

CATNet, The Security issues.

As per the DAE guidelines for network security, the following measures have been taken at CAT:

- The CATNet is divided into two networks. One with Full internet access and the other with the scientific computing resources and intranet access only. This has caused the withdrawal of all the Internet facilities except the Email from the individual's desktop. Isolation of Intranet from the Internet has been carried out by physically laying two separate networks. The email access at desktops has been made possible by establishing a serial line 38.4 Kbps one way UUCP connection between the two networks.
- The machines connected to the Internet access network have been given only a unidirectional access, by using the transport layer firewall feature of the CISCO 2501 series router. In no way can the machines connected to CATNet, be accessed from outside the CAT campus. Special provisions have been made to have the WWW pages of CATNet accessible from the Internet. The Nodal centre activities of the CAT are limited to provide only the UUCP based email accounts.
- The dialup modems connected to CATNet have been programmed to have the accessibility scope only within the CAT campus.
- Secured email tools like the PGP (Pretty good privacy) have been configured, to allow the users to send and receive encrypted mails, thus putting off any threat to the malicious, unwarranted reading of secret emails.
- User's email accounts have been created on the Intranet part of the CATNet. The mails are transferred from the Internet connected CATNet to the Intranet connected CATNet, as soon as they arrive, thus reducing the chances of any unauthorised poking by hackers on the Internet.
- The Internet server and the router have been permitted access by cryptic passwords. Since no user account is available on the Internet server and the router, this greatly reduces the intrusion threat even to the Internet part of the CATNet. Source routing and the trusted user features have been disabled to avoid any IP spoofing intrusion threat.

CATNet has an independent set of primary WWW, Name, FTP and Email servers. Sangam at NCST, Mumbai is the secondary email and name server for CATNet. For the smooth running of email services, in case of Internet failure at CAT, a UUCP account to SANGAM is kept alive. This account can be accessed both by Modems and the VSAT. Automatic online clearance of Emails from

Sangam is carried out, at times, when the Internet is UP and running.

The CATNet users receive daily 600 mails into CAT and send about 250 mails from CAT.

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PUBLICATIONS

1. "Characterization of x-ray contact microscopic imaging in keV spectral region using laser produced plasmas", J A Chakera, S R Kumbhare and P D Gupta, *Jl X-ray Sci. and Technol.*, **8**, 1 (1998).
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study of the anomalous superconducting mixed state of CeRu₂", S B Roy, P Chaddah and L E DeLong, *Physica*, **C304**, 43 (1998).

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- ✓2. "High Resolution Molecular Spectroscopy of Methanol : Its Connection with Optically Pumped Far Infrared Lasers," I Mukhopadhyay, Proc. National Symposium on Recent Advances in Laser and Molecular Spectroscopy, Gorakhpur, February 26-28, 1998.
- ✓3. "Confirmation of Optically Pumped Far-Infrared Laser Lines in Methanol-D₁ Involving Fermi Interactions with Highly Excited Torsional States," I Mukhopadhyay, *ibid.*
- ✓4. "High Resolution Spectroscopy of Symmetric Rotors : The Torsion-Rotation-Vibration Interactions in CH₃CD₃," I Mukhopadhyay, *ibid.*
- ✓5. "High Resolution Fourier Transform Spectroscopy of the C-O Stretch State of Methanol-D₁," I Mukhopadhyay, *ibid.*
- ✓6. "Indus-2 Project: A 2 GeV Synchrotron Radiation", A S Raja Rao Invited talk The First Asian Particle Accelerator Conference (APAC-98), Tsukuba, Japan, March 23-27, 1998.
- ✓7. "Commissioning Status of Indus-1 SR Facilities"; G Singh, D Angal-Kalinin, A Banerji, AD Ghodke, PR Hannurkar, Pradeep Kant, MG Karmarkar, S Kotaiah, SP Mhaskar, PK Nema, SS Prabhu, V Prakash, M Pravinkumar, GK Sahoo, SK Shukla, B Singh, HC Soni, BJ Vaidya, *ibid.*
- ✓8. "Power Supplies for Indus-1", SR Tiwari, AC Thakurta, AP Thipsay, A Pagare, ML Gandhi, TN Singh, Shyam Singh, S Kotaiah, *ibid.*
- ✓9. "Study of Indus-2 Lattice with finite dispersion", GK Sahoo, AD Ghodke, G Singh, *ibid.*
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- ✓17. "Development of solenoid actuated bellow sealed valve", ML Pandiyar, DY Deokar, BK Singal, SK Shukla & AS Raja Rao, National Symposium on vacuum science & technology and gas discharge tube switches, Central Electronics Engineering Research Institute (CEERI), Pilani, September 21-23, 1998.
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- ✓23. "X-ray spectroscopy of hot plasmas", P A Naik, in XIII Symposium on Plasma Science and Technology, Rajkot, October 1998.
- ✓24. "Study of Pt/C x-ray multilayer structure as a function of layer period using x-ray scattering" G Lodha , A Paul, S Vitta, A Gupta, R Nandedkar, K Yamashita, H Kumieda, Y Tawara, K Tamura; H Haga , T Okajima, 2nd International Conference on Synchrotron Radiation in Material Science, Kobe Japan, Oct. 30 to Nov. 4, 98.
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- ✓26. "Indus Beam Lines R V Nandedkar", invited talk in India-Italy Workshop on Synchrotron Radiation Calcutta,

