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Issue 082

May 2020

# The Fourth State

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



## IPR During The Covid-19 Lockdown

An unprecedented lockdown was enforced across the country to stem the spread of the novel coronavirus pandemic wherein people have been forced to stay at home, work from home, however, few of the essential services at IPR like Accounts, Computer Center, and part of the Administration staff of IPR, ITER-India and CPP-IPR were at work at their respective offices to ensure that essential services such as payments, salary etc are not affected.

In order that the institute and its staff who were working from home functioned, the Accounts & Admin Team attended office during March & April 2020 for carrying out essential duties amid the shutdown such as ;

- To execute payment of staff salary,
- Arranging payment requests, making payments for services after due verification,
- Researching financial account activity
- Release payments of various vendors and clearances of bills, payments,
- To pay the statutory dues to the Govt. (i.e. TDS, GST, etc),
- To comply with DAE guidelines on COVID19,
- To provide information under RTI,
- To monitor Access System, etc.. and forward attendance of the Project / Apprentice etc. so that their payment is released on time.

The staff of administration & accounts travelled to IPR despite difficulties in transport during lockdown.

From the Administration and Accounts sections, Ms. Falguni Shah, Shri Anuj Harvey, Shri. Pinakine Devluk, Shri Hitesh Suthar, Shri. Nilay Adhvaryu, Ms. Hetal Pathak and Ms. Shirin Bhesania attended office, while Shri Govind Lokhande from the computer centre chose to stay in-campus during the lockdown to coordinate with other CC staff so that all the services provided by the computer centre are fully operational, especially when IPR staff had to submit their APAR online, while working from their homes.

On behalf of IPR, the Newsletter would like to express our sincere gratitude to the staff who braved the lockdown and attended office to ensure that those working from the confines of their homes do not face any problems related to office !



(L-R) Shri. Sachin Ingole, Shri. Vipul Datania, Shri. Pinakine Devluk, Ms. Falguni Shah and Shri Anuj Harvey at IPR during the covid-19 lockdown.

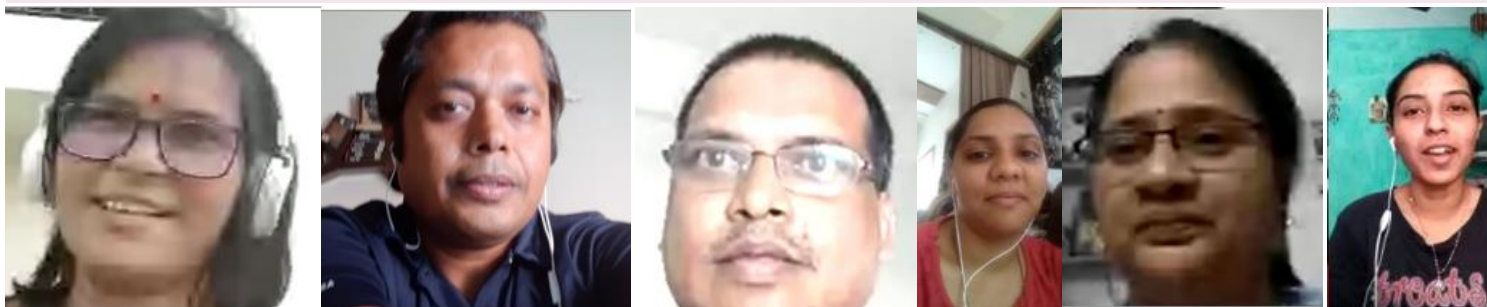


(L-R) Shri. Vipul Datania, Shri. Hitesh Suthar, Shri. Pinakine Devluk (IPR accounts) and Shri. Sanjay Makwana (ITER-India accounts) at work during the lockdown.

Staff from Safety Division were identified as “essential staff” during lock down period. The major role of essential staff was to ensure operability and smooth functioning of various firefighting system installed at the Institute. Also, to ensure that safety measures taken by other essential staff were also appropriate to the situation. Periodic survey of various areas and campus periphery was carried out to avoid any chance of a fire breaking out. As a precautionary measure, security staff were also instructed to be more vigilant specially during day time due to hot summer season. Briefing was also imparted to the contract staff of power supply division so that they could do the needful, in case of any fire incident.

