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Issue 043

February 2017

The ⁴th State

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

68th Republic Day Celebrations at IPR

The 68th Republic Day of the nation was celebrated at IPR on 26th Jan 2017. The Director, Dr. Shashank Chaturvedi unfurled the national tricolor, which was followed by the national anthem. The Director then accepted the Guard of Honour from the IPR security personnel. This was followed by distribution of prizes for various events organized by the IPR Staff Club were given away by the Dr. Chaturvedi, Shri P K Atrey, Dr. Vinay Kumar, Shri Ujjwal Baruah and Dr. Shishir Deshpande. Snacks and various games for family and children of IPR staff were also organized by the Staff Club.



Clockwise (From Top) : The unfurling of the national flag; Director receiving the Guard of Honour, Miss. Hema-varshini Akkireddy receiving the prize from Dr Shashank Chaturvedi; View of the people assembled for the flag hoisting.

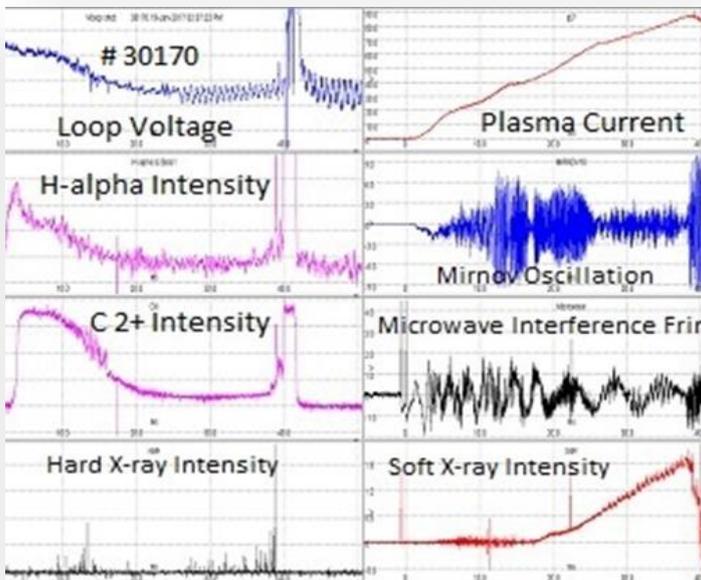


View of the audience and few images from the prize distribution ceremony.

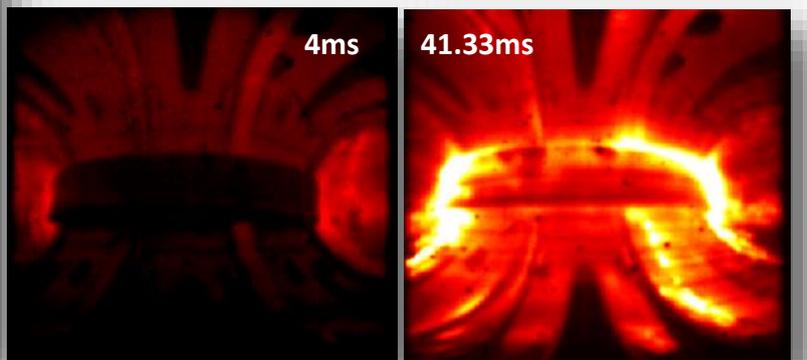


(Left) The national flag hoisted at CPP-IPR by Center Director, Prof. K S Goswami (Right) Games for IPR staff and family.

Aditya Upgrade News



The Aditya Upgrade tokamak was operated with 0.5 - 0.9 Tesla toroidal magnetic field and discharges of ~ 45 ms durations were obtained. The plasma current in these discharges ranges from 70 – 90 kA with plasma densities in the range of $\sim 0.8 - 1 \times 10^{19} \text{ m}^{-3}$. Saw-tooth phenomena in the soft X-ray intensity was also observed in many of these discharges.



(L) The various parameters of a typical Aditya Upgrade shot (#30170) (R) Images of the plasma at 4ms during initiation of the plasma and at 41.33 ms showing enhanced interaction with the inboard toroidal limiter during plasma disruption.

