

Issue 068

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The Fourth State

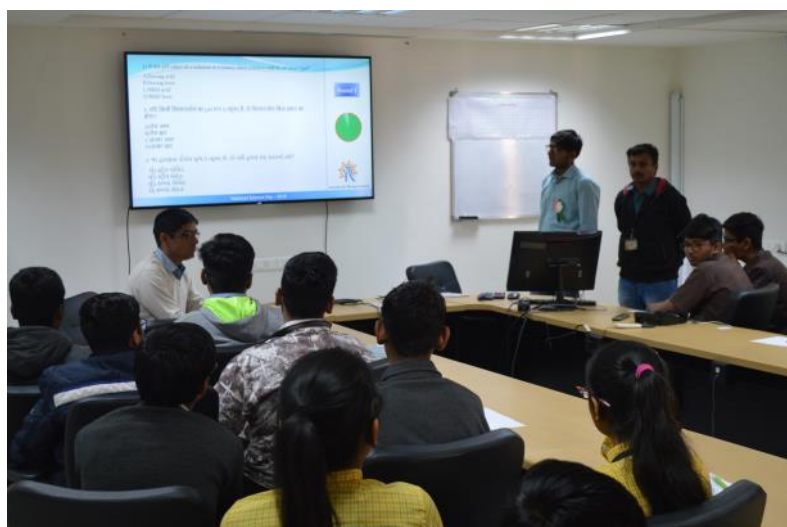
Newsletter of the Institute For Plasma Research, Gandhinagar, Gujarat (India)

National Science Day 2019

The National Science day was celebrated at IPR with immense amount of enthusiasm on 2-3 February, 2019 at the IPR main campus. The event was inaugurated by Dean Administration of IPR, Shri Ujjwal Baruah. Over 800 students and teachers from both urban and rural schools across Gujarat participated in this event. The NSD also had competitive live events like Quiz, Eloquence, Skit as well as science exhibits by schools and by IPR staff, in collaboration with the BSc Physics students of St. Xavier's College, Ahmedabad. Offline competitions like poster and essay writing were conducted for the school students in the month of December. In the competition organized for school teachers for innovative teaching aids, Shri Avinash K. Jayswal of Info city Science College won the first prize. This event had over 3000 visitors visiting IPR during the two days to see the exhibition and open house. The concluding session was held on 3rd February where the prizes for the various competitions were given out by Director IPR, Dr. Shashank Chaturvedi. Some of the schools that won prizes in multiple events are S.G. Dholakiya School, Rajkot, H J D Institute, Kutch, Ultra Vision School, Surendranagar, Adarshila School, Valad etc.



Shri Ujjwal Baruah, Dean, IPR inaugurating the NSD-2019



Images from the various activities / competitions during NSD-2019



Images from the various activities / competitions during NSD-2019



The closing function and prize distribution of NSD-2019



Director, IPR giving away the prizes to the winners of various competitions.



Some of the team members of NSD-2019

परमाणु ऊर्जा विभाग का 19वाँ अखिल भारतीय सम्मेलन 2 फरवरी, 2019 को राष्ट्रीय विज्ञान शिक्षा एवं अनुसंधान संस्थान (NISER), भुवनेश्वर में आयोजित हुआ। इस अवसर पर परमाणु ऊर्जा विभाग द्वारा सरकारी कार्यों में राजभाषा के प्रचार-प्रसार को बढ़ावा देने के लिए आईपीआर को वर्ष 2017-18 के लिए पऊवि की सहायता प्राप्त संस्थान श्रेणी के अंतर्गत राजभाषा शील्ड (आईओपी, भुवनेश्वर के साथ संयुक्त रूप से), वर्ष 2017-18 के लिए पऊवि की सहायता प्राप्त संस्थान श्रेणी के अंतर्गत सर्वश्रेष्ठ राजभाषा गृह पत्रिका पुरस्कार और विशेष रूप से श्री राज सिंह, वैज्ञानिक अधिकारी – जी एवं उपाध्यक्ष, राभाकास को राजभाषा हिंदी के प्रचार-प्रसार में रचनात्मक एवं उत्कृष्ट योगदान देने के लिए विभाग के सर्वोच्च राजभाषा सम्मान “राजभाषा भूषण” admin (वर्ष 2017-18) से सम्मानित किया गया है। इस पुरस्कार में स्मृति चिन्ह, 11,000 रुपये की राशी और एक शाल प्रदान की गई हैं। ये पुरस्कार श्री ए.आर. सुले, संयुक्त सचिव(अनुसंधान एवं विकास) एवं प्रो. सुधाकर पण्डा, निदेशक, नाइसर द्वारा प्रदान किये गये।

