

Third SERC School in Atomic and Molecular Physics

The third SERC school on Atomic and Molecular Physics (III SERC SAMP'95) was held at CAT during December 11 to 30, 1995. It was organised by the Science and Engineering Research Council of the Department of Science and Technology. About 25 young scientists from all over India attended the school. During the three week school about 60 lectures were delivered by eminent scientists on various aspects of photon - atom/ molecule interaction. The school was inaugurated by Dr B A Dasannacharya, Director, Solid State and Spectroscopy group, BARC, Bombay. Prof S K Mitra, Chairman, SERC planning committee highlighted the role of SERC schools in motivating young scientists for research in frontline areas and promoting collaboration between different

institutes in the country. Dr D D Bhawalkar, Director, CAT gave the presidential address. He described the facilities available at present at CAT and those expected in the near future. The school Directors were Dr S A Ahmed, BARC, Bombay and Dr Vijay Kumar, PRL, Ahmedabad.

Seminar on Construction features of Indus-1 building

A seminar to highlight the constructional features of Indus-1 building was jointly organised by Institute of Engineers (I) and Marathi Engineers, Indore on November 28, 1995 at CAT Guest House. It was attended by about 200 Engineers. The seminar was presided over by Dr J P Shrivastava, Director, SGSITS. Key note address was delivered by Shri V K Kulkarni. Others who spoke at seminar were Dr J P Shrivastava and Dr D D Bhawalkar, Director, CAT.

PUBLICATIONS

Books

1. "Microwave, infrared and laser transitions of methanol: Atlas of assigned lines from 0-1258 cm^{-1} ", G Moruzzi, B P Winnewisser, M Winnewisser, I Mukhopadhyay and F Strumia, CRC Press, Florida, USA, ISBN 0-8493-2478-5 (1995).
2. "Proc. of CAT-CERN accelerator school on advanced physics and technology course", Ed. S S Ramamurthi and L M Rangarajan, Vol.1 (1995).

In Journals

1. "Magnetic relaxation in UCu_2Ge_2 ", S B Roy, A K Pradhan, P Chaddah and B R Coles, *Physica B* **206-207**, 498 (1995).
2. "High-magnetic field transport properties and irreversibility line of single crystal (2212) and ceramics of BPSCCO (2223)", A K Pradhan, C Chen and B M Wanklyn, *Physica C* **251**, 405 (1995).
3. " H_{c1} measurements using hysteresis in magneto resistance of sintered YBaCuO ", A K Pradhan, S B Roy, S Kumar, P Chaddah, R Prasad and N C Soni, *App. Superconductivity*, **2**, 223 (1995).
4. "Low-field ac magnetization of granular high- T_c superconductors", Mahesh Chandran and P Chaddah, *Supercond. Sci. Tech.* **8**, 774 (1995).
5. "Anomalous magnetic behaviour of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$ single crystals near the superconducting transition

- regime", A K Pradhan, S B Roy, P Chaddah, C Chen and B M Wanklyn, *Phys.Rev. B* **52**, 6215 (1995).
6. "Effect of sample shape on the low-field magnetisation peak in a C_{15} laves phase superconductor", S B Roy, A K Pradhan and P Chaddah, *Physica C* **253**, 191 (1995).
7. "Geometry effect on the non-linear magnetic response of $\text{YBa}_2\text{Cu}_3\text{O}_7$ ", P Batham, S B Roy, S Kumar, A K Pradhan, A K Grover, P Chaddah, R Prasad and N C Soni, *Pramana - J.Phys.* **45**, 261 (1995).
8. "Magnetic anomaly and the peak effect in superconducting C_3Ru_2 ", S B Roy, A K Pradhan and P Chaddah, *Phys.Rev. B* **52**, R9847 (1995).
9. "Flux penetration in thin elliptic superconducting cylinders subjected to transverse fields", K V Bhagwat and P Chaddah, *Physica C* **254**, 143 (1995).
10. "Effects of heavy-ion irradiation on the magnetic anomaly in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$ crystal near the transition temperature", A K Pradhan, S B Roy, P Chaddah, D Kanjilal, C Chen and B M Wanklyn, *Physica C* **254**, 281 (1995).
11. "The two colours free electron laser", S. Krishnagopal and Vinit Kumar, *Optics Communications*, **119**,313 (1995).
12. "Crystal growth and defect characterization of zinc ris (thiourea) sulphate: a novel metalorganic nonlinear optical crystal", V Venkataramanan, G Dhanraj, V K Wadhawan, J Sherwood and H L Bhat, *J Cystal Growth* **154**, 92 (1995).

