

CONFERENCES / WORKSHOPS / SEMINARS

Indus-2 users' meeting

A one day meeting to discuss the design of various beam lines for Indus-2 was organised by Inter University Consortium (IUC) at CAT on Aug 7, 1992. The DAE scientists involved in the development of Indus-2 and the potential users from the various academic institutions participated in the meeting. The meeting was inaugurated by Dr. D D Bhawalkar, Director, CAT and Prof R Srinivasan, Director, IUC welcomed the participants. In the pre-lunch session, technical details of Indus-2, infrastructural facilities planned at site and details of the beam lines to be developed and installed at Indus-2 were presented by CAT scientists. In the post-lunch session, the various experiments proposed to be carried out at Indus-2 were discussed. The meeting provided an opportunity for detailed discussion between machine designers and users so that necessary design changes, if any, can be incorporated.

Workshop on physics of lasers

The Inter-University Consortium (IUC) for DAE facilities in collaboration with CAT organised a two week course on the physics of lasers from Sept. 14 - 25, 1992 at CAT, Indore. The participants of the course were drawn from universities and institutes all over India and numbered 41 including 15 from CAT. The teaching faculty comprised of 17 lecturers drawn from various institutions; CAT Indore, IIT Madras, BARC Bombay, TIFR Bombay, IISc. Bangalore and IIT Delhi. The course had 52 hours of lectures and 27 hours of laboratory work. The topics covered included introductory quantum optics, basic laser

physics, representative lasers, optical resonators, non-linear optics and topics of current research interest. The course was co-ordinated by Prof. B M Sivaram, IIT Madras and Dr. P K Gupta, CAT. Dr. D D Bhawalkar, Director, CAT inaugurated the course and briefed the participants about the laser and accelerator programmes at CAT. Prof. R Srinivasan, Director, IUC welcomed the participants and informed them about the facilities available at IUC and exhorted them to make use of these.

Winter workshop on coherent radiation sources

A workshop on coherent radiation sources was held at CAT from Dec. 21-26, 1992. This workshop, a follow up of the second SERC summer school on coherent radiation sources held at IIT Delhi in May 1992, was organised by Prof. K P Maheshwari of DAVV and sponsored by the Institute for Plasma Research (IPR), Gandhinagar. The topics discussed at the workshop included physics and technology of free electron lasers, generation, transportation and diagnostics of relativistic electron beams, optical resonators, undulators, microtrons and pulsed power systems. Besides these, design and feasibility of making a 10.6 μm free electron laser using the 20 MeV microtron at CAT was discussed in detail. The workshop was attended by 30 participants from all over the country and the lectures were delivered by scientists from various organizations such as BARC, CAT, CEERI, DAVV, IIT Delhi, IPR and Poona University. Dr. D D Bhawalkar, Director, CAT inaugurated the workshop and Prof. U S Chaudhary, Vice Chancellor, DAVV presided over the inaugural function.

PUBLICATIONS

In Journals

1. "Imaging characteristics of torroidal and ellipsoidal mirrors for synchrotron radiation source Indus-1", K J S Sawhney and R V Nandedkar, *Pramana-J Phys.*, 39, 177-180, 1992.
2. "Theoretical study of the feasibility of dual-band multi-line operation of a TEA CO₂ laser with intracavity Fabry-Perot etalons", B Jain and P K Gupta, *Appl.Phys.*, B 54, 534-537, 1992.
3. "Magnetic field dependence of the harmonic generation in sintered pellets of YBaCuO : The history effects", S B Roy, S Kumar, P Chaddah, R Prasad and N C Soni, *Physica C*, 198, 383, 1992.
4. "Competing interactions and spin-glass like features in UCu₂Ge₂ system", A Chakravarti, R Ranganathan and S B Roy, *Phys.Rev.*, B 46, 6236, 1992.
5. "Minor hysteresis loop and harmonic generation calculation in a generalised critical-state model", P Chaddah, S B Roy, S Kumar and K V Bhagwat, *Phys.Rev.*, B 46, 11737, 1992.
6. "Comment on magnetic-flux profiles of high-T_c superconducting granules : Three-dimensional critical-state-model approximation", P Chaddah and K V Bhagwat, *Phys.Rev.*, B 46, 14926, 1992.

