

# PUBLICATIONS

## In Journals

1. "A generalised diffraction filtered resonator with copper vapour laser", S K Dixit, J K Mittal, B Singh, P Saxena and R Bhatnagar, *Optics commun.* **98**, 91 (1993).
2. "Interaction of squeezed light with a Kerr medium", A Banerjee, *Quantum Optics* **5**, 15 (1993).
3. "Symmetry of the polarizability tensors for molecules with  $D_{5h}$  and  $I_h$  symmetry", L M Ramaniah, S V Nair and K C Rustagi, *Optics Commun.* **96**, 289 (1993).
4. "Optical absorption in semiconductor quantum dots : a tightbinding approach", L M Ramaniah and S V Nair, *Phys. Rev. B* **47**, 7132 (1993).
5. "Investigation of optical limiting in  $C_{60}$  Solution", M P Joshi, S R Mishra, H S Rawat, S C Mehendale and K C Rustagi, *Appl. Phys. Lett.* **62**, 1763 (1993).
6. "Two photon absorption in semiconductor doped glasses", S M Oak, K S Bindra, R Chari and K C Rustagi *J.Opt.Soc.Am B*, **10**, 613 (1993).
7. "High-sensitivity experiment for continuous recording of birefringence of crystals by rotating analyzer modulation technique", V K Wadhawan, M S Somayazulu and P U M Sastry, *Indian J.Pure & Appl.Phys.* **30**, 729 (1992).
8. "Scaling of laser power with  $N_2$  partial pressure in a convective cooled CW  $CO_2$  laser", A K Nath and Manoj Kumar, *IEEE J. Quantum Electron.* **29**, 1199 (1993).
9. "Confirmation and prediction of far-infrared laser emissions from excited torsional status of methyl alcohol", I Mukhopadhyay, P K Gupta and R M Lees, *J.Mol Spectros.* **157**, 290 (1993).
10. "High resolution spectroscopy of methanol: Coriolis resonance and far infrared laser identification", I Mukhopadhyay and R M Lees, *Optics Communications* **97**, 194 (1993).
11. "Second harmonic generation as a sensitive technique for estimating  $H_C1$  of high  $T_C$  materials", S Kumar, S B Roy, A K Pradhan, P Chaddah, R Prasad and N C Soni, *J Appl Phys* **73**, 1539 (1993).
12. "Pore size dependence on doping concentration in Porous silicon", R M Vadjikar and R V Nandedkar, *Current Science* **64**, 180 (1993).
13. "Design features of the vacuum system of a high altitude chamber facility", A S Raja Rao, *Bulletin Indian Vacuum Society* **24**, 11, 1993.
14. "Magnetoresistance and upper critical fields in single crystal  $Y_{1-x}Pr_xBa_2Cu_3O_{7-y}$ ", A K Pradhan, S J Hazell, J W Hodby, C Chen, Y Hu and B M Wanklyn, *Solid State Commun.* **86**, 199 (1993).