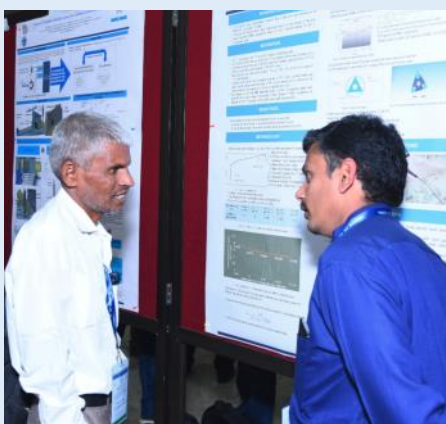


संयुक्त सचिव राजभाषा शील्ड प्रदान करते हुए



आईपीआर द्वारा जीते गए पुरस्कार।

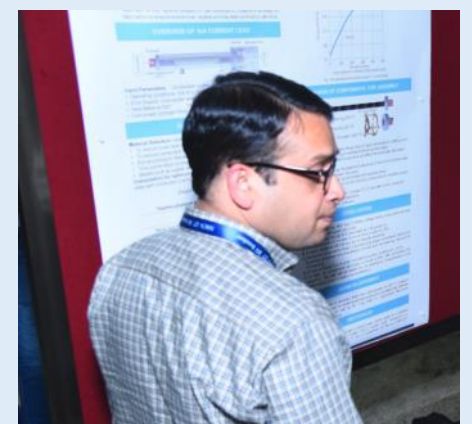
IPR@ Conferences



Mr. L. N. Srikanth. G, Scientific Officer - D, SST-1 Cryogenics Division, presented a poster entitled “Development of liquid helium transfer” at the 27th National Symposium on Cryogenics and Superconductivity at IIT Mumbai during 16-18



Mr. Hiren Nimavat of SST-1 Cryogenics Division, presented a poster entitled “Efforts done to mitigate direct heat in-leaks in SST-1” at the 27th National Symposium on Cryogenics and Superconductivity at IIT Mumbai during 16-18 January 2019.



Mr. Atul Garg, SO-D, SST-1 Cryogenics Division, presented a poster entitled “Conceptual Design of 1 kA Conduction Cooled Current Leads for HTS Coils” at the 27th National Symposium on Cryogenics and Superconductivity at IIT Mumbai during 16-18 Janu-

IPR participated in the meeting "ParamanuTech-2019" organized by DAE and MEA to showcase the various technologies developed by units of DAE to the diplomats of Indian missions abroad as well as foreign diplomats based in India. The meeting was held at the Pravasi Bharti Kendra, Chanakyapuri, New Delhi on 6th February, 2019. An exhibition was organized as part of this meeting, in which IPR exhibited seven technologies developed by IPR. The meeting was presided over by Dr. Jitendra Singh, Hon. Minister of State for PMO, who, among other departments, is also in charge of the Department of Atomic Energy. Chairman DAE Shri K. N. Vyas, JS (ER) DAE, Shri. Jayant Khobragade, JS (PMO) Shri Gopal Bagle and several other officers and diplomats visited the IPR exhibits and had discussions with the IPR staff present there.



Shri K. N. Vyas, Chairman DAE, welcoming Shri Jitendra Singh, MoS, PMO during ParamanuTech-2019



The IPR stall and the IPR team at ParamanuTech-2019 (L-R) Ganshyam Jhala, Abhishek Agraj, Pramit Dutta, Nirav Jamnapara, Vishal Jain and Ravi A V Kumar



Shri K. N. Vyas, Shri Gopal Bagle and Shri Ranajit Kumar at the IPR stall.