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- ✓27. "Studies on laser annealed β -FeSi₂ thin films", A Dutta, M Nayak, S Kal, S Basu, A K Nath and U Nundy, National Conf. on Condensed Matter Physics, Univ. of Allahabad, Dec.4-7, 1998.
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- ✓34. "Depolarization studies of autofluorescence from human tissues", S K Mohanty, S K Majumder and P K Gupta ibid.
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- ✓45. "Indigenous developments in high power CO₂ lasers for material processing applications", A K Nath, ibid.
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- ✓47. "Effect of disorder on the anomalous peak effect in CeRu₂", S Chaudhary, S B Roy and P Chaddah, DAE Solid State Physics Symposium, Kurukshetra, Dec 27-31, 1998.
- ✓48. "Anomalous magnetisation and minor hysteresis loops in CeRu₂: a VSM study", S Chaudhary, S B Roy, P Chaddah and L F Cohen, ibid.
- ✓49. "Surface Characterisation of Substrates for X-ray Optics", P Tripathi, N Suresh, M H Modi, G S Lodha, S M Choudhary, A Gupta and R V Nandedkar, ibid.
- ✓50. "Characterisation of Nd Fe B magnets for FE undulator", V Kumar, M R Jathar, V W Meshram and A Verma, Ibid.

OTHER ACTIVITIES / NEWS

School on Superconductivity and Cryogenics

A two week long School on Superconductivity and Cryogenics in Accelerators and Tokamaks was inaugurated on Jan 27, 1998 at CAT by Dr. Lyndon Evans, Director, European Centre for Nuclear Research (CERN). In his inaugural lecture he informed that efforts are being made to develop six polar magnet and added that the prototype magnet developed at CAT has been tested and demand has been placed for its supply. In the second session, Martin Wilson of Oxford Instruments, UK, delivered a special lecture on accelerators. Presiding over the function, CAT Director, Dr D D Bhawalkar informed about various research

works being carried out at CAT on cryogenics. He informed that a single stage and a two stage Closed Cycle Cryo-cooler have been developed at CAT. The single stage cryocooler reaches temperatures up to 32 Kelvin and in the two stage cryocooler the temperature has been brought down to 12 Kelvin. Further steps are being taken to bring down the temperature so as to liquefy Helium. Eleven experts from various countries like UK, Russia, Japan, USA, Germany and Netherlands and Switzerland (CERN- Geneva), in addition to 5 experts from various Indian labs delivered lectures covering most aspects of superconductivity and cryogenics related to particle accelerators and fusion devices (Tokamaks). Apart from these lectures, 15 special seminars on Indian projects were held during the school. More than