

## BOOKS AND BOOK-CHAPTERS PUBLISHED ,if.

### DEPARTMENT OF AERONAUTICAL ENGINEERING

1. Structural Design Optimization. Affiliated East-West Press Pvt. Ltd. New Delhi, 1997, N.G.R. Iyengar and S.K. Gupta.
2. Elements of Heat mass Transfer, New Age International Publishes, New Delhi (Single Author), 1996, Vijay Gupta.

### DEPARTMENT OF CHEMICAL ENGINEERING

1. Chemical Engineering Thennodynamics, Univesities Press; Hyderabad 1997 (Dr. **Y.V.C. Rao**).

### DEPARTMENT OF CHEMISTRY

1. Autocorrelation function and its unifying tole in structme and dynamics, in: Atomic and Molecular Physics, Ed. S.P. Khare, Deo Raj and A. Kumar, Bindra Publications, Ghaziabad, 1997.
- 1/N. Sathyamurthy, in: Modelling of cbmplex systems, ed. J.K. Bhattacharyya and A.K. Mallik, Narosa. New Delhi (1996), eh. 4.

### DEPAHTMENT OF CIVIL ENGINEERING

- 1.Fuzzy Sets & System s in HUMAN & MACHINE COGNITIO ~, Narosa Publishing House, New Delhi, (in press): P. Chakrob~my.
- 2.Raising of the Height of Dykes of Ash Pond, Design and Construction Aspects by Umesh Dayal, page 143-156, Residual Sediment Discharge Control in Ash Disposal Pond, by R. Sinha, D. Kumar, A. Singh and Umesh Dayal, page 187-195, Ash Ponds and A,sh Disposal System, April 1996, Narosa Publishing Co .. Edited by Raju, Datta, Seshadri, Agarwal and Kumar.
- 3.Stability of Structures, Allied Publishers, New Delhi (in press) Ashwini Kumar.
- 4.Rec lamation and Remediation of Landiflls, Chap. 15 in Waste Disposal in Engineered Landfills. edited by Manoj Datta, Narosa Publishing House, New Delhi, Feb. 1997, M.I~. Madhav.
- 5.Complex Seismic Behaviour of Buildings, Chapter 6, Modelling of Complex Systems, editors Bhattacharjee, J.K., and Mallik, A.K., Narosa Publishing House, London, 1997, pp. 241-302, Murty, C.V.R.

### DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

1. Terrorism in India' 1997, Ess Ess Publications, Darya Ganj, Hon'ble New Delhi, foreword by Justice SHA Raza, Omprakash, S.
- 2.Riots in India, a 1997, Kanishka Publication and Distributors New Delhi, foreword by Noted Journalist Mr. G.S. BhJrgava, Omprakash S.

3. The Knights Move (Eng. Trns. of Giriraj Kishore's Hindi Novel Dhairya Ghar, Winner, 1992 Sahitya Academy Award), Sahitya Academy, New Delhi, 1996, Sah, P.P.

4. From Breakdown to Bliss. Wasteland Themes in Bellow's More Die of Heart Break. In SOI Bellow and the Struggle at the Centre. Ed. Eugene Hollinger. Alfred A. Knopf Press, New York, 1991 Neelakantan G.

5. Distributive Justice in The Indian Perspective. In H.S.R. Kao and Sinha (Eds) Asian Perspectives on Psychology, 1997 Sage Publications, New Delhi/Thousand Oaks/London, Krishnan, 1

6. Gandhian Perspective on Population and Development, concept Publishing Co., New Delhi 1996, Sharma A.K.

7. Scope of Income Augmenting Employment schemes in our Economy; A Comparative Regional Analysis, in B. Mohanty (Ed.) "Employment Perspective in Rural India". APH Publication Corporation, New Delhi, 1997, pp.147-179, Ruth B.

#### DEPARTMENT OF MECHANICAL ENGINEERING

1. "Advanced Engineering Fluid Mechanics, Narosa, New Delhi and London (1996), K. Murlidhar and G. Biswas.

2. Modelling of Complex Systems. Narosa Publishing House, New Delhi, 1997, J.K. Bhattacharjee and A.K. Mallik.

#### DEPARTMENT OF INDUSTRIAL & MANAGEMENT ENGINEERING

1. APO Survey on Technology Transfer among APO member Countries (Country Report India), June 1996 in APO Report SUV-02-95. No, 2, Tokyo, 1997, Aurn P. Sinha.