Images of visitors to IPR stall at ParamanuTech-2019

नराकास, गांधीनगर स्तर पर आयोजित सामान्य ज्ञान प्रश्नोत्तरी प्रतियोगिता में आईपीआर की सक्रिय प्रतिभागिता



नगर राजभाषा कार्यान्वयन समिति, गांधीनगर के तत्वावधान में 29 जनवरी, 2019 को जनगणना कार्य निदेशालय, गांधीनगर द्वारा हिंदी में सामान्य ज्ञान प्रश्नोत्तरी प्रतियोगिता का आयोजन किया गया था।

नराकास(TOLIC), गांधीनगर के कुल 12 सदस्य कार्यालयों में से 30 प्रतिभागियों ने इस सामान्य ज्ञान प्रतियोगिता में भाग लिया था। इस प्रतियोगिता में आईपीआर की ओर से तीन प्रतिभागी शामिल हुए थे, जिसमें श्री वृषांक मेहता, वैज्ञानिक अधिकारी-डी (एवं टीम) ने द्वितीय पुरस्कार और श्री हिमांशु त्यागी, वैज्ञानिक अधिकारी- सी ने सात्वना पुरस्कार जीता है। ये पुरस्कार नराकास, गांधीनगर की आगामी बैठक में दिये जाएंगे।



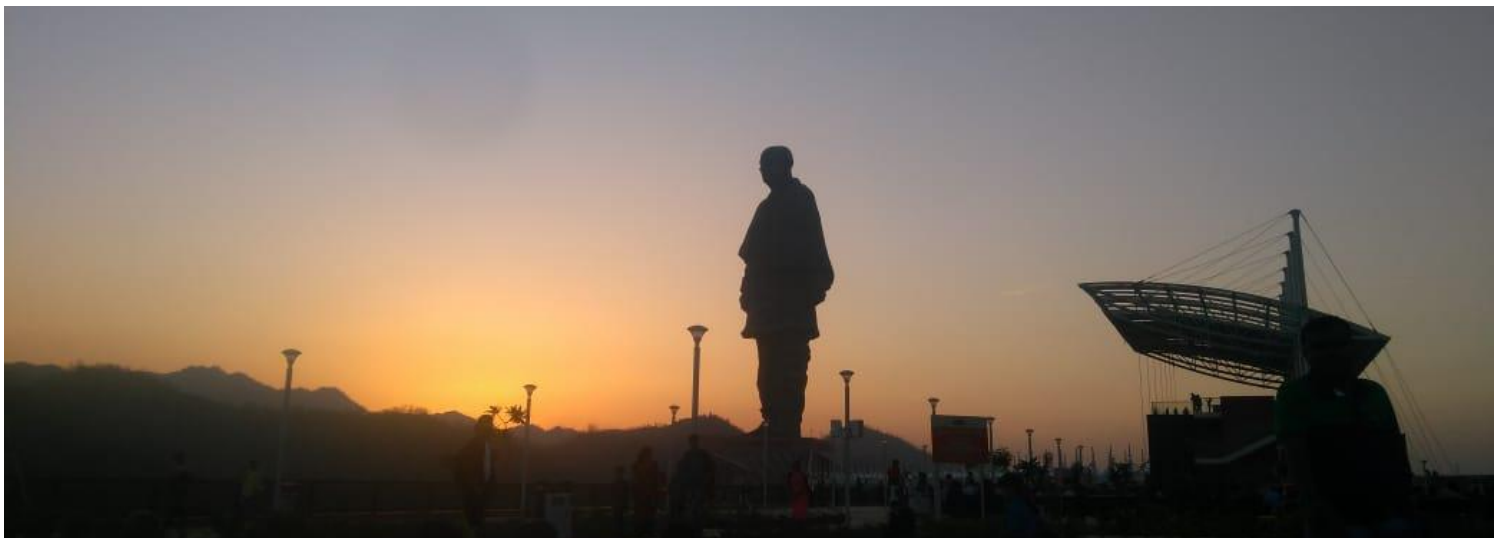
जनगणना कार्य निदेशालय, गांधीनगर में आयोजित सामान्य ज्ञान प्रश्नोत्तरी प्रतियोगिता की तस्वीरें

IPR @ Conferences



Dr. Mukesh Ranjan presented a talk entitled "*Plasma based methods in Nanotechnologies and their applications*" National Conference on Recent Innovations in Sciences-2019 (NCRIS-2019) was organized at School of Science, RK University, Rajkot during 18 -19 January 2019. He also gave a presentation on trends in Plasmonics using nanopatterns for sensing applications in Photonics, Metamaterial and Plasmonics (PMP-2019) conference. The Conference was organized at Jaypee Institute of Information Technology (JIIT), Noida on 14-15 February 2019.

