started using these cycles to commute within IPR between their Labs and offices.



Images from the inauguration of the cycle facility at IPR

Congratulations



Professor P. K. Kaw

Association of Asia-Pacific Physical Societies (AAPPS), Division of Plasma Physics (AAPPS-DPP) has awarded **Prof. Predhiman K. Kaw,** former Director of IPR, the 2015 Laureate of S. Chandrasekhar Prize of Plasma Physics, for his seminal / pioneering contribution in the field of plasma physics. This prize is sponsored by the Future Energy Research Association.

After obtaining a PhD at age 18 from the Indian Institute of Technology, Delhi, Professor Kaw spent time as a researcher at the Physical Research Laboratory in Ahmedabad, India, and the Princeton Plasma Physics Laboratory, New Jersey, US. In 1982 he returned to India to spearhead the establishment of a national magnetic fusion program, founding the Institute for Plasma Research and playing a leading role in gaining international recognition for the national program.

Named Year of Science Chair by the Indian Department of Science & Technology, he continues to be active in research and in the mentoring and training of the younger generation of plasma physicists in India. Professor Kaw was the first Chair of the ITER Council Science and Technology Advisory Committee and led the committee's deliberations from 2007 to 2009.

On behalf of IPR, we congratulate Prof. Kaw on this award !



Shri Bharat Doshi of the Mechanical Services Division, IPR, received a certificate of appreciation from the Editorial Board of the Journal of Fusion & Engineering Design (Elsevier) as an Outstanding Reviewer for the Journal in the year 2015. Congratulations !!

Mr. Kedar Bhope of the Divertor & First wall Tech. Development Division presented a Poster on paper entitled "**Quality Evaluation of CuCrZr to SS Diffusion Joints using Ultrasonic C-scan Imaging technique**" in National Seminar and Exhibition on Non-Destructive Evaluation (NDE-2015) during 26-28 November 2015 held at Hyderabad, India Hosted by ISNT Hyderabad chapter and Same paper is awarded with **1**st **prize** for Best Poster Presentation. Congratulations !!



विश्व हिन्दी दिवस 2016

राजभाषा कार्यान्वयन समिति, आईपीअर द्वारा 22 जनवरी, 2016 को इस वर्ष के विश्व हिन्दी दिवस समारोह का आयोजन किया गया। इस वर्ष विश्व हिन्दी दिवस के उपलक्ष्य में एक साहित्यिक वक्तव्य हेतु गुजरात विद्यापीठ में स्नातकोत्तर हिन्दी विभाग के प्रोफेसर एवं प्रमुख डॉ.जशवंत भाई पंड्या जी को आमंत्रित किया गया। समारोह के आरंभ में राजभाषा कार्यान्वयन समिति के अध्यक्ष श्री राजसिंह ने सभागार में पधारे अतिथिगण एवं सभी सदस्यों का स्वागत करते हुए डॉ.जशवंत पंड्याजी का संक्षिप्त परिचय दिया। डॉ.पंड्या जी ने उपन्यास समाट श्री मुंशी प्रेमचंद जी के कथा साहित्य पर चर्चा की। प्रेमचंद के व्यक्तिगत जीवन पर प्रकाश डालते हुए उनके उपन्यास-गोदान, गबन, निर्मला आदि और कहानियाँ-कफन, पूस की रात, ईदगाह, बड़े घर की बेटी में चित्रित जीवन संघर्ष के विविध आयाम से श्रोतागणों को परिचित कराया। इस साहित्य गंगा में उपस्थित होकर आईपीआर के सदस्यों को एक महान कथाकार की अनमोल रचना से परिचित होने का अवसर मिला, जो निश्वित ही सभी के लिए प्रेरणादायक है। अंत में सभी की ओर से श्रीमती संध्या दवे ने इस जानवर्धक वक्तव्य हेतु डॉ.जशवंत भाई पंड्या जी को धन्यवाद दिया।

समारोह के दूसरे चरण में विज्ञान एवं हिन्दी भाषा से संबंधित प्रश्नोत्तरी प्रतियोगिता का आयोजन किया गया जिसमें सभी प्रतिभागियों ने उत्साहपूर्वक भाग लिया। श्री राजसिंह ने आईपीआर की वैज्ञानिक गतिविधियों से जुडे एवं हिन्दी भाषा के मुहावरे, लोकोक्ति, कविताएँ, दोहे आदि से संबंधित प्रश्न प्रतिभागियों को पूछे। यह प्रतियोगिता काफी रोचकपूर्ण एव सफल रही। प्रश्नोत्तरी के विजेताओं को पुरस्कृत किया गया। इस प्रकार विश्व हिन्दी दिवस समारोह का आयोजन सफलतापूर्वक संपन्न हुआ।