#### DEPARTMENT OF PHYSICS

1. Monte Carlo Computation for Complex Systems, Narosa Publications, London, 1997, George C John and Vijay A Singh, Chapter 9 in "Complex Systems" ed. J K Bhattacharjee and A K Mullick.

2. Photo ablated Carbon Plasmas in Atomic, Molecular and Cluster Physics, pp 379, Narosa Publishing House, New Delhi, 1997, R K Thareja, Ed. S A Ahmad.

3. Pattern formation in Complex Fluids, in : Modelling of Complex Systems, Narosa, New Delhi, 1997, UTK Series, 303-328, Eds J K Bhattacharjee and A K Mallik.

#### RESEARCH PAPERS PUBLISHED IN JOURNALS AND CONFERENCE PROCEEDINGS

#### DEPARTMENT OF AEROSPACE ENGINEERING

1. A C" element for the free vibration Analysis of Laminated Composite Plates. J. of Sound & Vibration, 1996, Vol. 191, NO.5, 721-738, C.A. Shankara & N.G.R. Iyengar.

2. Visco-Plastic analysis of Adhesively bonded joints in Composite Materials, Adv. Composil Mater, 1997, Vo. 6. NO.2, 99-121, S.c. Pradhan, N.N. Kishore & N.G.R. Iyengar.
3. Experimental Collection of Mechanical Properties of Joints and Transverse Vibrations in PMM. beams J. of Applied Polymer Science, 1996 Vol 60, 343-352, S.Kamle, S.R. Upreti, V.K. Awasth M.P. Singh, N.G.R. Iyengar & A. Kumar.
- 4 "NDT of Adhesive Joints Using Transverse Waves", 14th World Conf. on NDT, New Dell Dec. 1996 Oxford & IBM Publishing Co., 799-802, S. Kamle, S. Upreti, N.G.R. Iyengar and Kumar.
- 5."Studies on Twin Non-parallel unventilated Axisymmetric Jets, JI of Aerospace Science IME, UK, 210 (1996), pp: 309-321, Elangovan S, Solaiappan A and Rathakrishnan E.
- 6."Studies on Twin Elliptic Jets,"The Aeronautical JI. Royal Aero. Soc. 100, No. 907 (1996) pp: 295-296, Elangovan S, Solaiappan A and Rathakrishnan E.
- 7.Studies on elliptic jet with passive controls", 1996, FED- Vol. 237, High Speed Flows (ASME) pp: 555-560.
8. "Simulation of Non-linear Relaxation of Density Differences in an Atmospheric Gas using a Lattice-Gas automata model proceedings' of 20th Inter. nat. Symposium on Space Technology and Sciences, Gifu, Japan 1996, Himanshu Agrawal, Srinivasan and Rathakrishnan E.
- 9.Flow and Acoustic Characteristics of Underexpanded Non-Circular Slot Jets," Proceedings of 20th Int. nat. Symp. on Space Tech. and Sci. Gifu, Japan (1996), Srinivasan K Elangovan and Rathakrishnan E.
- 10."Studies on Noise Level of Twin Elliptic Slot Jets," Proc. of NCABE 96, 1996, pp: 19-20 Elangovan S, Srinivasan K., Himanshu Agrawal and Rathakrishnan E.
- 11.Studies on Underexpanded Rectangular Jets, Proceedings of 48th AGM of Aero. Soc. India 1977 pp. 35-44, Srinivasan K and Rathakrishnan E.
- 12."Effects of Ribs on Suddenly Expanded Flows" Proc. of 48th AGM of Aero. Soc. India 1977, pp: 25-34, Rathakrishnan E.
- 13.Performance of Hybrid Conical Diffusers with distorted inlet conditions, The Ninth International Symposium on Transport Phenomena in Thermal Fluids Engineering, Singapore, June 25-28, 1996, pp: 548-553, R.K. Sullery and K.K. Tyagi.
- 14.Aerodynamics of Wind Energy: Power Generation and Ship Propulsion, Invited Lecture National Solar Energy Convention (NSEC 95), 22-23, Jan. 96, New Delhi (The Proceedings were published after April 1996).
- 15.Sectarian Nationalism, Religious Fundamentalism and Language, NEW QUEST, Published by Indian Association of Cultural Freedom, Pune, No. 116, March - April 1996.
- 16.Sectarian nationalism: Lenin, Bauer and Indian Polity, MAINSTREAM, Jan. 18, 1997, New Delhi.