The National Science Day was celebrated with a lot of enthusiasm at IPR campus on 7-8 January, 2017. More than 600 participants from over 80 schools from Gujarat state participated in the various events that were organized as part of NSD activities. More than 80 science projects (both working and non-working) were displayed by the participating schools. IPR staff, in collaboration with graduate students from St. Xavier's College, Ahmedabad, displayed over 20 working science projects. Essay, eloquence, poster and quiz competitions as well as open house were part of the event. This year, skit competition was also introduced. Over 18 teams participated in the skit competition which had a theme of "How science and technology combined with well-established traditional knowledge and practices can eradicate misconceptions, superstitions, ignorance and exploitation in every field of life". The event was inaugurated by Shri. P K Atrey on 7th January and he also gave away the prizes to the winners of the various competitions during the concluding session on 8th January. Prizes were also given to working and non-working categories of science exhibits displayed by schools that participated in the event. During the two days, around 2500-3000 visitors took this opportunity to visit IPR and the NSD exhibition.

NSD inauguration 360 [video](#) / [image](#). Exhibition stalls [image](#). NSD volunteers 360 [group photo](#).



Top : Inauguration of NSD-2017; **Middle** : The visitors at the scientific exhibition; **Bottom** : Dr. Ramasubramanian addressing the participants of the NSD-2017 during the concluding session.



Images from the National Science Day Celebrations (NSD-2017) at IPR

हिन्दी कार्यशाला के आयोजन का उद्देश्य संस्थान के कर्मचारियों को हिन्दी के प्रयोग में आ रही समस्याओं को दूर करने हेतु किया जाता है। इसी उद्देश्य से 22 दिसम्बर, 2016 को संस्थान में आयोजित हिन्दी कार्यशाला में श्री हरीश चन्द्र खण्डूडी, सहायक प्रशासनिक अधिकारी एवं राभाकास, सदस्य ने कर्मचारियों को हिन्दी भाषा का प्रशिक्षण दिया। इस कार्यशाला के अंतर्गत सामान्य बोलचाल की हिन्दी एवं सरकारी पत्र-व्यवहार में प्रयोग की जा रही हिन्दी भाषा पर चर्चा की गई। श्री हरीश चन्द्र खण्डूडी ने कर्मचारियों को मंच पर बुलाकर आपसी संवाद से व्यावहारिक अभ्यास भी कराया गया और आम बोलचाल की भाषा में मामूली त्रुटियों को दूर करने पर भी चर्चा की गई। इसके पश्चात् व्यक्तिगत पत्र-व्यवहार एवं प्रशासनिक पत्र-व्यवहार का भी प्रशिक्षण दिया गया। यह कार्यशाला रोचक एवं ज्ञानवर्धक रही। लगभग 40 कर्मचारियों ने इस कार्यशाला में भाग लिया।



हिन्दी कार्यशाला की झलकियाँ

विश्व हिन्दी दिवस समारोह

विश्व हिन्दी दिवस का आयोजन संपूर्ण विश्व में हिन्दी के बढ़ते चरणों का प्रतीक है। इस गौरव को बनाए रखते हुए संस्थान में 10 जनवरी, 2016 को विश्व हिन्दी दिवस समारोह पूरे उत्साह के साथ मनाया गया। इस उपलक्ष्य में हिन्दी प्रश्नोत्तरी प्रतियोगिता रखी गई एवं इसके पश्चात् हिन्दी में वैज्ञानिक व्याख्यान का आयोजन किया गया। वैज्ञानिक व्याख्यान को प्रस्तुत करने के लिए श्री विरेन्द्र कुमार, निदेशक, डीईसीयू, (इसरो की एक इकाई) को आमंत्रित किया गया था। श्री विरेन्द्र कुमार ने "इसरो के कदम : अंतरिक्ष से धरती तक" विषय पर वक्तव्य दिया। इस पावर पाइंट प्रस्तुति में इसरो की उपलब्धियों पर एक विडियो दिखाया गया जिसमें यह दर्शाया गया कि किस प्रकार इसरो अपनी स्थापना के बाद अब तक चरणवार उपलब्धियाँ प्राप्त कर रहा है और मंगलयान को अंतरिक्ष में स्थापित कर पूरे विश्व में भारत ने अपना सिक्का जमा दिया है। श्री विरेन्द्र कुमार ने अपने वक्तव्य में इसरो की महत्वपूर्ण गतिविधियों एवं उपलब्धियों पर प्रकाश डाला। कार्यक्रम के आरंभ में हिन्दी भाषा, विज्ञान, सामान्य ज्ञान पर आधारित प्रश्नोत्तरी प्रतियोगिता में सभी कर्मचारियों ने उत्साहपूर्वक भाग लिया। यह प्रतियोगिता श्रीमती रेखा सिंह, कार्यालय लिपिक द्वारा कुशलतापूर्वक आयोजित की गई। समारोह के अंत में संस्थान में शुरू की गई अंतर-अनुभागीय चल राजभाषा शील्ड योजना के अंतर्गत श्री विरेन्द्र कुमार द्वारा संस्थान के स्थापना अनुभाग को इस शील्ड से सम्मानित किया गया। श्री प्रवीण कुमार आत्रेय, कार्यकारी मुख्य प्रशासनिक अधिकारी एवं सदस्य, राभाकास ने श्री विरेन्द्र कुमार के ज्ञानवर्धक व्याख्यान हेतु उनका आभार व्यक्त किया।



