

अतिचालकता विषय पर संगोष्ठी

केन्द्र में 28 फरवरी 1995 को 'राष्ट्रीय विज्ञान दिवस' के अवसर पर 'अतिचालकता - विज्ञान, तकनीकी व अनुप्रयोग' विषय पर एक एक-दिवसीय वैज्ञानिक संगोष्ठी, हिन्दी माध्यम से, आयोजित की गई। संगोष्ठी का उद्घाटन बरकतुल्लाह विश्वविद्यालय, भोपाल के डॉ. आर.के. सिंह, अध्यक्ष-भौतिकी विभाग तथा निदेशक-कम्प्यूटर केन्द्र ने किया।



संगोष्ठी के तीन सत्रों में अतिचालकता संबंधी कई बातें हिन्दी में प्रस्तुत की गयीं। संगोष्ठी के आरम्भ में केन्द्र में वैज्ञानिक कार्यकलापों में हिन्दी प्रयोग के संबंध में रिपोर्ट और अतिथियों का स्वागत श्री सुनील सरवाही, सहायक निदेशक (राजभाषा) ने किया। राभाकास के अध्यक्ष श्री सत्यनारायण

व्यास ने संगोष्ठी परिचय दिया। उद्घाटन सत्र की अध्यक्षता परियोजना प्रबंधक (त्वरित्र) श्री एस.एस. राममूर्ति ने की।

गोष्ठी में विषय के अत्यंत रुचिकर और प्रासंगिक होने के कारण आरम्भ से अंत तक सक्रियता और जीवंतता बनी रही तथा इसमें बड़ी संख्या में बाहरी प्रतिनिधियों ने भाग लिया। इस संगोष्ठी में केन्द्र के ही वैज्ञानिक सर्वश्री डॉ. आर.वी. नंदिकर, डॉ. पी.के. गुप्ता, डॉ. वी.एन. रॉय, डॉ. मंजुला भटनागर (मुख्य चिकित्सा अधिकारी) एवं डॉ. एच.एम.पी. सिंह, चिकित्सा अधिकारी को उनके द्वारा केन्द्र की पत्रिका प्रगति को समृद्ध करने के लिए हिन्दी में वैज्ञानिक और तकनीकी लेखन के लिए डॉ. आर.के. सिंह (मुख्य अतिथि) द्वारा प्रतीक-चिन्ह भेंट कर सम्मानित किया गया।

राजभाषा के प्रयोग को बढ़ाने हेतु केन्द्र को न.स.भा.का.स. से विशेष पुरस्कार

सरकारी कामकाज में हिन्दी प्रयोग को बढ़ाने हेतु इन्दौर नगर के केन्द्रीय कार्यालयों में, इस केन्द्र को नगर राजभाषा कार्यान्वयन समिति, इन्दौर द्वारा विशेष पुरस्कार प्रदान किया गया। वर्ष 1994 - 95 के दौरान हिन्दी संवर्धन हेतु यह पुरस्कार श्री राधाकृष्ण सैनी, प्रशासनिक अधिकारी ने 20 मई, 1995 को नगर राजभाषा कार्यान्वयन समिति के अध्यक्ष श्री गोविंदन सें. तंपी, समाहर्ता केन्द्रीय उत्पाद एवं सीमा शुल्क से प्राप्त किया।