13. "Ti-atom disorder in $Ti_{1+x}S_2$ crystals", K S Bartwal, Phil. Mag. **B-71.**, 895 (1995).
14. "Growth and Characterization of single crystals in the series ZrS_xSe_{2-x} ", K S Bartwal and O N Srivastava, Mater. Sci. & Engg. **B33**, 115 (1995).
15. "Microwave and millimeter wave spectra of $^{13}CD_3OH$ ", I Mukhopadhyay, KVLN Sastry, R M Lees and Winnewisser, J. of Molecular spectroscopy, **172**, 108 (1995).
16. "Far infrared laser stark spectroscopy of CH_3OH and $^{13}CH_3OH$ ", G R Sudhakaran, B J Soller, M Jackson, I Mukhopadhyay and R M Lees, Intl. J. of infrared and millimeter waves, **16**, Dec (1995).
17. "Ritz Analysis of the fourier spectrum of $^{13}CH_3OH$ from 25 to 350 cm^{-1} ", J C S Moraes, D Pereira, A Scalabrin, G Moruzzi, F Strumia, B P Winnewisser, M Winnewisser, I Mukhopadhyay and P K Gupta, J of Molecular Spectroscopy, **174**, Dec (1995).
18. "Generation of picosecond optical pulses from single heterostructure GaAs diode laser and study of their emission characteristics", V N Rai, M Shukla and H C Pant, Pramana, J of Physics, **45**, 439 (1995).
19. "Development of a picosecond time resolution optical and x-ray streak camera", V N Rai, M Shukla, H C Pant and D D Bhawalkar, Sadhana, **20**, Dec (1995).

Papers in Conferences/ Symposia

1. "Atlas of the infrared spectrum of methanol from $0-1258\text{ cm}^{-1}$ ", G Moruzzi, F Strumia, B P Winnewisser, M Winnewisser and I Mukhopadhyay, Proc. Intl. Conference on Millimeter and Submillimeter Waves and Applications II, SPIE, Session 7, San Diego, California, USA, July 9-14, 1995.
2. "Far Infrared laser Stark spectroscopy of methanol and its isotopic species", G R Sudhakaran and I Mukhopadhyay, Proc. Vth annual Wisconsin space conference, sponsored by Wisconsin and New Mexico space consortia, Whitewater, Wisconsin, USA, Aug 17-18, 1995.
3. "Studies on photoresists under irradiation of VUV and soft x-rays for synchrotron radiation photolithography", L M Rangarajan, S Mahadevan and S S Ramamurthi, The IXth Intl. Conf. on Vacuum Ultraviolet Radiation Physics, Rikkyo university, Japan, Aug 1995.
4. "Study of thermal properties using photo-pyroelectric technique", Shailendra Kumar and U N Roy, Conf. on Defects in Condensed Media, Kalpakkam, Sept 20-22, 1995.
5. "Metastable magnetic response in UT_2X_2 compounds with $ThCr_2Si_2$ structure", S B Roy, A K Pradhan and P Chaddah, Intl. Conf. on Strongly correlated electron systems, Goa, Sept 27-30, 1995.
6. "Magnetic anomaly in superconducting $CeRu_2$: A single crystal study", S B Roy, A K Pradhan, P Chaddah and A D Huxley, *ibid.*
7. "Study of electrical transport properties of $(U_{1-x}Y_x)Ru_2Si_2$ ", S Radha, J G Park, S B Roy, B R Coles and A K Nigam, *ibid.*
8. "New technologies at CAT", A S Raja Rao, invited talk, Seminar at physics department of University of Western Australia, Perth, Oct 10, 1995.
9. "Design considerations for the vacuum system of AIGO", A S Rajarao, invited talk, Australia Italia Seminar on Physics, University of Western Australia, Perth, Oct 16-18, 1995.
10. "XUV spectroscopy of laser produced plasmas", A Chowdhury, invited talk, 10th National Plasma Symposium, BHU, Varanasi, Oct 16-19, 1995.
11. "Computer simulation as a tool to study laser-plasma interaction", V K Senecha, invited talk, *ibid.*
12. "X-ray emission from copper plasma produced by picosecond Nd:glass laser", A Chowdhury, S R Kumbhare, R A Joshi and P D Gupta, *ibid.*
13. "Development and characterization of an x-ray streak camera for studies of x-ray emission from laser produced plasmas", J A Chakera, S R Kumbhare, V Arora, P D Gupta, V Podvyaznikov and V K Chevokin, *ibid.*
14. "Development of an intensifier based pin hole camera for x-ray imaging", V N Rai, M Shukla and H C Pant, *ibid.*
15. "Angle dependent x-ray emission from picosecond laser produced plasma", V N Rai, M Shukla and H C Pant, *ibid.*
16. "Development of an x-ray imaging device for pin hole transmission grating spectrograph", M Shukla, V N Rai and H C Pant, *ibid.*
17. "Measurement of electron temperature using K-edge spectrometer", Y B S R Prasad, V K Senecha, V N Rai, M Shukla and H C Pant, *ibid.*
18. "X-ray enhancement in an external transverse magnetic field confined laser produced plasma", M Shukla, V N Rai, V K Senecha, N K Gupta, Y B S R Prasad and H C Pant, *ibid.*
19. "Control System for 20 MeV microtron", J S Adhikari, Y Seth, B J Vadiya and S S Ramamurthi, Intl Conference on Accelerator and large Experimental Physics control system, Chicago, Illinois, USA, Oct 30 - Nov 3, 1995.
20. "Some studies on laser produced plasma expanding across the external magnetic field", V N Rai, M Shukla and H C Pant, Nat. Symp. on Plasma Science, IIT Kanpur, Nov 8-10, 1995.
21. "Studies of x-ray emission from laser induced gold and aluminium plasma", V K Senecha, Y B S R Prasad, N K Gupta, V N Rai, M Shukla and H C Pant, *ibid.*
22. "Indus-1 and beam lines", R V Nandedkar, X National Conference on X-ray Spectroscopy, Nagpur, Oct 16-18, 1995.
23. "Commissioning of Indus-1 facility", Gurnam Singh, IV International Conference on Synchrotron Radiation Sources, Kyongju (Korea), Oct 25-27, 1995.