## IPR During The Covid-19 Lockdown - Library

Even though IPR library’s physical space had to be closed due to the pandemic, IPR Library continues to provide its services to the users remotely. IPR library took a proactive approach to ensure that all the library staff members has access to library servers, in-house digital resources and all the subscribed online resources, through VPN connectivity, as soon as the notifications of precautionary measures and work from home due to COVID-19 was being circulated. The library staff members interacted among themselves through virtual team meetings and shared responsibilities to ensure that the library and publication services are continued remotely and the research scholars and staff members are not greatly impacted and they continue to carry out their academic activities uninterrupted. Most of the library services are being carried out by email, such as renewal of borrowed books, inter-library loan, internal review and approval process of the publications, altering services such as NucNet updates and weekly READ. Library has started sending frequent emails with alerts/news on the areas of interest to the Institute so that the users are updated and informed, normally, such alerts/news are displayed on the Library Noticeboards and uploaded on IDRMS. Library continues to provide publication related services such as plagiarism checking, pre-publication broadcasting through e-office portal, updating of records on e-office and IDRMS on a routine basis. Library has also been volunteering social media presence and actively sharing publicly available information on its Twitter handle and Facebook page. Recently, during the lockdown, the library has created a Virtual Noticeboard to share current topical news/alerts so that the scientific community is well informed and engaged in intellectual academic pursuits.



(Above) The library staff during an virtual meeting (Below) IPR Library on social media

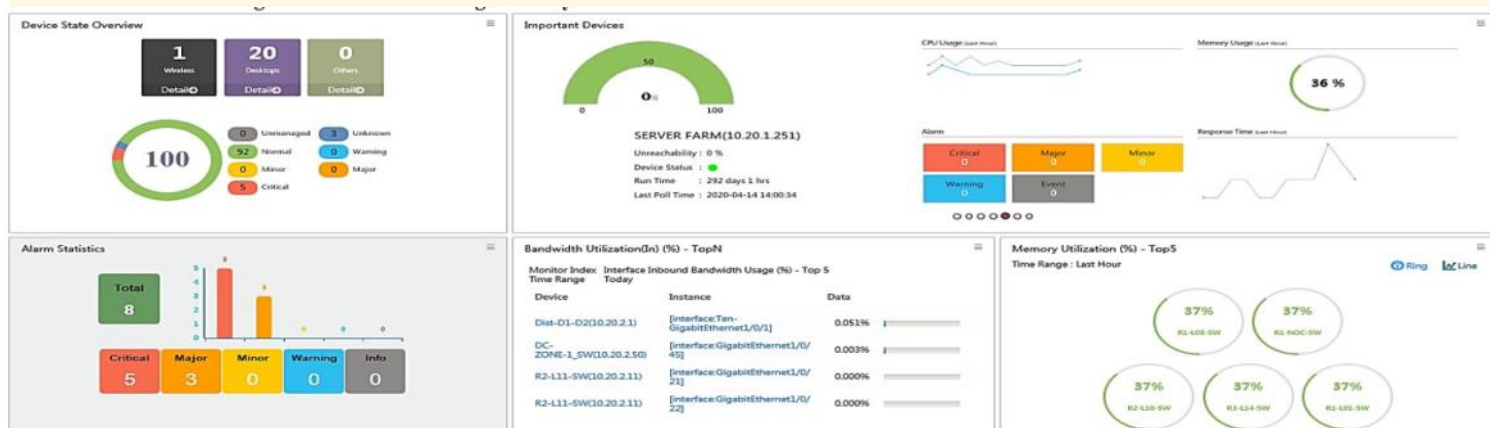


IPR Library has also started a Virtual Noticeboard for dissemination of plasma/fusion related news. It can be accessed at <https://padlet.com/iprlibrary/yx68wbozfu5>

During the lockdown period, the IPR Computer Center (CC) ensured that all the critical IT services are up, monitored and maintained 24x7 during this transition in the working environment from the office to home. The IT infrastructure of IPR is deployed and configured for High Availability (HA) with the possibility of remote management using the 4 node Hyper-Converged Infrastructure (HCI) where several IT services like E-office, IDRMS, Indico, networking services (dhcp, DNS, NMS, LDAP), Tally etc. are deployed. IPR Data Center (DC) housing all the critical IT infrastructure and HPC clusters achieved 100% uptime during the ongoing lockdown. CC staff has been working remotely from home for, providing support to IPR employees working remotely from home and regular monitoring of the health of the IT services via Virtual Private Network (VPN) service. One person from the CC staff has been stationed in the IPR campus for 24x7 onsite support for emergencies with DC shift duty support staff and also coordination with electrical section of IPR for management during planned electrical outages. Working remotely, the CC staff were able to achieve 100% uptime for E-offices, IDRMS, Indico, IPR website, Webmail, VPN services, all of IPR's HPC clusters and network monitoring systems. In addition to the above, CC assisted IPR staff at various levels to help them work from home.