7. "Theoretical study of the size dependence of ionization potential and electron affinity of metallic clusters", M K Harbola, *J.Chem.Phys.*, 97, 2578, 1992.
8. "Variation of spontaneous strain of YBaCuO with temperature and oxygen stoichiometry", P U M Sastry, M S Somayazulu and V K Wadhawan, *Ferroelectrics*, 130, 187-198, 1992.
9. "Fourier transform spectroscopy of 13-CD₃OH : Assignments of far infrared laser lines", Li-Hong Xu, R M Lees, I Mukhopadhyay and J W C Johns, *J.Mol.Spectros.*, 153, 181-196, 1992.
10. "The fourier spectrum of CH₃OH between 200 and 350 cm⁻¹ : Torsional transitions and evidence of state mixings", G Moruzzi, F Strumia, R M Lees, I Mukhopadhyay, J W C Johns, B P Winnewisser and M Winnewisser, *J.Mol.Spectros.*, 153, 511-577, 1992.
11. "Infrared-infrared double resonance study of methyl alcohol", R R J Goulding, I Mukhopadhyay and R M Lees, *Infrared Phys.*, 33, 443-447, 1992.
12. "Developmental techniques and electron optical studies of high voltage, high current electron guns", L M Rangarajan, S Mahadevan and S S Ramamurthi, *IETE Technical Review*, 9, 46-50, 1992.
5. "Far infrared and C-O stretch band fourier transform spectra of 13-CD₃OH", Li-Hong Xu, R M Lees, I Mukhopadhyay, J W C Johns and G Moruzzi, *Proceedings of the Canadian association of physicists congress*, Windsor, Ontario, Canada, June 1992, paper JG 7. Also published in *Phys. in Canada*, 48, 79, 1992.
6. "Confirmation and prediction of optically pumped far infrared laser lines in methanol", I Mukhopadhyay, P K Gupta and R M Lees, *Proc.International conference on millimeter wave and far infrared technology*, Beijing, China, Aug.17-21, 1992, paper Th8.2.
7. "Far infrared laser stark spectroscopy of O-18 methanol : Determination of electric dipole moment", G R Sudhakaran, R Gopalsamy, I Mukhopadhyay, P K Gupta, R Prasad, R M Lees and R R J Goulding, paper W3.4, *ibid.*
8. "Torsion-Rotation FIR spectrum of O-18 methanol", R M Lees, S Zhou, R R J Goulding, J W C Johns, C P Chan, I Mukhopadhyay and W Lewis-Bevan, paper Th.7.6, *ibid.*
9. "Pluggable glass to metal seal", S S Marhas, invited talk, "VIII National seminar of Indian society of scientific glass blowers", IIT, Madras, Sept.23-25, 1992.
10. "Magnetoresistance of (Ce_xGd_{1-x}) Cu₆ compounds", E Bauer, E Gratz, M Maikis, H Kirchmayr, S B Roy and B R Coles in *Proceedings of International conference on highly correlated electron systems*, Sendai, Japan, Sept.1992; to appear in *Physica B*.

Internal Reports

1. "Beam viewer system for 450-MeV electron accelerator", R M Pandey and D K Joshi, CAT/I/92-3.
2. "XY - a Fortran program to plot 2-D graphs", G K Sahoo, CAT/I/92-4.
3. "Brightness and flux calculation of Indus-2", A D Ghodke, G Singh & S S Ramamurthi, CAT/I/92-5.
4. "Proton cyclotron for PET isotope production", Cyclotron design group, CAT/I/92-6.
5. "Development of ferrites for accelerators", R S Shinde, CAT/I/92-7.