PUBLICATIONS

In Journals

1. "Dependence of laser intensity on cavity losses for a detuned single-mode laser", S C Mehendale, Appl. Opt. 33, 8330 (1994).
2. "Photoacoustic detection of the decomposition kinetics of polymers : interpretation of acoustic signals", L M Kukreja and P Hess, Appl. Sur. Sci. 79-80, 399 (1994).
3. "Time evolution of laser induced polymer ablation studied by attenuation of probe HeNe laser beam", L M Kukreja and P Hess, Appl. Sur. Sci. 79-80, 158 (1994).
4. "A picosecond optical pulse generator to calibrate the optical streak camera", V N Rai, M Shukla, R K Khardekar and H C Pant, Rev. Sci. Inst. 66, 3125 (1995).
5. "Metastable magnetic response of UCu_2Ge_2 ", S B Roy, A K Pradhan and P Chaddah, Phil. Mag. B 71, 97 (1995).
6. "Comments on 'Note on the magnetism of UCu_2Ge_2 '", S B Roy, Philos. Mag. B 71, 105 (1995).
7. "Thermopower of (Ce, Pr) Cu_6 alloys", M Ocko, M Miljak, I Kos, J G Park and S B Roy, J Phys. Condensed Matter 7, 2979 (1995).
8. "Large magnetoresistance in $La_{1-x}Sr_xMnO_3$ and its dependence on magnetization", R Mahendiran, A K Raychaudhuri, A Chainani, D D Sarma and S B Roy, Appl. Phys. Lett. 66, 233 (1995).
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10. "How to use synchrotron radiation", R V Nandedkar, Physics Education Jan.-March, 395 (1995).
11. "Status of Indus-1 SR source", S S Ramamurthi and G Singh, Nucl. Inst. Meth. A 359, 15 (1995).
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 14. "TLPLAT : A program for the identification of plateau in thermoluminescence studies", D K Koul and C L Bhat, *Computers & Geosciences* **21**, 409 (1995).
 15. "Far Infrared spectrum of excited torsional states of C-13 methanol", I Mukhopadhyay and R M Lees, *Int. J Infrared and Millimeter Waves* **16**, 99 (1995).
 16. "Fourier transform spectroscopy of the C-O stretching band of C-13 methanol in the torsional ground state", I Mukhopadhyay, R M Lees, W Lewis-Bevan, and J W C Johns, *J. Chem. Phys.* **102**, 6444 (1995).
 17. "An all solid state switched high efficiency pulser sustainer TEA CO₂ laser", D V Satyanarayana, M Sajeed Mohan and U Nundy, *Rev. Sci. Inst.* **66** (3), 2391 (1995).
 18. "An electromagnetic actuator in UHV for a synchrotron radiation beam viewer", Adu Verma, K J S Sawhney and R V Nandedkar, *Vacuum* **46**, 165 (1995).
 19. "Influence of imperfections and misalignment of optical elements on the performance of a TGM based beam line on Indus-1", K J S Sawhney and R V Nandedkar, *Nucl. Inst. Meth. A* **359**, 146 (1995).
 20. "A comparative study of laser second harmonic generation in some crystals", G C Bhar, A M Rudra, P K Datta, U N Roy, V K Wadhawan and T Sasaki, *Pramana* **44**, 45 (1995).