- Created more than 40 VPN accounts for employees not having one and resolved VPN login issues.
- WiFi issues related to speed and connectivity in the Hostel Building resolved remotely with help from onsite support. Coordinated with BSNL to resolve P2P network connectivity issue b/w IPR and FCIPT.
- Implementation and support for filling APAR by creating "exteoffice.ipr.res.in" portal for self-assessment from outside IPR network. Various technical challenges were faced and resolved remotely while transferring the data from exteoffice.ipr.res.in to eoffice.ipr.res.in.
- In association with BARC Visakhapatnam, created a weblink on the IPR website to permit data upload for R&D involving remote identification of covid-19 patients based on their voice samples.
- IPR Canteen Bill for March 2020 and deduction from salary generated.
- Onsite staff coordinated and helped employees to work remotely by starting their Workstation / Desktops.
- Onsite staff coordinated with ECIL for the Seismic room modem issue. CPP-IPR firewall change.
- Telephonic support to resolve various IT related issues of employees working from home.
- Remotely supported HPC users for code installation, visualization, commercial software licenses, etc.

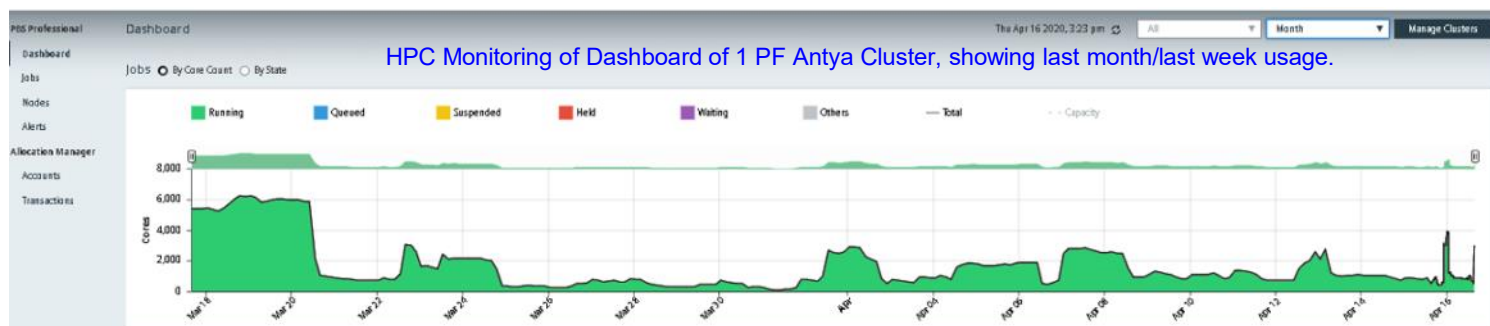
Some of the issues faced by CC during this period were significant strain on the Internet Service Providers (ISPs) as millions working from home, because of which, connectivity to the IPR network through VPN was not stable. Also, data security features among other concerns had to be considered while enabling remote working. All the remotely connected devices (Laptops/Desktops) need to have updated software, anti-virus, etc. Above all, CC had not foreseen and factored in the sudden and dramatic need for so many of its staff to work from home.



Remote monitoring dashboard of the Network Management System



The computer center members during a virtual meeting



HPC Monitoring of Dashboard of 1 PF Antya Cluster, showing last month/last week usage.

Virtual Reality (VR) is an artificial, computer generated simulation or recreation of a real life environment or situation. It immerses the user by making them feel like they are experiencing the simulated reality first hand, primarily by stimulating their vision and hearing. Augmented Reality (AR) is a technology that layers computer generated enhancements atop an existing reality in order to make it more meaningful through the ability to interact with it. Both VR and AR are relatively new fields in engineering. VR and AR provide a lot of scope in various fields such as scientific visualization, design engineering, manufacturing, architecture, remote medical applications, gaming etc. It is envisaged that a large number of existing and future startups will engage these two technologies to boost their productivity, marketing and sales.

An initiative was undertaken by the All India Council for Technical Education (AICTE) to train young minds with this technology and prepare a knowledge base within the engineering students community as a part of AICTE Training and Learning (ATAL) Academy. National Institute of Technology (NIT) Nagaland and IPR joined hands to organize a workshop on the same. Members from Remote Handling and Robotics Technology Development Division (RHRTD), IPR, successfully conducted a three day VR-AR Development workshop at NIT Nagaland between 17<sup>th</sup>-19<sup>th</sup> February 2020 for B.E., M.E, PhD and other professionals. The workshop was conducted with an aim of introducing this novel technology to the students, providing theoretical concepts to understand the background of visualization, human interactions and developing virtual models. Two exhaustive training sessions were also conducted to provide hands-on experience in developing complete VR and AR games from scratch. Below are some glimpses of the workshop.