## Papers in Conferences/Symposia

1. "Problems in vacuum processing systems", A S Raja Rao, VACMET-92 seminar organised by Indian Institute of Metals and Indian Vacuum Society, Bombay, Jan 11, 1993.
2. "Optical Nonlinearities in fullerenes", Invited Talk by K C Rustagi at the discussion meeting on icosahedral symmetry in materials, held at Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore. Feb. 1-3, 1993.
3. "Self filtering unstable resonators", Invited Talk by S K Dixit at National Laser Symposium, IIT Madras, Feb 17-19, 1993,
4. "High power  $CO_2$  lasers", Invited Talk by A K Nath, *ibid.*
5. "Theoretical modelling of an iodine laser", M S Oak, P Bhatnagar and U Nundy, *ibid.*
6. "Design and performance of a discharge pumped KrF excimer laser", P Bhatnagar, B Singh and U Nundy, *ibid.*
7. "Comparison of the performance of an SFUR and Stable resonator cavities for a TEA  $CO_2$  laser", D V Satyanarayana, N S Banerjee and U Nundy, *ibid.*
8. "Effect of linear absorption on dispersion bistability of distributive feedback structure with diffusive non-linearity", A Banerjee, *ibid.*
9. "Nonlinear properties of colour glass filters", K S Bindra, S M Oak and R Chari, *ibid*
10. "Design and performance of an acousto-optic modelocker for Nd: glass laser", R Chari, K S Bindra, V Shukla and S M Oak, *ibid.*
11. "Investigation of optical limiting in  $C_{60}$ ", S R Mishra, H S Rawat, M P Joshi, S C Mehendale and K C Rustagi, *ibid.*
12. "Operational characteristics of a 5 kW Transverse Flow CW  $CO_2$  Laser", A K Nath, L Abhinandan, P Choudhary and T Reghu, *ibid.*
13. "Solid State Pulser based on magnetic pulse compression technique for high power transverse flow CW  $CO_2$  laser", P Choudhary, T Reghu and A K Nath, *ibid.*
14. "Studies on RF discharge excitation in diffusion cooled conventional and coaxial  $CO_2$  lasers and fast axial flow  $CO_2$  laser", P Choudhary, L Abhinandan, R Sridhar, T Sabapathi and A K Nath, *ibid.*
15. "Inductive ballasted UV preionization in a high repetition rate TEA  $CO_2$  laser", Manoj Kumar, Harish Kumar, K Rama Rao and A K Nath, *ibid.*
16. "Modification of Al-Si alloy by laser irradiation", S P Choudhuri, A Bhattacharyya, B Choudhuri, P K Nandi and A K Nath, *ibid.*

17. "A study of gain characteristics of Nd:phosphate glass laser amplifiers", A Chowdhury, P A Naik, S R Kumbhare, J A Chakera and P D Gupta, *ibid*.
18. "Design and performance of a vacuum spatial filter for a high power Nd:glass laser chain", S R Kumbhare, P A Naik, A Chowdhury, J A Chakera, P D Gupta and J C Monga, *ibid*.
19. "A double pass laser pulse slicer based on avalanche transistors switching", P A Naik, S R Kumbhare, M Shukla, A Chowdhury and P D Gupta, *ibid*.
20. "A high power Nd:glass laser chain and plasma diagnostics system for XUV-soft X-ray generation studies", P D Gupta, P A Naik, S R Kumbhare, A Chowdhury, C P Navathe, B S Narayan, J A Chakera and R A Joshi, *ibid*.
21. "Dual band multiline operation of a TEA CO<sub>2</sub> laser with intracavity Fabry-Perot etalons", B Jain, M M Nagarkar and P K Gupta, *ibid*.
22. "Histological changes in the integument of albino rabbit following N<sub>2</sub> laser irradiation", A Sharma, P K Gupta, S Agnihotri and S Sachdeva, *ibid*.
23. "Crystal growth and characterization of nonlinear optical mixed system of KH<sub>2</sub>PO<sub>4</sub> with H<sub>3</sub>BO<sub>3</sub>", U N Roy, G Dhanaraj, V S Tiwari and V K Wadhawan, *ibid*.
24. "Development of sealed-off spark gap", S S Marhas and S Kher, *ibid*.
25. "Development of fluorescence enhancement solution for determination of Eu(III) - An application for time resolved fluoroimmunoassay", Sanjay Kher, P K Srivastava and A G Bhujle, *ibid*.
26. "A N<sub>2</sub> laser for treatment of pulmonary tuberculosis", B N Singh, N Vyas, A G Bhujle and D D Bhawalkar, *ibid*.
27. "Power supply for variable pulse width Nd:YAG laser system", R Arya, R Prabhu and A G Bhujle, *ibid*.
28. "Divergence asymmetry in unstable resonators for high gain pulsed laser", S K Dixit, S V Nakhe, P Saxena, P Shukla, B Singh, J K Mittal and R Bhatnagar, *ibid*.
29. "Single axial mode dye laser with a novel resonator", S K Dixit, R Khare, S R Daulatabad and R Bhatnagar, *ibid*.
30. "Design of a demountable dye cell for high average power", S R Daulatabad, R Khare, S Chatterjee and R Bhatnagar, *ibid*.
31. "Image processing techniques in beam diagnostics", A K Gupta, Alpna Rajan and A Banerji, SAINR-93 National Symposium on Advanced Instrumentation for Nuclear Research, BARC, Bombay, Jan. 27-29, 1993
32. "Integrated centralized database for information management of an organization", A Rawat, S M Krishnan and Alka Shukla, BIG-93 (Business Industry Group), Udaipur, April 18-20, 1993.
33. "Conceptual design of mirror movement mechanism for proposed synchrotron radiation beam line on IND JS-1", A Verma, K J S Sawhney and R V Nandedkar, Proc. DAE Solid State Phys.Symp.35C 89 (1992).
34. "Vacuum system issues of AIGO Gravitational Wave detector", A S Raja Rao, Discussion Meet at Workshop on New Technology for Gravitational Astronomy, Perth, University of Western Australia, April 26-29, 1993.

