

lasers viz. laser material processing, optical communication, laser applications in chemical processes and electronic industry, laser NDT and laser metrology were covered in detail by nine experts. A much appreciated feature of the seminar was the presentation by senior engineers from several industries (HMT, Bangalore; Pacetronix, Indore; Philips India, Pune; Fine Laser Cut, Pune; Gajra Gears, Indore and TTC Laser Machine (P

Ltd., Delhi) who are already using lasers in their manufacturing units. They described their experience of using lasers under Indian industrial conditions. Dr D D Bhawalkar, President, ILA inaugurated the seminar and in his inaugural address described the various activities of Indian Laser Association and the laser programme at CAT. Dr A K Nath, CAT was the convener of the Seminar.

PUBLICATIONS

Book Contributions

1. "Transformation twinning and related phenomena", V K Wadhawan and C Boulesteix, Chapter 2 in the book "Diffusionless Phase Transitions and Related Structures in Oxides", ed. C Boulesteix, Trans Tech Publications, Zurich (1992).

In Journals

1. "Superconducting thick films from combined heat treatment of mixtures of Y-Ba-Cu-O and Bi-Pb-Sr-Ca-Cu-O", J Marfaing, Y Wang, V K Wadhawan, C Boulesteix, J P Sorbier and P Odier, *J Crystal Growth*, 118, 27 (1992).
2. "History effect in harmonic generation in sintered pellets of YBaCuO", S Kumar, S B Roy, P Chaddah, R Prasad and N C Sani, *Physica C*, 191, 450 (1992).
3. "Design and operation characteristics of a high power transverse flow pulser sustained CW CO₂ laser", A K Nath, L Abhinandan, P Chowdhary and M Kumar, *Pramana - J Phys.*, 38, 379 (1992).
4. "Comment on Valence - Band Photoemission from a Quantum - Dot System", S V Nair, L M Ramaniah and K C Rustagi, *Phys. Rev. Lett.*, 68, 898 (1992).
5. "Electron states in a Quantum Dot, in an effective bond orbital model", S V Nair, L M Ramaniah and K C Rustagi, *Phys. Rev. B*, 45, 5969 (1992).

Internal Reports

1. "Design considerations of Metrology beam line on Indus-I", R V Nandedkar, K J S Sawhney, G S Lodha, CAT/I/92-1.
2. "Image processing in beam diagnostics", A K Gupta, A Rajan, A Banerji, M Ingale, CAT/I/92-2.

Contributed Papers in Conferences/Symposia

1. "Design features of Indus-II", G Singh, G K Sahoo, A D Ghodke and S S Ramamurthi, Int. Conf. on Synchrotron Radiation Sources, CAT, Indore, Feb. 3-6, 1992.

2. "Compound multipole magnets for Indus-I", S P Mhaskar, R K Mishra and V Tomar, *ibid.*
3. "Synchrotron magnet fabrication technique", S S Prabhu, A M Puntambekar, K A Hussain, K Sreeramulu and S S Ramamurthi, *ibid.*
4. "Power supply for 700 MeV booster ring dipole and quadrupole magnets", A P Thipse, S Kotaiah and S S Ramamurthi, *ibid.*
5. "Radio frequency system for the booster synchrotron and Indus-I", S A Pandey, M Lad, P R Hannurkar and S S Ramamurthi, *ibid.*
6. "Microtron -Injector for booster synchrotron of SR facility", H C Soni and S S Ramamurthi, *ibid.*
7. "Beam diagnostic system of Indus-I accelerator system", Anil Banerji, *ibid.*
8. "Accelerator technology development", S S Ramamurthi, M G Karmarkar, S Kotaiah, S C Joshi, L N Pathak, P Srivastav, R S Shinde and S N Joshi, *ibid.*
9. "Control system for Indus-I design and status", B J Vaidya, J S Adhikari, D N Shukla, P Fatnani and K Bärpande, *ibid.*
10. "Dynamic aperture of Indus-I", G K Sahoo, G Singh and S S Ramamurthi, *ibid.*
11. "Injection into Indus-I", B Singh, G Singh and S S Ramamurthi, *ibid.*
12. "Ion trapping studies for Indus-I", D Angal, G Singh and S S Ramamurthi, *ibid.*
13. "The closed orbit distortion and its correction in Indus-I", A D Ghodke, G Singh and S S Ramamurthi, *ibid.*
14. "Design and field analysis of synchrotron dipole magnets", R K Mishra, S P Mhaskar, R S Shinde, S Kotaiah, Y R C Murthy and V Tomar, *ibid.*
15. "Design and fabrication of RF cavities for booster synchrotron and storage rings of SRS facility", H C Soni, J Dwivedi, A K Jain, H K Pathan, A S Rajarao and S S Ramamurthi, *ibid.*
16. "Beam viewer system for 450 MeV electron accelerator", R M Pandey and D K Joshi, *ibid.*