(L) Inaugural Session (L-R) Dr. T. Jackson Singh, Dr. Rosang Pongen, Mr. Pramit Dutta, Dr. D. Gnanadurai (VC, St. Joseph University), Dr. S Venugopal (Dir, NIT-Nagaland), Mr. Krishan K Gotewal (Division Head, RHRTD, IPR) and Mr. Naveen Rastogi. (R) Dr. S. Venugopal (Director, NIT Nagaland) experiencing immersive Virtual Reality using Head Mounted Display.



Various Sessions Organized by RHRTD, IPR Team during the workshop at NIT Nagaland

## Scientific Outreach Programme @ MG Science Institute

A 2-day "Awareness Programme on Plasma Science & Technology & Energy from Nuclear Fusion" was conducted by the Outreach Division of IPR at the MG Science Institute, Ahmedabad during 13-14 February, 2020. This programme was organized by the MG Science Institute for their BSC Physics students under the aegis of CPE-UGC scheme. On the first day of this programme, popular lectures on "What is plasma?", "Characteristics of Plasma", "Applications of Plasma" and "What is Nuclear Fusion" were delivered by Outreach division members at the MG Science Institute. On the second day, the participants of the programme visited IPR, where a talk was arranged on IPR's activities followed by hands-on experiments on plasma and its applications. The students also visited Aditya, SST-1 and Basic Experiments Labs as part of the programme. Over 58 students and 4 faculty members participated in the 2-day programme.



(L) Inauguration of the programme (R) Talk in progress



Images from the training programme.

## Scientific Outreach Programme @ MG Science Institute ... Cont.

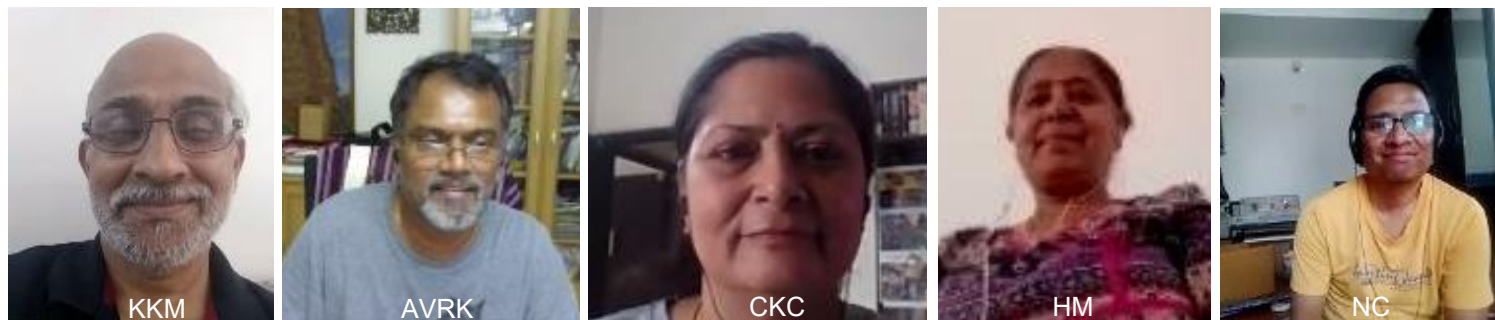


Participants of the 2-Day Scientific outreach programme on Plasma, during their visit to IPR

### IPR During The Covid-19 Lockdown - Outreach

The Outreach Division, also working from home during the lockdown period, conducted virtual meetings to discuss the progress of works being undertaken by the members as well as plan new programmes to be implemented during the new academic year.

Some of the works being undertaken are (a) Translation of resource materials like posters and presentations into Gujarati language for IPR's upcoming rural scientific outreach programmes. (b) Design of new plasma based interactive working models. (c) Updating and re-editing the popular book "Living with Plasmas".



The Outreach Division members during a virtual meeting

### IPR During The Covid-19 Lockdown - Stores

The IPR Stores is an essential bridge between Purchase, Accounts and IPR users. Due to the lockdown, IPR Stores department proactively handled the situation, carrying out their duties as and when needed. The following major activities were carried out before and during the lockdown period.

1. Follow up with vendors for the supply of goods during this period.
2. Coordination with Purchase and users for urgent delivery of materials.
3. Arrange personal protective equipment for Stores staff while taking delivery.
4. Manage staff roster for ensuring daily follow up with vendors during the lockdown period.
5. Requests received from users for gas refills and stock items have been coordinated and arranged.