## OTHER ACTIVITIES / NEWS

### सामाजिक जीवन के परिष्कार में लेसर प्रयोग में लाया जाए

सामाजिक जीवन के परिष्कार में लेसर विषय पर एक हिन्दी में संगोष्ठी का आयोजन दि. 20 मार्च 1993 को प्रगत प्रौद्योगिकी केंद्र में किया गया। इस केंद्र में हिंदी में आयोजित इस चौथी विज्ञान संगोष्ठी की अध्यक्षता केंद्र निदेशक डॉ.दि.दे.भवालकर ने की।

गोष्ठी का उद्घाटन डॉ. उमराव सिंह चौधरी, कुलपति, देवी अहिल्या विश्वविद्यालय ने किया। उन्होंने अपने उद्घाटन भाषण में गोष्ठी को संबोधित करते हुए कहा कि वैज्ञानिकों का कार्य केवल सत्य का अन्वेषण करना ही नहीं है अपितु यह भी है कि अवधारित सत्य जन-साधारण तक पहुँचे व उसका उपयोग समाज कल्याण में हो। इसके लिए यह नितांत आवश्यक है कि अनुसंधानकर्ता, जन-साधारण एवं उपयोगकर्ताओं के बीच सशक्त और प्रभावी संप्रेषण हो। डॉ. चौधरी का मत था कि यह संप्रेषण हिंदी के माध्यम से ही संभव है और इसलिए विज्ञान के क्षेत्र में हिंदी का प्रयोग हमारे समाज की एक महती आवश्यकता है। हिंदी के द्वारा ही विज्ञान को जनमानस के निकट लाया जा सकता है व शहरी व ग्रामीण जीवन के अंतर की खाई कम की जा सकती है। इस अवसर पर उन्होंने प्रगत प्रौद्योगिकी केंद्र

द्वारा वैज्ञानिक कार्यों में हिन्दी का प्रयोग बढ़ाने की पहल की सराहना की। इस गोष्ठी के तीन तकनीकी सत्रों में विशेषज्ञों द्वारा लेसर पर व्याख्यान दिए गए।



(दाएँ से बाएँ) संगोष्ठी के अवसर पर चित्र में डॉ.दि.दे.भवालकर (निदेशक) मुख्य अतिथि डॉ. उमराव सिंह चौधरी, कुलपति, देवी अहिल्या विश्व-विद्यालय, श्री सत्यनारायण व्यास, अध्यक्ष, राजभाषा कार्यान्वयन समिति एवं श्री सुनील सरवाही, सचिव, राजभाषा कार्यान्वयन समिति।