

Issue 103
February 2022

The Fourth State

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



73rd Republic Day Celebrations @ IPR & CPP-IPR

The 73rd Republic day was celebrated both at IPR and CPP-IPR keeping in mind the covid-19 protocols. Dr. Shashank Charurvedi, Director, IPR was given a guard of honour by the security staff and then he hoisted the national flag at IPR. Dr. B. J. Saikia hoisted the national flag at CPP-IPR in a function attended by limited staff members and security staff.

In his address to IPR staff, IPR Director remembered the staff members whom IPR lost due to covid. He appreciated the various achievements of IPR in spite of testing covid times as well as the contributions from the medical team, administration, accounts and many others whose contributions kept the institute going during the pandemic.

Developments in the areas of remote handling and VR and deep learning, 14MeV fusion neutron facility, Aditya-U campaigns, indigenously developed ECR plasma source for space applications, development of indigenous nuclear activation code, Plasma activated water, Plasma thruster, work carried out in SST-1 and India's commitments to ITER were touched upon by him during his address.



- ◆ **Ms. Priyanka Tiwari**, gave a talk on "*Polarization-Insensitive Metasurface Based Switchable Absorber/ Risorber*" at 2021 IEEE Asia Pacific Microwave Conference (APMC 2021), Brisbane, Australia, 28th November 2021-1st December 2021
- ◆ **Dr. Mukesh Ranjan**, gave an invited talk on "*Plasma Produced Patterns for Health and Food Applications*" at Plasma Processing of Nanomaterial and Its Applications (PPNA)-2021, Organized by IPR, 3rd December 2021
- ◆ **Talks presented at IEEE Pulsed Power Conference & Symposium on Fusion Engineering (PPC-SOFE 2021), 12-16 December 2021**
 - **Mr. Piyush Prajapati**, gave a talk on "*Conceptual Design of Heat Extraction Test Reactor (HxTR) Systems*"
 - **Ms. Bhoomi S. Gajjar**, gave a talk on "*Boron Carbide as High Energy Shielding Material for ITER*"
- ◆ **Mr. Rohit Mathur**, gave a talk on "*Simulation study of Luneburg Lens on K-band horn antenna for FMCW Reflectometry Applications*" at 2021 IEEE Indian Conference on Antennas and Propagation (InCAP), Malaviya National Institute of Technology, Jaipur, 13-16th December 2021
- ◆ **Ms. Priyanka Tiwari**, gave a talk on "*Design and Simulation of a Water Based Polarization-Insensitive and Wide Incidence Dielectric Metasurface Absorber for X-, Ku- and K-Band*" at 2021 IEEE Indian Conference on Antennas and Propagation (InCAP 2021), Malaviya National Institute of Technology, Jaipur, 13th-16th December 2021
- ◆ **Dr. Yogendra Kumar**, gave a talk on "*Surface modifications study of Si substrate in Ar/O₂ RF plasma for semiconductor device applications*" at 65th DAE Solid State Physics Symposium (DAE-SSPS 2021), Bhabha Atomic Research Centre, Mumbai, 15-20th December 2021
- ◆ **Ms. Priyanka Tiwari**, gave a talk on "*Design and Simulation of a Polarization-Independent Switchable Metasurface Risorber/Absorber*" at IEEE MTT-S International Microwave and RF Conference (IMaRC 2021), Indian Institute of Technology, Kanpur, 17th-19th December 2021
- ◆ **Talks presented at Virtual National Conference on Plasma Science and Applications (PSA), Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat, 20-21 December 2021**
 - **Dr. S.K. Nema**, gave a Plenary Talk on "*Advances in Non-Thermal Plasma Technologies and its Applications*"
 - **Dr. Prateek Varshney**, gave a talk on "*Terahertz (THz) field generation by Laser Beating in Semiconductor Plasma*"
 - **Mr. Ansh Patel**, gave a talk on "*Application of data driven techniques for plasma diagnostic signal analysis*" and received **Best Oral Presentation Award**
 - **Mr. Jagabandhu Kumar**, gave a talk on "*Measurement of fast electron bremsstrahlung emission (FEB) in the energy range of 20 keV to 350 keV from SST-1 tokamak employing CdTe detector*"
 - **Mr. Kiran Patel**, gave a talk on "*Pneumatic Calibrator for Heterodyne Interferometer*"
 - **Mr. Tajinder Singh**, gave a talk on "*Modelling the electrostatic microturbulence transport in Aditya-U tokamak*"
 - **Ms. Y. Patil**, gave a talk on "*Estimation of negative ion density of oxygen DC magnetron plasma using Langmuir probe*"
- ◆ **Dr. Anshu Verma**, Indian Institute of Technology Delhi, gave a talk on "*Exploring Thruster Potential of Compact ECR Plasma Source*" on 22nd December 2021
- ◆ **Dr. Shashank Chaturvedi**, Director, IPR, gave a talk on "*Deployable Technologies from Plasma Science: Present-day & Future*" at 12th Indian Nuclear Society (INS) Webinar Series, on 25th December 2021
- ◆ **Mr. Hitensinh Vaghela**, gave a talk on "*Porous Media Approach in Hydraulic Performance Evaluation of Cable-in-Conduit Conductor in Superconducting Magnet Applications*" at 48th National Conference on Fluid Mechanics and Fluid Power (FMFP-2021), BITS, Pilani Campus, Rajasthan, 27-29 December 2021, and received **Best Paper of the Session Award**
- ◆ **Ms. Nidhi Rathee**, gave a talk on "*Breaking of Large Amplitude Electrostatic Waves in Inhomogeneous Plasmas*" on 28th December 2021
- ◆ **Dr. S.R. Mohanty**, gave an invited talk on "*Study of Neutron and X-ray Emission from Inertial Electrostatic Confinement Fusion Device and their Usage*" at International Conference on Plasma Science and Application 2021 (ICPSA2021), Nanjing University of Science and Technology, China, 29th December 2021
- ◆ **Dr. Rakesh Moulick**, gave an invited talk on "*Scientific Significance of Shrimad Bagavad Gita*" at a webinar organized by Rangapara College, Rangapara, Sonitpur, Assam, 29th December 2021
- ◆ **Ms. Sukriti Hans**, gave a talk on "*Exploring dynamics of nanoscale features with different ion beam parameters to improve their efficiency in an application*" at National Conference on Recent Trends in Materials Science and Technology (NCMST-2021), Department of Space, Thiruvananthapuram, 29-31 December 2021
- ◆ **Dr. Jay Kothari**, Apollo Hospital, Ahmedabad, gave a talk on "*The new trends of Covid-19*" on 6th January 2022 (Colloquium #308)
- ◆ **Prof. Kanak Saha**, Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune, gave a talk on "*Extreme-UV pho-*

Know Your Colleague



Mr. Abhijeet Kumar, an Electronics Engineer and Diploma in VLSI design from CDAC, ACTs Pune, earlier worked with R&DE (Engineers), Pune (DRDO Lab) as JRF on GUI designing of Aircraft Arrestor Gear System in MATLAB. He joined IPR in 2008 as Engineer-SC in Aditya DAQ Division and currently working as Scientific Officer-E with Electronics & Instrumentation Division. He designed & developed various PXI based DAQ application in LabVIEW for ADITYA, BETA and BASIC Lab. He developed USB based DAQ system in FPGA using VHDL coding in Xilinx ISE. His expertise includes development of universal interface DAQ board using Zynq-7000 SoC (System on Chip) which required skilled VHDL coding & C programming for ARM processor. He is also carrying out several PCB Layout for various projects using Altium Designer and also guided some M.Tech. students for their embedded electronics projects.