The coordination between Stores staff was setup through Whatsapp chats, video/voice calls during the lockdown period.

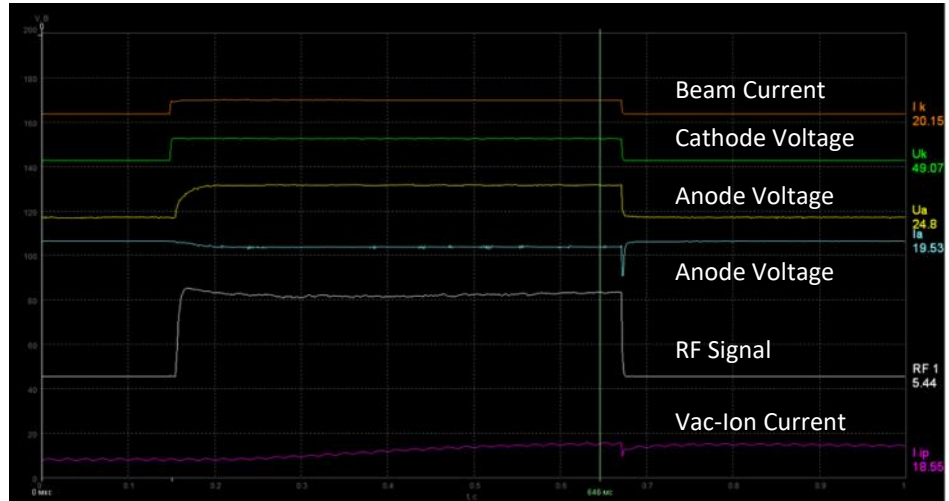
## Factory Acceptance Tests of 42GHz Gyrotron

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Due to COVID-19 pandemic, the international visit was not advisable, hence the factory acceptance tests (FAT) for the 42GHz Gyrotron has been carried out from M/s. Gycom Russia through video conferencing. The one-week FAT conducted from March 23-27, 2020 and all major tests were witnessed successfully. Initially the dimensional measurements of 42GHz Gyrotron were carried out and found acceptable. Further, high power test of Gyrotron were carried out by taking the burn pattern at the exit of Gyrotron. The burn pattern confirms a good gaussian beam at the exit of Gyrotron. The mode purity of Gyrotron is better than 95%. The frequency of Gyrotron was measured and it varies from 42.040 to 42.080GHz which was as per the specifications i.e., 42GHz  $\pm$  0.1 GHz. Finally, the Gyrotron was tested for full parameters i.e. 500kW power for 500ms duration. This test continued for 3 days and one-day continuous 20 pulses of 500kW-500ms witnessed successfully. The parameters for 500kW power are beam voltage -50kV, beam current ~ 20A, anode voltage ~ 25kV, filament power ~ 700W. The monitoring of the Gyrotron acceptance test was done through video conferencing from M/s. Gycom Russia. The device acceptance tests were conducted successfully.



(L) Gyrotron factory acceptance test from Gycom Russia through video conferencing (R ) The 42GHz gyrotron



(L) Burn pattern at the exit of Gyrotron (R ) Waveforms of 500 kW-500 ms pulse from the Gyrotron

## WHO Recommends The Following Simple Steps To

**STAY HOME**



**STAY SAFE**

Wash your hands frequently  
Maintain social distancing  
Avoid touching your eyes, nose and mouth  
Practice respiratory hygiene

If you have fever, cough and difficulty in breathing, seek medical care early  
Stay informed and follow advice given by your healthcare provider

Download and use "Arogya Setu" app of the Government of India to fight the Covid-19 pandemic.



Scenes from the IPR campus during the lockdown period (Images : Govind Lokhande)

## Know Your Colleague



**Ms. Hetal D. Pathak** joined IPR 22-Aug-2012 as Office Clerk-A. Initially she was handling the Dispatch Section where, with her expertise in computers, managed to digitize all documentation related to dispatch/receipt of post. She also handled work in the medical section and apprentice related work. Currently, she has been handling the identity card section of the Institute wherein she undertakes work related to – preparing & issue of ID cards of the permanent staff members of IPR, ITER-India and CPP-IPR, preparation and issue of pensioner's ID cards and also ID cards of project students, summer school students, temporary visitors, etc. She also maintains records of the annual property returns of the staff members. She also assists the Public Information Officer and Nodal Officer, RTI, in preparing and drafting replies and online submission on CIC website. During the course of her work, Ms. Hetal also gave equal importance to working in Hindi language, like making most of the forms, letters, etc. Ms. Hetal was also awarded the coveted "Outstanding Staff Member of the Year" award during December 2018.

## The IPR Newsletter Team

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