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1. "Status of Indus-1", S S Ramamurthi, invited talk, Indo-Italian workshop on synchrotron radiation and its applications, Delhi, Feb. 17-19 (1995).
2. "Design features of Indus-2", G Singh, invited talk, *ibid.*
3. "A TGM based beam line for Indus-1", R V Nandedkar, invited talk, *ibid.*
4. "Indus-1 and its applications", R V Nandedkar, invited talk, National Conf. on Atomic and Molecular Physics, Meerut, March 6-10 (1995).
5. "Beam Slit Assembly", R Sridhar and A S Raja Rao, Intl. Conf. on Vacuum Science and Technology and SRS Vacuum Systems, CAT, Indore, Jan 30 - Feb 3 (1995).
6. "Design and Engineering of the large vacuum system for the gravitational wave detector AIGO", A S Raja Rao and Rajveer Singh, *ibid.*
7. "Mirror movement mechanism in UHV for synchrotron radiation mirror box", A Verma & R V Nandedkar, *ibid.*
8. "Design of a UHV compatible bilateral slit for Indus-1 beam line", V K Raghuvanshi and R V Nandedkar, *ibid.*
9. "Growth and roughness characterisation of ultra thin gold films", G S Lodha, Suneel Pandita, Ajay Gupta and R V Nandedkar, *ibid.*
10. "Indigenous development of UHV electron beam evaporation system for soft x-ray multilayer optics", G S Lodha, Adu Verma and R V Nandedkar, *ibid.*
11. "Vacuum system for 700 MeV Booster ring in CAT - Experience and present status", R J Patel, M L Pandiyar, S T Bhavsar, K C Ratnakala and S S Ramamurthi, *ibid.*
12. "Pumping Characteristics of Sputter Ion Pump (SIP) and Titanium Sublimation Pump (TSP) combination", K C Ratnakala, R J Patel, S T Bhavsar, M L Pandiyar and S S Ramamurthi, *ibid.*
13. "Development of compact helium leak detector", M L Pandiyar, S T Bhavsar, R J Patel, K C Ratnakala and S S Ramamurthi, *ibid.*
14. "Vacuum system of microtrons developed in CAT", S T Bhavsar, R J Patel, K C Ratnakala, M L Pandiyar and S S Ramamurthi, *ibid.*
15. "Performance of vacuum system of RF cavity for Indus-1", K C Ratnakala, R J Patel, S T Bhavsar, M L Pandiyar and S S Ramamurthi, *ibid.*
16. "Differential Pumping set-up", R J Patel, M L Pandiyar, K C Ratnakala, S T Bhavsar and S S Ramamurthi, *ibid.*
17. "Development of cryosorption pumps", M L Pandiyar, R J Patel, K C Ratnakala, S T Bhavsar, S K Tiwari and S S Ramamurthi, *ibid.*
18. "Electron guns for Accelerators", L M Rangarajan, S Mahadevan and S S Ramamurthi, *ibid.*
19. "Photolithography by Synchrotron Radiation from Indus 1 & 2", L M Rangarajan, S Mahadevan and S S Ramamurthi, *ibid.*
20. "Indus-2 and its beam life time", G Singh, D Angal and S S Ramamurthi, *ibid.*
21. "Some important features of the proposed large UHV system for the gravitational wave detector AIGO and its wall conditioning Techniques", A S Raja Rao, IUVESTA Workshop on Wall conditioning Techniques in large UHV devices, Geneva, Feb 27 - March 3 (1995).
22. "Laser plasma interaction study using picosecond Nd:YAG laser", V N Rai, invited talk, National Laser Symposium, Feb 10-14 (1995), IRDE, Dehradun.
23. "Study of optical nonlinearities in semiconductor doped glasses by ultrafast processes", K S Bindra and S M Oak, invited talk, *ibid.*
24. "High resolution spectroscopy of molecules related to FIR lasers", I Mukhopadhyay, invited talk, *ibid.*
25. "Effect of background pressure of vacuum chamber on the x-ray emission and ablation pressure in laser produced plasma experiment", V N Rai, M Shukla and H C Pant, *ibid.*
26. "A multichannel vacuum photodiode and x-ray emission from a picosecond laser produced plasma", V N Rai, M Shukla and H C Pant, *ibid.*
27. "Raman scattering of semiconductor microcrystals", Alka Ingale, *ibid.*

