

on the tolerances of the optical elements and of the mechanical assemblies were determined.

By performing all these design calculations a reasonable idea has been obtained about the characteristics of the beam, in respect of resolution, photon flux and spot size, which will be available for the users from this

beamline. Such studies enable experimenters to plan their experiments in detail.

R V Nandedkar and K J S Sawhney

PUBLICATIONS

In Journals

1. "Specular reflection as a probe for diagnostics of laser-produced plasmas", T Desai, H C Pant, M Khan, S Sarkar and B Chakraborty, *J. Plasma Phys.* **51**, 211 (1994).
2. "Simple probes and attenuators for measurement of high voltage sub nanosecond pulses", V N Rai and Mayank Shukla, *Meas. Sci. Technol.* **5**, 1396 (1994).
3. "A data acquisition system for a high-power Nd:Glass laser chain", C P Navathe and M S Ansari, *Meas. Sci. Technol.* **5**, 883 (1994).
4. "Gain enhancement in Nd:glass laser amplifier using electro-polished aluminium reflectors", A Chowdhury, P A Naik, S R Kumbhare, J A Chakera and P D Gupta; *Optics and Laser Technology* **26**, 413 (1994).
5. "Low pressure 50 mJ KrF laser", P Bhatnagar, B Singh and U Nundy, *Optical Engineering*, **33**, 1905 (1994).
6. "High resolution spectroscopy and identification of optically pumped far infrared laser lines of Methanol-D₁", I Mukhopadhyay, *Optics Communications* **110**, 303 (1994).
7. "Assignments and predictions of optically pumped far infrared laser lines in C-13 methanol and associated high resolution spectra", I Mukhopadhyay, *Journal of Molecular Spectroscopy* **166**, 107 (1994).
8. "Determination of the dipole moment of ¹³C methanol by microwave Stark Spectroscopy", K V L N Sastry, J Vanderlind, D Donovan, I Mukhopadhyay and P K Gupta, *Journal of Molecular Spectroscopy* **168**, 374 (1994).
9. "Platinum - Carbon multilayer reflectors for soft x-ray optics", G S Lodha, K Yamashita, T Suzuki, I Hattukade, K Tamura, T Ishigami, S Takahama and Y Namba, *Applied Optics* **33**, 5869 (1994).
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11. "A density-functional method for calculating atomic polarizabilities: Application to negative ions", Manoj K Harbola, *Int. J. Quantum Chemistry* **51**, 201 (1994).
12. "Electronic structure of small metal particles within the local-density approximation", Manoj K Harbola, *Indian J. Pure and Applied Physics* **32**, 624 (1994).
13. "Magnetic properties of polycrystalline UNi₂Ge₂: irreversibility and metastable behaviour", S B Roy, A K Pradhan and P Chaddah, *J. Phys. Condensed Matter* **6**, 5155 (1994).
14. "Study of magnetic relaxation in the C15 superconductor CeRu₂", S B Roy, A K Pradhan and P Chaddah, *Supercond. Sci. Technol.* **7**, 602 (1994).
15. "Magnetization studies in YNi₂B₂C", S B Roy, Z Husain, A K Pradhan, Chandan Majumdar, P Chaddah, R Nagarajan, C Goddard and L C Gupta *Physica C* **228**, 319 (1994).
16. "Anomalous magnetization of superconducting CeRu₂", S B Roy and B R Coles, *J. Phys. Condensed Matter* **6**, L663 (1994).
17. "Linear and nonlinear ac susceptibility of the canted-spin system: Ce(Fe_{0.96}Al_{0.04})₂", S Mukherjee, R Ranganathan and S B Roy, *Phys. Rev. B* **50**, 1084 (1994).
18. "Magnetoresistance measurements in Ce(Fe_{0.92}Al_{0.08})₂", S Radha, S B Roy, A K Nigam and G Chandra, *Phys. Rev. B* **50**, 6866 (1994).
19. "Fluctuation phenomena in excess conductivity and magnetization of single crystal Bi₂Sr₂CaCu₂O_{8+y}", A K Pradhan, S B Roy, P Chaddah, C Chen and B M Wanklyn, *Phys. Rev. B* **50**, 7180 (1994).
20. "Magnetic anomaly in Pb₂Sr₂Y_{1-x}Ca_xCu₃O_{8+y} single crystal", A K Pradhan, P Chaddah, S B Roy and C Changkang, *Superconductor Science & Tech.* **7**, 372 (1994).
21. "Mutually perpendicular magnetic fields parallel to a slab: a test case for the critical state model", K V Bhagwat, S V Nair and P Chaddah, *Physica C* **227**, 176 (1994).
22. "Granularity effects in the ac magnetisation of ceramic superconductors", P Chaddah, S B Roy, S Kumar, A K Pradhan, R Prasad and N C Soni, *Ind. J. Pure and Appl. Phys.* **32**, 541 (1994).
23. "Anomalous low field magnetic properties of single crystal BSCCO", A K Pradhan, S B Roy, P Chaddah, C Chen and B M Wanklyn, *Physica C* **235-240**, 1947 (1994).