Papers in Conferences /Symposia

1. "X-ray spectroscopic studies of laser produced plasmas", P D Gupta, P A Naik, S R Kumbhare, VIII International conference on "High power laser-matter interaction", Odessa, Ukraine, June 1992.
2. "Mid infrared coherent sources", P K Gupta, *ibid.*
3. "FIR laser Stark spectroscopy of CH₃ 18 OH", M Jackson, G R Sudhakaran, A Silveira, Jr, R M Lees and I Mukhopadhyay, *Proc.47th international sympos. on molecular spectroscopy*, Ohio State Univ., U S A, June 15-19, 1992, Paper Fa4.
4. "Optical nonlinearity of fullerenes and derivatives", K C Rustagi, L M Ramaniah and S V Nair, "Adriatico conference on clusters and fullerenes", Trieste, Italy, June 1992. Also published in "Clusters and fullerenes" eds. V Kumar, T P Martin and E Tosatti, World scientific.
11. "Relaxor ferroelectrics as components of very smart materials", V K Wadhawan, invited talk, VII National seminar on ferroelectrics and dielectrics, HNB Garhwal university, Srinagar, Oct.3-5, 1992.
12. "Microtron project at CAT", H C Soni, P Srivastava, J S Adhikari and S S Ramamurthi, invited talk, seminar on "Microtrons for research and applications" Mangalore university, Oct.22-23, 1992.
13. "X-ray lasing action in laser produced plasmas", P A Naik, invited talk, "National symposium on plasma science and technology", Plasma-92, Bombay, Nov.1992.
14. "Lasers in surface modification of materials", A K Nath, invited talk, Discussion meet on surface modification technology, IGCAR, Kalpakkam, Dec.3-5, 1992.
15. "High power lasers for material processing", A K Nath, TPS Nathan, S V Deshmukh and D D Bhawalkar, Discussion meet on surface modification technology, IGCAR, Kalpakkam, Dec.3-5, 1992.
16. "Model for job monitoring & control for multiprocessor homogeneous computer machines on a LAN", A Rawat, IEEE's "International conference on computer networks" (ICCN 92), Ahmedabad, Dec.10-11, 1992.
17. "High resolution spectroscopy of methanol and its application to optically pumped far infrared lasers", I Mukhopadhyay, IX National Conference on atomic and

molecular physics, IX-NACAMP 92, BARC, Bombay, Dec.14-18, 1992.

18. "High power CW CO₂ lasers for material processing", A K Nath, L Abhinandan and P Chowdhary. First east west International convention on surface engineering, Bangalore, Dec.16-19, 1992.
19. "Reentrant spin-glasses : do they really exist?", S B Roy, invited talk, Solid state physics symposium, Tirupati, Dec.1992.
20. "Magnetic history effects in polycrystalline YBaCuO", S B Roy, S Kumar, A K Pradhan, P Chaddah, R Prasad and N C Soni, *ibid*.
21. "Lower critical field measurements using remanent second harmonic magnetisation in HTSC pellets, A K Pradhan, S B Roy, S Kumar, P Chaddah, R Prasad and N C Soni, *ibid*.

22. "Low field magnetic anomalies in single crystals of PSYCCO", by A K Pradhan, S B Roy and P Chaddah, *ibid*.
23. "Hysteresis in PPE amplitude versus temperature for YBaCuO thin film", S Kumar, *ibid*.
24. "Symmetry of the polarizability tensors for icosahedral (I and J_h) and D_{5h} groups", L M Ramaniah, S V Nair and K C Rustagi, *ibid*.
25. "Fullerene production and uv/vis and NMR spectra of C₆₀", M P Joshi and R Singh, *ibid*.
26. "New theoretical designs for dipole magnets", K V Bhagwat and P Chaddah, Nuclear physics symposium, Bombay, Dec.1992.
27. "Improvement of dynamic aperture in Indus-2", B Singh, G Singh and S S Ramamurthi, *ibid*.