28. "Contribution of scattering to optical limiting in C₆₀ solution", S R Mishra, H S Rawat, M P Joshi and S C Mehendale, *ibid.*
29. "Spectral features of laser induced fluorescence emission from C₇₀", S S Harilal, R C Issac, G K Varier, C V Bindhu, V P N Nampoori, C P G Vallabhan and M P Joshi, *ibid.*
30. "Photoacoustic measurements in C₆₀ and C₇₀", R C Isaac, G K Varier, C V Bindhu, S S Harilal, V P N Nampoori, C P G Vallabhan and M P Joshi, *ibid.*
31. "Assessment of second order nonlinearity of some new organic materials by powder SHG", H S Rawat, S R Mishra, G Dhanaraj, T S Dhama, V K Wadhawan, G Ravi and S Anubukumar, *ibid.*
32. "Temperature dependence of nonlinear optical properties of semiconductor doped glasses", K S Bindra and S M Oak, *ibid.*
33. "Reverse saturable absorption and optical limiting in indanthrone", Rama Chari, S R Mishra, H S Rawat and S M Oak, *ibid.*
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35. "Design and development of sub-micron free-standing bandpass filters for XUV spectroscopy", A Chowdhury, R P Shukla and P D Gupta, *ibid.*
36. "A microprocessor based switched mode power supply for a 2.5 kW CW CO₂ laser", C P Navathe and P Choudhary, *ibid.*
37. "PC based shear interferometer for laser beam wavefront aberration analysis", S Bandopadhyay, M S Ansari, A Upadhyay, P Khare and C P Navathe, *ibid.*
38. "A compact simmer current source for flashlamps", R Arya, S Krishnan, S K Sudheer and A G Bhujle, *ibid.*
39. "In-vitro studies on nitrogen laser induced autofluorescence spectra for discrimination of malignant from surrounding normal human tissue", S K Majumdar, A Uppal and P K Gupta, *ibid.*
40. "He-Ne laser induced protection against uv-c stress in E-coli strains", Roma Kohli and P K Gupta, *ibid.*
41. "The effect of low level nitrogen laser radiation on testes of Albino Rats", A Sharma, P K Gupta, S Suchdeo and S Agnihotri, *ibid.*
42. "A Carona preionizer for TE gas lasers", N S Banerji, D V Satyanarayana, M Sajeev Mohan and U Nundy, *ibid.*
43. "A compact pulser sustainer TEA CO₂ laser", D V Satyanarayana, M Sajeev Mohan, L Abhinandan, N S Banerji and U Nundy, *ibid.*
44. "Electronic control of TEA CO₂ laser chain", A Mokhariwale, C P Navathe and U Nundy, *ibid.*
45. "A XeCl Excimer laser using Argon as a buffer gas", P Bhatnagar, B Singh and U Nundy, *ibid.*
46. "Study of gain and optical characteristics of a RF-excited diffusion cooled coaxial CO₂ laser", A K Biswas, M Kumar, N Srinivasa Rao and A K Nath, *ibid.*
47. "Optimization of heat exchangers for high power CO₂ laser", L Abhinandan, M Kumar and A K Nath, *ibid.*
48. "Double Pulse Generator for super-pulsing of a Multi-kilowatt CW CO₂ laser", P Choudhary, T Reghu, M O Ittoop, K Rama Rao, M S Agarwal and A K Nath, *ibid.*
49. "Modelling of a lossy magnetic pulse compressor", P Choudhary, M S Agarwal and A K Nath, *ibid.*
50. "The effects of overlapping passes during laser transformation hardening of plain carbon steel", P Saha, P K Mishra and A K Nath, *ibid.*
51. "Prototype 500 W multibeam CW CO₂ laser for industrial applications", S V Deshmukh and C Rajagopalan, *ibid.*
52. "CO₂ laser discharge characteristics with aluminium, 304 SS and OFHC copper cathodes", S V Deshmukh, C Rajagopalan and S Upendra, *ibid.*
53. "Surface melting of AISI type 304 SS using multibeam CO₂ laser", S V Deshmukh, C Rajagopalan, R V Subba Rao, R K Dayal and J B Gnanamoorthy, *ibid.*
54. "Design and fabrication of a Pockels cell using two KDP crystals in tandem", V S Tiwari and V K Wadhawan, *ibid.*
55. "Characterization of L-arginine phosphate (LAP) crystal for third harmonic generation of Nd:YAG laser", P K Datta, U N Roy, V K Wadhawan and G C Bhar, *ibid.*
56. "Growth of high quality KDP crystals and device fabrication for frequency doubling of Nd:YAG laser radiation", U N Roy, P K Datta and V K Wadhawan, *ibid.*
57. "Growth and characterization of potassium titanyl phosphate crystals", G Dhanaraj, V K Wadhawan and H L Bhat, Sixth National Seminar on Crystal Growth, Anna University, Madras, Feb. 2-4 (1995).
58. "Development of high power lasers for material processing applications", A K Nath, invited talk, Special Meet on Laser & EB welding May 4-5, 1995, DRDL, Hyderabad.
59. "Network backup system", P V H S Swamy and S S Tomar, National Seminar on Modern Trends in Computer Technology, CAT, Indore, Feb. 23-24 (1995).
60. "The concept of PVM (Parallel Virtual machine)", A K Gupta, N Dhoble and A Rawat, *ibid.*
61. "Automated complaint recording system", A K Gupta, P Nashine, S Agarwal and P K Chande, *ibid.*
62. "Image processing for MRI", A K Gupta, A Rajan and P Nashine, *ibid.*
63. "A program for the analysis of x-ray reflectivity", V M Raffee and G S Lodha, *ibid.*
64. "On-line disk mirroring of database for a multi-user OLTP application giving fault tolerance - a practical approach", A Rawat and A Shukla, *ibid.*