24. "Glass technology in vacuum sealed off electron devices", L M Rangrajan, X National seminar of ISSG on science and technology of glass, BARC Bombay, Nov 15-17, 1995.
25. "Design aspects of vacuum system of AIGO-500", A S Rajarao, invited talk, Workshop on gravitational waves IUCCA, Poona, Dec 9-11, 1995.
26. "On the relative intensities of far infrared transitions in the torsional ground state of methanol-D₁", I Mukhopadhyay and P K Gupta, Proc. 20th Intl. conference on Infrared and Millimeter Waves, Ed.R J Temkin, Lake Buena Vista, Orlando, Florida, USA, Dec 11-15, 1995.
27. "High Resolution fourier transform far infrared spectroscopy of methanol-OD in the torsional ground state", I Mukhopadhyay, P K Gupta, G Moruzzi, B P Winnewisser and M Winnewisser, ibid.
28. "Magneto-transport and magnetization studies in BSCCO -2212 crystals", A K Pradhan, invited talk, DAE Solid State Phys. Symp. Calcutta, Dec 27-31, 1995.
29. "Critical state in Josephson junction array", Mahesh Chandran and P Chaddah, ibid.
30. "Effect of ambient on thermal properties of CuO", Shailendra Kumar, P Shah, A Gupta and D K Avasthi, ibid.

OTHER ACTIVITIES / NEWS

केन्द्र में 'हिन्दी - मास'

गतवर्ष की भाँति इस वर्ष भी केन्द्र में 'हिन्दी मास' के उपलक्ष्य में विभिन्न प्रतियोगिताओं का आयोजन किया गया तथा 'हिन्दी दिवस' मनाया गया। इस क्रम में विशेष रूप से 11 सितम्बर, 1995 को 'भारत रत्न' आचार्य विनोबा भावे का 100 वाँ जन्म-दिवस समारोह आयोजित किया गया। समारोह में आचार्य भावे के अंतिम दिनों में उनके सानिध्य में रहे सर्वोदयी सहयोगी और लेखक श्री महेश दुबे और निमाड क्षेत्र के स्वतंत्रता सेनानी श्री श्रीराम आगार ने मुख्य-अतिथी के रूप में भाग लिया। अपने सम्बोधन में अतिथी-वक्ताओं ने विनोबा के जीवन-दर्शन में, वैज्ञानिकता और दृढ़ता का उल्लेख करते हुए वर्तमान संदर्भों में आचार्य के विचारों की प्रासंगिकता को रेखांकित किया।

समारोह की अध्यक्षता केन्द्र के वरिष्ठ वैज्ञानिक श्री ए.एस. राजाराव ने की। इस अवसर पर राभकास के अध्यक्ष डॉ. पी.के. गुप्ता ने अतिथियों का स्वागत किया। समारोह में कार्यक्रम का संचालन व विषय प्रवर्तन सहायक निदेशक (राजभाषा) सुनिल सरवाही ने तथा प्रशासनिक अधिकारी श्री रा.कृ. सैनी ने अतिथियों के प्रति आभार व्यक्त किया। समारोह में बड़ी संख्या में अधिकारी व कर्मचारी उपस्थित थे।

14 सितम्बर को 'हिन्दी दिवस' के अवसर पर केन्द्रीय गृहमंत्री श्री एस.वी. चव्हाण से प्राप्त संदेश तथा केन्द्र के निदेशक डॉ. दि.वे. भवालकर की अपील का व्यापक परिचालन किया गया।

राजभाषा प्रचार समिति, वर्धा से प्राप्त 'जेवी ध्वज' (फ्लेग) का इस दिन कर्मचारियों में वितरण किया गया जिस पर समिति का उद्घोष वाक्य 'एक हृदय हो भारत जननी' अंकित था।

'हिन्दी - मास' के दौरान ही केन्द्र में 21 सितम्बर, 1995 को एक कवि-गोष्ठी का आयोजन हुआ जिसमें केन्द्र व नगर के युवा कवियों ने भाग लिया। कवि-गोष्ठी की अध्यक्षता डॉ. आर.वी. नाडेकर, वैज्ञानिक अधिकारी ने की। हिन्दी-संरंधन कार्यक्रम के अंतर्गत इस वर्ष विभिन्न प्रतियोगिताओं में 30 पुरस्कार और प्रमाण-पत्र दिये गये। 'हिन्दी मास' के दौरान ही एक दो-दिवसीय कार्यशाला का आयोजन किया गया जिसमें 20 लोगों को प्रशिक्षित किया गया।



कवि सम्मेलन का एक दृश्य