विश्व हिन्दी दिवस की झलकियाँ

WASTECH 2016 Summit and Expo was an event organized by the Gujarat Pollution Control Board (GPCB), Department of Forests and Environment, Government of Gujarat from 02-04 Dec, 2016 at the Mahatma Mandir, Gandhinagar. This event was aimed at waste and resource management, water and waste water treatment, pollution control systems, recycling and e-waste. FCIPT showcased its plasma pyrolysis technology, which is now part of the central government's 'Swatchh Bharat' campaign. Also, the plasma pyrolysis plant being set up at GIFT City, Gandhinagar is based on the technology developed at FCIPT/IPR.

IPR's team was led by Dr. S Mukherjee and consisted of the the following staff of FCIPT ; Dr. Nirav Jamnapara, Mr. Vishal Jain, Mr. Gautam Vadolia, Mr. Anand Visani, Mr. P. Vadivel Murugan, Ms. Purvi Dave and Ms. Nisha Chandwani.



(Left) Shri Hardik Shah, Member Secretary, GPCB explaining the plasma pyrolysis technology to Shri Shankarbhai Chaudhary, Minister of Forests & Environment, Government of Gujarat . (Right) The FCIPT stall at the event.



Images of visitor interaction with IPR staff during WASTECH 2016

IPR participated in the DAE stall of the "Pride of India" exhibition held in connection with the 104th Indian Science Congress which was organized by the Sri Venkateswara University at the temple town of Tirupati from 3-7 January 2017. IPR's team consisted of Dr. Ravi A V Kumar, Ms. Ranjana Gangradey, Mr. Gautam R Vadolia, Mr. Vadivel Murugan, Mr. Anand Visani, Mr. Kedar Satish Bhope, Mr. Samiran Mukherjee, Mr. Raviranjn Kr. Tiwari, Mr. Paresh M. Panchal, Mr. Pratik Nayak, Mr. Mayur Mehta and Mr. Naveen Rastogi. They presented both working and non-working models of various technologies developed by IPR. This exhibition, which was inaugurated by the Chief Minister of Andhra Pradesh, was thereafter thrown open to public and over the course of four days, at least a few lakh people from schools, colleges and common public visited the stalls. The 360 images of the exhibition are here [\(1\)](#) [\(2\)](#) [\(3\)](#)



Top : Panoramic view of the "Pride of India" exhibition at the Indian Science Congress. **Bottom :** IPR's stall at the exhibition

IPR-CEA Collaboration

Mr. Hiralal Jadav had been deputed from the High Power ICRH Division, IPR, to work in Tore-Supra WEST project IRFM (Institute for Magnetic Fusion Research) for the Participation in the data acquisition and control (DAC) system at the WEST tokamak CEA, Cadarache, France from 31st March 2016 to 9th Dec 2016. During his visit he worked in the area of the Service Tokamak Exploitation & Pilotage (IRFM-STEP) under the guidance of Mr. Benjamin SANTRAINE and CEA coordinator Ms. Nathalie RAVENEL and Dr. Philippe MOREAU. His work involved development of hardware electronics for signal adaption. He also participated in signal testing of data acquisition units for ICRH system with Mr Ritesh Sugandhi. He was assigned code development for "Testing of control signal Digital IO and Analog output" using PXIe based Multifunction module (NI-7851R) for Magnetic diagnostic "dmag". The code is developed for Menu Principal such that different types control signal test are selected. It also supports activity to make input signal connection of PXI system and CRIO modules. Mr Jadav was also involved in development and testing of 100MHz fibre optic multi-converter circuits.