IPR Staff Club organized a one-day picnic to the recently inaugurated tallest statue in the world, *i.e.*, The Statue of Unity (SoU), located at the Sardar Sarovar Dam, Kevadia on Sunday 24th Feb, 2019. Around 270 IPR staff and family members went on this picnic. The group visited the museum at SoU, the statue and returned to Ahmedabad/Gandhinagar after viewing the laser show in the evening.



Images from the picnic to the Statue of Unity



CTCB Delivered at ITER Site

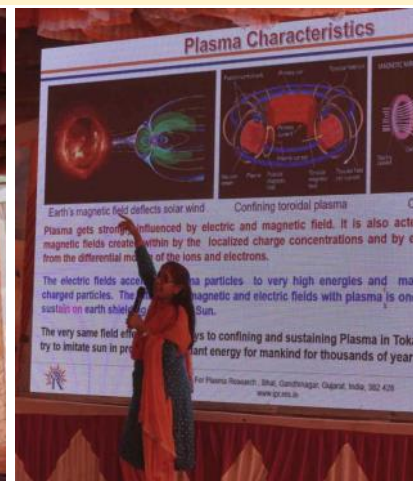
The Cryo-plant Termination Cold Box (CTCB), part of India's deliverable to ITER project, has been successfully delivered to ITER site at the Cryo-plant Building. CTCB, functionally deliberated by ITER-India and manufactured by Linde Kryotechnik, Switzerland is one of the key components of the ITER Cryo-distribution System. CTCB interconnects large capacity cryogenic refrigeration plants (75 kW at 4.5 K and 1300 kW at 80 K), 190 kL liquid helium tank and other cryo-distribution cold boxes to provide required cooling power to superconducting magnets and cryopumps of ITER. CTCB being in the category of exceptional loads, the transportation also involved precise planning and careful execution.



The CTBT at the cryo-plant site at ITER

ज्ञान-विज्ञान विचार कार्यक्रम "अभ्युदय" में आईपीआर

उन्मेष - ज्ञान-विज्ञान विचार संगठन "अभ्युदय" कार्यक्रम एवं SSC/HSC छात्र दीक्षांत समारोह कार्यक्रम २३-२४ फरवरी २०१९ को सेठ श्री एल एच माली आदर्श हाईस्कूल, मालगढ़, तहसिल डीसा, उत्तर गुजरात में आयोजित किया गया था। यह कार्यक्रम ग्रामीण क्षेत्रों में हाई स्कूल बच्चों के वैज्ञानिक कौशल को व्यापक बनाने के उद्देश्य से आयोजित किया गया था। आईपीआर से सुश्री हर्षा मच्छर ने प्लाज्मा के बारे में प्रस्तुत बच्चों और अध्यापकों को परिचित कराया। सुश्री छाया चावड़ा ने छात्रों को समझाया कि विभिन्न औद्योगिक और साथ ही सामाजिक अनुप्रयोगों में प्लाज्मा का उपयोग कैसे किया जा सकता है। दोनों व्याख्यान गुजराती भाषा में दिए गए थे। यह ग्रामीण गुजरात क्षेत्र में आईपीआर का पहला समाजलक्षी कार्यक्रम था।



IPR Plasma Cricket Tournament 2018-19

IPR Staff Club organized the "Plasma Cricket Tournament 2018-19" from 25 Dec, 2018. The finals of this tournament was held on 23 Feb, 2019. With great enthusiasm, 9 teams, i.e., Fusion Warriors, ITER India Fighters, ITER India Lions, ITER Royal Starz, Motera Indians, Rangers Eleven, Royal Eleven, Scholars XII, and Terrific TTP United participated in the tournament. ITER India Fighters were crowned champions after the finals played between ITER India Fighter and Terrific TTP United. Many IPR staff including Dean R&D, CAO etc. were present during the final match.