17. "Pulsed power supplies for injection and extraction of beam in Indus-I", Ved Prakash, S Kotaiah and S S Ramamurthi, *ibid.*
 18. "UHV system for synchrotron radiation source : Indus-I", S S Ramamurthi, M G Karmarkar and R J Patel, *ibid.*
 19. "Indus-I storage ring magnet fabrication", S S Prabhu, A M Puntambekar, J Singh, T Veerbhariah, V K Shreevastava and S S Ramamurthi, *ibid.*
 20. "The design of RF cavities and their HOM studies for Indus-I", S A Pande, M Prasad, P R Hannurkar, S S Marhas and S S Ramamurthi, *ibid.*
 21. "Building and services for Indus-I facility", S S Ramamurthi, M G Karmarkar, S C Joshi, P K Nema, M Pravin Kumar, A M Kekre and A E Nivsarkar, *ibid.*
 22. "Platinum carbon multilayer reflectors for soft x-ray optics", G S Lodha, K Yamashita, T Suzuki, I Hatsukade, M Ohtani, *ibid.*
 23. "Characterization of superconducting thick films of mixtures of Bi-Pb-Sr-Ca-Cu-O and Y-Ba-Cu-O", Y Wang, J Marfaing, C Boulesterix, V K Wadhawan, J P Sorbier and T Odier, TCSUH Workshop on HTS Materials, Bulk processing and Bulk Applications, Houston, USA, Feb.27-28, 1992.
 24. "Preparation and characterization of platinum carbon multilayers", K Yamashita, G S Lodha, T Suzuki, I Hatsukade, M Ohtani, Optical Society of America, Topical meeting on "Physics of X-ray multilayer structures", Jackson Hole, USA, March 2-5, 1992.
- Invited Lectures**
1. "Multilayer reflectors for soft X-ray optics", G S Lodha, National Symp. on X-ray Spectroscopy, Indore, Jan 10-12, 1992.
 2. "Some experiments using Indus-II", R V Nandedkar, *ibid.*
 3. "Accelerators for research, medicine and industry", S S Ramamurthi, Indo-Soviet meeting on microtrons, CAT, Indore, Jan 22-24, 1992.
 4. "Microtron development project at CAT", H C Soni, S S Ramamurthi, *ibid.*
 5. "Design and construction of microtrons for various applications", H C Soni, *ibid.*
 6. "Microwave system for microtrons", P Shrivastava, *ibid.*
 7. "Microtron magnet design", S P Mhaskar, *ibid.*
 8. "Beam diagnostics for microtron", A Banerji, *ibid.*
 9. "Beam transport and vacuum system", M G Karmarkar, *ibid.*
 10. "Control system for microtron", B J Vaidya, *ibid.*
 11. "Beam dynamics and shielding for microtron", M M Bemalkhedkar, *ibid.*
 12. "Microtron as injector for synchrotron", G Singh, *ibid.*
 13. "A grid pulsed triode electron gun for the Electron Linear Accelerator", L M Rangarajan, *ibid.*
 14. "Development of electron emitter for microtron", S S Marhas, *ibid.*
 15. "Fundamentals of Lasers, Laser Beams and Resonators", D D Bhawalkar, Third Training College on Physics and Technology of Lasers and Optical Fibers, ICTP, Italy, January 27 - 28, 1992.
 16. "High power lasers for fusion research", T P S Nathan and P D Gupta, Annual meeting of Indian Science congress, Baroda, Jan, 1992.
 17. "Lasers for Industrial Applications", A K Nath, National Seminar on Applications of Lasers in Industry and Medicine, Ahmedabad, Feb. 1, 1992.
 18. "Status of Indus-I and Indus II", S S Ramamurthi, Int. Conf. on Synchrotron Radiation Sources, CAT, Indore, Feb.3-6, 1992.
 19. "Beam lines on Indus-I", R V Nandedkar, *ibid.*
 20. "Design considerations of Metrology beam line on Indus-I", K J S Sawhney and R V Nandedkar, *ibid.*
 21. "Lasers for Industrial Applications (Gas Lasers)", A K. Nath, Seminar on 'Lasers in Industry', CAT, Indore, Feb. 22-23, 1992.
 22. "Lasers and their applications in biology and medicine", P K Gupta, 2 lectures at DAE workshop on "Flow cytometry of Eukaryotic cells", B A R C, Bombay, 24 Feb - 6 March, 1992.
 23. "Twinning and colour symmetry", V K Wadhawan, two lectures at Discussion Meeting on Crystallography in Metallurgy, DMRL Hyderabad, March 5-7, 1992.
 24. "Ferroic Materials - An update", V K Wadhawan, Indo-US Workshop on Perspectives in New Materials, New Delhi, March 23-24, 1992.
 25. "Development of Accelerators at CAT for medicine, industry and agriculture", H C Soni, S S Ramamurthi, Third INS Annual Conference on Nuclear Energy Programme - Achievements, Prospects in Medicine, Industry and Agriculture, BARC, Bombay, March 25-26, 1992.
 26. "Application of fused quartz/silica glass in research and industry", S S Marhas, Workshop on fused quartz/silica glass, BARC, March 26-27, 1992.
 27. "Synchrotron radiation sources Indus-I and Indus-II", G Singh, Institute for molecular Science, Okazaki and Institute for Nuclear study, University of Tokyo, Tanashi (Tokyo), Japan, April 19 and 25, 1992.
 28. "Lasers in the service of man", D D Bhawalkar, A talk broadcasted by All India Radio at 20.00 Hrs., April 21, 1992.
 29. "Soft X-ray lasers", P D Gupta, 2 Lectures at the SERC Summer School on Plasma Physics, IIT Delhi, May 11-27, 1992.