65. "A digital distributed system for laboratory automation", K M Vinod Kumar, V P Bhanage, P P Deshpande, A G Bhujle, at National Symposium on Advances in Computer Applications and Instrumentation (SACAI-91), IGCAR, Kalpakkam, Jan. 4-6 (1995).
66. "Data-acquisition and control system for high power CO₂ laser", P P Deshpande, R K Gupta and A G Bhujle, *ibid.*
67. "Far-infrared laser Stark spectroscopy of ¹³CH₃OH", M Jackson, B J Soller, G R Sudhakaran, R M Lees and I

Mukhopadhyay, 50th. Int. Symp. on Molecular spectroscopy, Ohio State University, USA, June 12-16 (1995).

68. "Laser curing of thermosetting powder coatings", L Abhinandan, M Kumar, M K Trivedi and A K Nath, SPIE Conference on Novel Applications of Lasers and Pulsed Power, Feb. 4-10 (1995), San Jose, California, USA, Proc. SPIE 2374 (1995).
69. "Marble cutting with CW CO₂ laser", M Kumar, A K Biswas, K Srinivas and A K Nath, *ibid.*

OTHER ACTIVITIES / NEWS

National Science Day



CAT observed National Science Day by keeping all the laboratories open to students on Feb. 25, 1995. About 700 students of science discipline of XI standard from 28 schools, and final year students of 6 colleges, in and around Indore, visited CAT. They were accompanied by about 100 teachers. Dr D D Bhawalkar, Director, CAT welcomed and briefed the young visitors about different activities in CAT. The students visited Laser laboratories, Indus-1, Computer Centre and Workshops.

Snippets

- Shri A S Raja Rao was honoured by Indian Vacuum Society during its Silver Jubilee celebration for his outstanding contribution to the growth of its activities and



promoting Vacuum Science and Technology. In a function organised at Nehru Science Centre, Bombay on Feb. 14, 1995 where Shri H N Sethna, President, Tata Oil Mills Ltd., and formerly, Chairman Atomic Energy Commission, was the Chief Guest, he was presented with a plaque and a shawl to mark the occasion.

- Shri A S Raja Rao has been nominated by Indian Vacuum Society as councilor from India for the International Union for Vacuum Science Techniques and Applications, for the period 1995 - 98.
- Dr S K Dixit was awarded Ph D by Devi Ahilya Vishwavidyalaya, Indore. His thesis was entitled "A study on the resonators for high gain pulsed lasers". This thesis won the best thesis presentation prize at the National Laser Symposium at Dehradun, in Feb. 1995.

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