24. "Study of minor hysteresis loops and harmonic generation in granular samples of BSCCO", S B Roy, S Kumar, A K Pradhan, P Chaddah, R Prasad, N C Soni and K Adhikari, *Physica C* **235-240**, 3193 (1994).

Papers in Conferences / Symposia

1. "Influence of imperfections and misalignment of optical elements on the performance of a TGM based beam line of Indus-1", K J Sawhney and R V Nandedkar, Int Conf on Synchrotron Radiation SR-90 Novosibirsk July 1994.
2. "Status of Indus-1", S S Ramamurthi, *ibid*.
3. "Structure property relationships for nonlinear optical response of fullerenes", K C Rustagi, L M Ramaniah and S V Nair, invited talk, SPIE Conference on Fullereness and Photonics, San Diego, USA; Proc. SPIE **2284**, 90 (1994).
4. "Optical limiting in C₆₀ and C₇₀ solutions", S R Mishra, H S Rawat, M P Joshi, S C Mehendale and K C Rustagi, *ibid*; Proc. SPIE **2284**, 220 (1994).
5. "Vacuum System Design and Applications", A S Raja Rao, invited talk IVS-HHV Workshop on Vacuum Science and Tech., I I Sc, Bangalore, Aug 22-27, 1994.
6. "Production of Vacuum in Metallurgical Applications", A S Raja Rao, IVS-IIM Seminar on Vacuum Metallurgy, Baroda, Dec 10, 1994.
7. "Effect of self-generated magnetic field on filamentation instability in laser produced plasmas", M Asthana, H C Pant and T Desai, Plasma Science symposium, Guwahati, Nov 14 - 17, 1994.
8. "A study of x-ray emission from ultrashort laser produced plasmas", V N Rai, Y B S R Prasad, M Shukla and H C Pant *ibid*.
9. "Study of laser induced ablation pressure using planar targets", V N Rai, T Desai, Y B S R Prasad, M Shukla and H C Pant *ibid*.
10. "An experimental and numerical study of laser-induced ablation pressure on gold coated and bare aluminium targets", N K Gupta, T Desai, V K Senecha, Y B S R Prasad, T Desai and H C Pant *ibid*.
11. "Application of intense laser-target interaction", H C Pant, invited talk *ibid*.
12. "Numerical code calculations of x-ray conversion in laser-produced plasmas", V K Senecha, N K Gupta, Y B S R Prasad, T Desai and H C Pant *ibid*.
13. "Time and space resolved diagnostics of x-ray emission from ultrashort laser produced plasmas", V N Rai, invited talk *ibid*.
14. "Hot electron generation and their application in target ablation", H C Pant, invited talk at the Workshop on long wavelength laser interaction with plasmas, Jadavpur University Nov 10-12, 1994.
15. "Numerical codes for laser irradiated target hydrodynamics studies", V K Senecha, invited talk, *ibid*.
16. "Energy transport and target ablation in long wavelength laser-target interaction", T Desai, invited talk, *ibid*.
17. "High power pulsed CO₂ laser technology-fabrication/diagnostics", U Nundy, invited talk, *ibid*.
18. "A laser pulse slicer based on high voltage avalanche transistors switch", J A Chakera, P A Naik, S R Kumbhare, A Chowdhury and P D Gupta, Proceedings of the International Conference on Emerging Optoelectronics Technologies, p 363, Bangalore, July 1994.
19. "High resolution Torsion rotation far infrared spectra of C-13 methanol", I Mukhopadhyay and R M Lees, Proc. Third International Conf. on Millimeter Wave and Far Infrared Science and Tech., p 96, ed. G M Tucker, Guanghou, China, August 22-26 (1994).
20. "Magnetic relaxation in single crystal CeRu₂", S B Roy, A K Pradhan, P Chaddah and A K Huxley, at the DAE Solid State Physics Symp., Jaipur, Dec. 27-31, 1994.
21. Thermally induced structural modification in Platinum-carbon x-ray multilayers G S Lodha, Suneel Pandita, Ajay Gupta, R V Nandedkar and K Yamashita, *ibid*.
22. Characterisation of thin metallic films and multilayers using grazing incidence X-ray diffractometer, Suneel Pandita, Ajay Gupta, G S Lodha, V M Raffee and R V Nandedkar, *ibid*.
23. "Generation of coherent structures in laser produced non uniform plasmas", H C Pant, Proceedings of workshop on quantum like models and coherent effects, Erice - Sicily (Italy), June 13-20, 1994.

OTHER ACTIVITIES / NEWS

Annual function of CAT Staff Club

The CAT Staff Club organised its annual cultural and prize distribution function on Sept 30, 1994. Shri Vishnu Chinchalkar, noted artist was the Chief Guest. Shri A S Raja Rao, President, CAT Staff Club welcomed the gather-

ing and Dr D D Bhawalkar, Director, CAT presided over the function. Shri A S Joshi, Secretary of the club presented the annual report. Prizes were also distributed for the various cultural and sports competitions organised by the club, for the staff and their families, during the past year. A