भी राजसिंह एवं अतिथिगण

प्रश्नोत्तरी प्रतियोगिता

Past Events @ IPR

- Dr. Ketan D. Patel, Zydus Hospitals, Ahmedabad, gave a talk on "Medical Emergency Management" on 23rd December 2015
- **Dr. Rameswar Singh,** Laboratoire de Physique des Plasmas, France, gave a talk on "Geodesic acoustic modes with poloidal mode couplings ad infinitum" on 30th December 2015
- Dr. Vikrant Saxena, Centre for Free Electron Laser Science, Germany, gave a talk on "X-ray Irradiation of Finite Systems : Modeling the Nanoplasma Dynamics" on 30th December 2015
- Mr. Aditya Krishna Swamy, Institute for Plasma Research, Gandhinagar, gave a talk on "Global Gyrokinetic Study of Electromagnetic Microinstabilities in Tokamak Plasmas" on 01st January 2016
- LabVIEW Training, Institute for Plasma Research, Gandhinagar, 11-15 January 2016
- Mr. Sayak Bose, Institute for Plasma Research, Gandhinagar, gave a talk on "Experimental Study of Plasma Oscillations in IMPED" on 18th January 2016
- Dr. Shashank Rathod, Eye Care Hospital, Ahmedabad, gave a talk on "Total Eye Care-Take care of your Eyes" on 19th January 2016
- Dr. Jitendra Kumar, Birla Institute of Technology & Science, Pilani, Rajasthan, gave a talk on "Design and Analysis of Dielectric Resonator Antenna (DRA) for Wideband Applications" on 27th January 2016

Upcoming Events

- 8th International Symposium on Advanced Plasma Science and its Applications for Nitrides and Nanomaterials/9th National Conference on Plasma-Nano Technology and Science (ISPlasma2016/IC-PLANTS2016), Nagoya University, Japan, 6-10 March 2016 http://www.isplasma.jp/
- 10th International Conference on Plasma Assisted Technologies (ICPAT), Cancun, Mexico, 7-10 March 2016 http://www.plasmacombustion.com/iwepac.html
- The joint annual meeting of the Institute of Physics High Energy Particle Physics and Astroparticle Physics Groups, University of Sussex, UK, 21-23 March 2016 http://heppappsussex2016.iopconfs.org/home
- Plasma for Functional and Engineered Materials and Surfaces symposium, Incheon, South Korea, 23-25 March 2016 http://www.setcor.org/conferences/SMS-KOREA-2016/conference-workshops/9
- IOP Annual Nuclear Physics Conference, University of Liverpool, UK, 30 March-1 April 2016 http://www.iop.org/calendar/index.html#/?i=6
- 4th International Conference Frontiers in Diagnostics Technologies (ICFDT4), 30 March-1 April 2016, Frascati, Italy. http:// www.fusione.enea.it/icfdt/

Know Our Colleagues



Dr Promod Kumar Sharma joined IPR in 1991 as a research scholar after M.Sc. from IIT, Kharagpur and later in 1995 as a Scientist. Initially he was involved in studies in basic plasma physics in pseudo-spark and low frequency coherent modes/instabilities in low temperature magnetized toroidal plasmas produced by different techniques. Methods were devised to supress the instabilities by introducing finite parallel wavenumber, injecting high frequency pump waves etc. Presently he is Head of LHCD Division and has designed, developed and commissioned two high power (120 kW pulsed and 2 MW CW) 3.7 GHz system for ADITYA and SST-1 and relevant diagnostics. He has carried out several simulation studies for LHCD physics using various Heating and Current Drive codes and contributed to the design of LHCD system for ITER (LH4IT) through CEA, EFDA task. He was a member of the Topical Working Group, H&CD ITER on system and also represented in International RF topical conference in 2013 as Program Committee member. Internationally, he has collaborated with ENEA, Italy and CEA, France. He is recognized by HBNI, GTU and Nirma University as guide in physical science. He is lifetime member of PSSI and lifetime fellow of VEDA Society.

Mr. Paresh Patel joined the Institute in 1995 as an engineer in the Power Supply and Data Acquisition Division (NB PS) of the Neutral Beam Injector (NBI) group. He was initially involved in the design of all major power supplies for the NBI and had also parallelly worked with the Large Volume Plasma Device (LVPD) for delivering its 4kA discharge power supply. Presently he is leading the NB PS division and is responsible for Power supplies, control and DAC system. He was involved in the in-house development of Regulated High Voltage Power Supply (RHVPS) systems for all heating systems and is recipient of patent for the design of the same. After delivering a prototype RHVPS (14 kV, 35 A) in 1999, three 80 kV rated RHVPS systems for the SST-1 were developed under his leadership which are in service today. In addition, he also worked on supplying, as an external project, a 100 kV RHVPS (24 × 7 duty) to BARC and is pursuing for 2 more of such systems.



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