OTHER ACTIVITIES / NEWS

संसदीय राजभाषा समिति की दूसरी उप-समिति द्वारा प्रगत प्रौद्योगिकी केंद्र का निरीक्षण

संसदीय राजभाषा समिति की दूसरी उप-समिति ने 5 से 7 सितंबर 1992 के मध्य इंदौर स्थित केंद्रीय सरकार के कुछ कार्यालयों व उपक्रमों के सरकारी कामकाज में हिन्दी प्रयोग की स्थिति का जायजा लिया। समिति के संयोजक और संसद-सदस्य डॉ. लक्ष्मीनारायण पोंड्येय सहित इस समिति में सम्मिलित थे-संसद सदस्य श्री जगदीश प्रसाद माथुर, श्री उदयप्रताप सिंह, चौधरी हरमोहन सिंह, श्री विजयकृष्ण हांडिक और श्री खलील-उल-रहमान। संसदीय समिति के सचिव के रूप में निरीक्षण कार्य में समन्वय व सहयोग किया श्री साहिब्राम बतरा (अवर सचिव) ने।

निरीक्षण के लिए निर्धारित प्रश्नावली में प्रेषित सूचनाओं के आधार पर समिति के संयोजक व सदस्यों ने केंद्र के कामकाज में हिन्दी प्रयोग की दिशा में चर्चा की। केंद्र के मूलतः वैज्ञानिक स्वरूप को ध्यान में रखते हुए समिति के सदस्यों ने निरीक्षण के लिए प्रस्तुत पत्रादि, सहायक सामग्री तथा वैज्ञानिक और तकनीकी सामग्री के साथ ही निर्धारित प्रयोजनों में हिन्दी के प्रयोग के प्रतिदर्शों का अवलोकन किया और केंद्र द्वारा इस दिशा में किए जाने वाले प्रयासों पर प्रसन्नता व्यक्त की।

समिति के सदस्यों ने इस बात पर विशेष बल दिया कि केंद्र द्वारा जन-उपयोगी विशिष्ट उपलब्धियों और प्रयासों

की जानकारी यथासंभव जनभाषा में प्रकाशित की जानी चाहिए जिससे कि केंद्र द्वारा विशिष्ट क्षेत्रों में किए जाने वाले प्रयासों से आम नागरिक परिचित हो सके तथा परमाणु कार्यक्रम के बारे में शंकाएँ कम की जा सकें।

माननीय सदस्यों ने इस बात पर बल दिया कि विज्ञान के विषयों में मूल लेखन भारतीय भाषाओं में ही करने के साथ विदेशी जर्नलों में प्रकाशित चुनिंदा लेखों के अनुवाद कार्य को भी केंद्र में प्रोत्साहित किया जाना चाहिए।

भारत: समिति ने केंद्र द्वारा राजभाषा के प्रयोग को बढ़ावा देने की दिशा में किए जाने वाले प्रयासों पर संतोष व्यक्त किया।

सांसदों ने केंद्र में लेसर प्रौद्योगिकी तथा विभिन्न प्रकार के लेसरो के विकास संबंधी जानकारी में गहरी रुचि प्रदर्शित की तथा अपनी जिज्ञासाओं के बारे में केंद्र निदेशक से प्रश्न किए। संसद-सदस्यों ने लेसर प्रौद्योगिकी का भी अवलोकन किया और वैज्ञानिकों के प्रयासों की सराहना की।

सांसदों ने केंद्र के निदेशक, डॉ. भवाकर को विशेषकर सरल एवं बोधगम्य जानकारी हिन्दी में देने के लिए बधाई दी तथा उनकी हिन्दी में रुचि के लिए भी प्रशंसा की।

निरीक्षण के अवसर पर परमाणु ऊर्जा विभाग की ओर से श्रीमती टी.एफ.धेकेकरा (उप-सचिव, प्रशासन) तथा कु. मिथलेश शर्मा (उपनिदेशक, राजभाषा) उपस्थित हुईं।

केंद्र की ओर से डॉ.दि.दे.भवाकर (निदेशक), श्री सत्यनारायण व्यास (अध्यक्ष, रा.भा.का.स.), श्री गोपालसिंह (मु.प्र.ले.अ.), श्री आर.एन.शुक्ला (प्रशासनिक अधिकारी) एवं श्री सुनील सरवाही (सहायक निदेशक, राजभाषा) उपस्थित थे।