Welcome to the IPR Family

On behalf of IPR, we welcome all the new staff who have joined various groups in the recent past. We wish them all the very best in their career at IPR.



Hiteshkumar Kavad
Engineer-SC (Mech), LCPC Divn



Omkar R. Chandratre
Tech Asst (Mech), LCPC Divn



Nisha
Scientist- SC, Pulse_Power Divn



Kushagra Nigam
Scientist-SC, FCIPT



(Left) View from inside the auxiliary showing the completed Tremix flooring (Right) View from inside the laboratory building at 7.5m level on the mezzanine floor. Work for laying RCC slab at this level is in progress.



(Left) View from inside the laboratory building (below Mezzanine floor) showing the Tremix flooring reinforcement work in progress. (Right) View from ITER building side of the tower column erection for the laboratory building.

IPR Groups - High Power LHCD Group



The High Power LHCD group is involved in the design, development and operation of the 3.7 GHz, 2 MW Lower Hybrid Current Drive for the SST-1 Tokamak for non-inductively driving the plasma current in CW (>1000 seconds) operation. The group also has another 120 kW-pulsed LHCD system developed and installed for Aditya tokamak powered by the same klystrons used for the SST1 system. Division has dedicated diagnostic like Langmuir probe, Hard X-ray detector (NaI and CdTe) and IR camera for the LHCD system to analyze the lower hybrid power coupling, grill antenna edge plasma density and to monitor the generation of super thermal electron and arcing at the antenna. Group has successfully obtained encouraging results and made significant observations both at SST-1 and at Aditya with their systems.

Left to Right (Sitting) : Saifali Dalakoti, Dr. P.K.Sharma, K.K.Ambulkar
 (Standing) : Yogesh Jain, Chandra Sekhar Singh, Chetan G Virani, P.R.Parmar, Jagabandhu Kumar, Arvind L Thakur



8 teams from IPR and ITER-India had participated in the "Plasma Trophy Tournament 2016", which was organized by the IPR Staff Club. The final match of this tournament was held between Motera Indians and TTP United. Motera Indians won the toss and chose to bat and scored 128/6 in 15 overs. While batting second, TTP-United were all out for 59 runs. Motera Indians won the match by 67 runs and took the trophy.



| | | |
|----------------|------------------|-----------------------|
| Harish Masand | Jasraj Dhongde | Dass Sudhir |
| Best Batsman | Best Bowler | Best All Rounder |
| Total 122 runs | Total 15 wickets | 90 runs and 8 wickets |



Images from the finals of the Plasma Trophy Tournament 2016

Past Events @ IPR

- ◆ **Dr. Rameswar Singh**, Institute for Plasma Research, Gandhinagar, gave a talk on "Non-inductive current drive by ETG turbulence in tokamaks and cylindrical devices" on 19th December 2016
- ◆ **Mr. Harish Charan**, Institute for Plasma Research, Gandhinagar, gave a talk on "Strongly coupled 2D Yukawa liquids under external forcing: A molecular dynamics study" on 23rd December 2016
- ◆ **Dr. Rahul Kumar**, Institute for Cosmic Ray Research (ICRR), University of Tokyo, gave a talk on "KAGRA detector: Large-Scale Cryogenic Gravitational Wave Telescope" on 28th December 2016
- ◆ **Dr. Subir Biswas**, Weizmann Institute of Science, Israel, gave Dr. Parvez Guzdar award talk on "Spectroscopic Diagnosis of Magnetic and Electric Field and Plasma Properties in a Relativistic Electron Beam Diode" on 4th January 2017
- ◆ **Dr. Kailash Chandra Meher**, FCIPT, Institute for Plasma Research, Gandhinagar, gave a talk on "Numerical simulation of nitrogen plasma torch using finite volume techniques" on 5th January 2017
- ◆ **Dr. Ujjwal Sinha**, GoLP/IPFN, Instituto de Plasmas e Fusao Nuclear, Instituto Superior Tecnico, Lisbon, Portugal, gave a talk on "Circularly Polarized Light from Magnetized Current Filaments: implications to Gamma Ray Bursts" on 6th January 2017
- ◆ **Dr. M.D.Pandya**, University of Wisconsin-Madison, USA, gave a talk on "Low edge safety factor disruptions in the Compact Toroidal Hybrid: Operation in the low-q regime, passive disruption avoidance and the nature of MHD precursors" on 10th January 2017
- ◆ **Mr. Bibhu Prasad Sahoo**, Institute for Plasma Research, Gandhinagar, gave a talk on "3D Monte-Carlo simulation of Aditya tokamak Scrape-off layer plasma transport with toroidally discontinuous limiters" on 12th January 2017