The winners of the "Plasma Cricket Tournament 2018-19"



Educational Visits to IPR/FCIPT – Jan-Feb 2019

Name Of the Institution	Date	Number of visitors
Christ College, Rajkot	30 th January 2019	26 B.Sc 3 rd year students
LD Engineering College Ahmedabad	7 th February 2019	36 Chemical Engineering 3 rd year Students
Marwadi University, Rajkot	13 th February 2019	50 B.Sc and M.Sc Physics Students
Govt. Engineering College Gandhinagar	13 th February 2019	30 BE Metallurgy final year students



Students from Christ College, Rajkot during their visit to IPR



Students from L D College of Engineering, Ahmedabad, during their visit to IPR



Students from Marwadi University, Rajkot during their visit to FCIPT

- ◆ Mr. Sagar Sekhar Mahalik, Institute for Plasma Research, Gandhinagar, gave a talk on "*Molecular Dynamics Simulation Study Of Resonance Absorption Phenomena In Intense Laser-Driven Atomic Nano-Clusters*" on 4th February 2019
- ◆ Dr. Sharad Kumar Yadav, Columbia University, New York, gave a talk on "*Hydrodynamics simulation of plasma plume for the study of the lateral interaction of two plasma plumes*" on 7th February 2019
- ◆ Dr. Raj Kumar Saini, IIT Mumbai, gave a talk on "*CFD Based Analysis of Flow Phenomena in Disc and Doughnut Pulsed Column and Stirred Tank Photobioreactor*" on 12th February 2019
- ◆ Dr. Arghya Mukherjee, Institute for Plasma Research, Gandhinagar, gave a talk on "*Effects of ion motion on the breaking of relativistically intense electron plasma waves*" on 22nd February 2019

Upcoming Events

- ◆ 9th International Conference on Frontier in Plasma Physics and Technology (FPPT-9), Colombo, Sri Lanka, 8-12 April 2019 <https://www.fpptseries.org/>
- ◆ 13th European Conference on Atoms, Molecules and Photons (ECAMP 2019), Florence, Italy, 8-12 April 2019 <http://www.firenzefiera.it/en/the-13th-ecamp-congress-to-take-place-in-florence-april-8-12-2019/>
- ◆ 20th International Conference on Atomic Processes in Plasmas, Maryland, USA, 9-12 April 2019 <https://pml.nist.gov/apip2019/index.html>
- ◆ 21st International Conference on Microscopy of Semiconducting Materials (MSM-XXI), Fitzwilliam College, Cambridge, UK, 9-12 April 2019 <http://msmxxi.iopconfs.org/home>
- ◆ International Sherwood Fusion Theory Conference, Princeton, New Jersey, United States, 15-17 April 2019 <http://www.sherwoodtheory.org/>
- ◆ 12th International Conference on Tritium Science and Technology (TRITIUM 2019), Busan, South Korea, 22-26 April 2019 <http://tritium2019.org/welcome.html>
- ◆ 46th IOP Plasma Physics Conference, Loughborough, United Kingdom, 23-26 April 2019 <http://plasma2019.iopconfs.org/782115>

Know Our Colleagues

Dr. Nirav Jamnapara works as Scientific Officer - F at IPR. After working in Industry for 2 years, he joined IPR in 2002 as Engineer - SC at FCIPT. He was responsible for technology commercialization by interacting with industries/society and for developing new applications in the field of plasma processing. In 2008, he undertook R&D projects related to high temperature aluminate coatings development for fission and fusion reactors under BRNS and IPR funding respectively. He completed his Ph.D. in Metallurgical Engineering & Materials Science from IIT Bombay in 2013. He received the Young Researcher Award at the 12th Surface Engineering conference by SSPC India in 2015. His areas of interest are materials for extreme environments. Since November 2017, he is heading the Projects & Technology Transfer Section which deals with all externally funded projects and outside collaborations. He has materialized over 17 technology transfer agreements with Industries. Through PTTS, he pursues all project proposals, collaborative agreements/MoUs, intellectual property, external projects monitoring and technology promotion activities. As a part of academics, He is supervising 2 PhD students (HBNI) and has supervised over 19 graduate and 15 post graduate students.



Mr. Narendrasinh Chauhan joined FCIPT (surface physics group) in 2001 after completion of his M.Phil degree in Physics (X-Ray Crystallography). He was appointed as Scientist-SC in XRD lab and later shifted to SEM Lab for surface characterization. He has vast experience and is an expert in Optical as well as SEM microscopy and served as a microscopist for internal as well as commercial research projects. He was also involved in several R&D activities related to plasma applications and contributed to many successful external projects in the FCIPT division. In the past 15 years, he contributed extensively towards microscopy for various kinds of microscopy analysis. He is also an artist too and has good expertise in art, craft and designing. Recently he has joined the Outreach Division of IPR.

The IPR Newsletter Team

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