- ◆ **Mr. Mukul Bhatnagar**, FCIPT, Institute for Plasma Research, Gandhinagar, gave a talk on "Growth Dynamics and Plasmonic response of Silver nanoparticles deposited on nanodots/nanorippled templates" on 13th January 2017
- ◆ **Dr. Sukanya Mitra**, Indian Institute of Technology- Gandhinagar, gave a talk on "Electromagnetic Responses and Dissipative Properties in Hot QCD Medium" on 16th January 2017
- ◆ **Mr. M.Y. Jamal**, Indian Institute of Technology, Gandhinagar, gave a talk on "Collective Modes and the Refractive Index of hot QCD/QGP medium" on 16th January 2017
- ◆ **Dr. Jitendra Kumar**, Institute for Plasma Research, Gandhinagar, gave a talk on "Development of Microwave Coupling System for SYMPLE" on 17th January 2017
- ◆ **Dr. Sunil Kumar**, Inter University Accelerator Centre (IUAC), New Delhi, gave a talk on "Irradiation induced structural and electrical modification in graphene" on 20th January 2017

Upcoming Events

- ◆ International Conference on Plasmas with Liquids (ICPL 2017), Prague, Czech Republic, 5-9 March, 2017 <http://www.icpl.cz/>
- ◆ 10th International Conference on Theory and Practice of Electronic Governance-2017, New Delhi, 7-9 March 2017 <https://egov.unu.edu/events/upcoming/icegov2017.html>
- ◆ National Conference on Emerging Trends in Vacuum Electronic Devices & Applications, Institute for Plasma Research, Gandhinagar, 16-18 March 2017 <http://www.ipr.res.in/veda2016/>
- ◆ International Conference on Materials Processing and Characterization (ICMPC), Hyderabad, India, 17-19 March 2017 <http://www.icmpc.com/>
- ◆ 4th Spectral Line Shapes in Plasmas Code Comparison Workshop (SLSP), Vienna, Austria, 20-24 March 2017 <http://plasma-gate.weizmann.ac.il/projects/slsp/slsp4/>
- ◆ 4th International Workshop on Plasma for Cancer Treatment (IWPCT 2017), Paris, France, 27-28 March 2017 <http://iwpct2017.lpgp.u-psud.fr/>

Plagiarism Detection Software Demonstration at IPR

IPR Library organized demonstration of web-based plagiarism detection software, viz, Turnitin and iThenticate on 10 January 2017 at IPR Seminar Hall. The demonstration was aimed to provide better understanding of these two popular software used worldwide by scholarly publishers and research and academic institutions to ensure originality of written work before publication. Many students and staff members attended the demonstration and participated in the interactive session.



Know Our Colleagues



Mr. Sunil Misal entered IPR family in 1997 in the Administration section and was initially associated with the responsibilities of CHSS section. Later on, he joined the Establishment section with the assigned duty at the then CAO's office which was followed by duties at various other sections of the Institute viz., the then Project Management Group, Computer Center, Director's office, General Administration, Establishment section and again back to the CHSS Section which he takes care of now. He is well known for his enthusiasm in promoting and inspiring IPR staff to use Hindi in official work as mandated by the Official Language Department of Govt. of India. He was instrumental in converting most of the official forms into bilingual and also voluntarily looked after the Official Language section of the Institute during the period when there was no hindi translator available at IPR. He was conferred upon with the Hindi Seva Samman in May 2016 for his commendable contribution to Official Language amongst all the units under the DAE.

Ms. Falguni Dave joined the Institute in 1997 and has been with the two member reception team of the Institute since then. Her duty include management and regulation of guests in coordination with security staff and handles EPABX system screening and forwarding the incoming calls and also connecting the staff for their external calls. Works also includes operating Fax, maintaining records & registers related to different Telephone Service providers such as BSNL, Vodafone, TATA, Airtel etc. coordinating with them for the main campus as well as FCIPT & Vidhata. Ms. Falguni Dave also Updates telephone details of the Staff members, processes reimbursement of Telephone bills, take care of complaints regarding Internal as well as external telephone lines and thus solves queries related with the telephones.



The IPR Newsletter Team

| | | | | | |
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