17. Cascade Wind Turbines for the Oscillating Water Column Wave Energy Device - Part 1 Proc. of World Renewable Energy Congress IV, Vol. II, 15-21 June 96, Denver, USA
18. Cascade Wind Turbines for the Oscillating Water Column Wave Energy Device part 2, Proc World Renewable Energy Congress IV, Vol, III, 15-21, June 96, Denver, USA.
19. Separation Dynamics of Heat Shield Fairings", J. of Aerospace Engg., Proc. Institution of Mechanical Engineers, Vol. 211, Part G, 1997, pp. 67-80, R. Lochan, V. Adimurthy and K Kumar.
20. Turbulent Separating Flows over Rectangular Cavities", IE(1), AS, September 1996, pp 1-7, S.N. Sinha, AK. Gupta. and M.M. Oberai.
21. Vortex Scour Mechanism at Piers in Tandem Arrangement, IE(1) CV, Vol. 77, Feb. 1997, pp 218-223. M. Muzammil, T. Gangadhar and AK. Gupta.
22. "Flexure-Torsion problem of uniform beams: Sectional Properties and Shear Correction Factors" 11 of the Aero Society of India, Vol. 48, NO.2 May 1996, pp. 147-157, C. Venkatesan & Rajeev Loddar.
23. Structural dynamics of rotor blades with Precone-Pre-sweep- Pre-droop-Pre-twist and torque offset including hub motion," Proceedings of 48th AGM of Aero. Society of India 31 Jan. I, Feb. 1997, Trivandrum, PK. Gupta, Venkatesan. C., Onkar Sillgh.
24. Invited to attend the steering committee meeting of Advanced Light Helicopter, at New Delhi by HAL, Bangalore.
25. Initiated a discussion on the development of AFCS for Helicopter with HAL, Lucknow. (A proposal has been sent recently to HAL, Lucknow for control law design of AFCS).
26. NOT of adhesive joints using transverse waves, 14th World Conference on NOT, New Delhi. Dec. 1996, Oxford and IBM Publishing Co., pp. 799-802, S. Kamle, S. Upreti, NGR Iyengar and A Kumar.

## **DEPARTMENT OF CHEMICAL ENGINEERING**

1. Application of DOW's Fire and Explosion Index Hazard Classification Guide to Process Plants in the Developing Countries, J. Loss Prevention in Process Industries, Vol. 10 (1997), 715, J.P. Gupta.
2. Apolar, polar and electrostatic interactions of spherical particles in cylindrical pores, J. Colloid Interface Sci. 178, 383-399 (1996) Bhattacharjee S. and Sharma A.
3. Instability of thin polymer films on coated substrates: Rupture, dewetting and drop formation, J. Colloid Interface Sci. 178, 383-399 (1996). Sharma A and Reiter G.
4. A unified model for the osmotic pressure and gel-layer controlled flux decline during ultrafiltration, J. Membrane Sci. III, 243-252-1996. Bhattacharjee S., Bhattacharya P.K. and Sharma A.

5. Interaction energy of particles in porous media: A new Deryagin type approximation, *Langmuir* 12, 5498-5500 (1996). Bhattacharjee S. and Sharma A.
6. Estimation and influence of long-range solute-membrane interactions in ultrafiltration *Ind. Eng. Chem. Res.* 35, 3108-3121 (1996) Bhattacharjee S., Sharma A., and Bhattacharya P.K.
7. Nonlinear stability of microscopic polymer films with slippage, *Macromolecules*, 29, 6959-6961 (1996) sharma A. and Khanna R.
8. Pyrolysis of n-Heptane: Kinetics and Modeling, *J. Anal. & Appl. Pyrolysis*, 36, 103 (1996), Pant, K.K. and Kunzru, D.
9. Catalytic Pyrolysis of n-Heptane Kinetics and Modeling, *Ind. Eng. Chem. Res.* 1997 (in press), Pant, K.K. and Kunzru, D.
10. Potassium-containing Calcium Aluminate Catalysts for Pyrolysis of n-Heptane, *Applied Catalysis*, 1997 (in press), Kumar, V.A.; Pant, K.K. and Kunzru, D.
11. Pyrolysis of Methylcyclohexane I: Kinetics and Modeling, *Chemical Engg.* 1., 1997 (in press), Pant, K.K. and Kunzru, D.
12. Sugarcane - a cost-effective source of high fructose syrups, *Ind. Sci.*, 55, 490, 1996, S. Kumar and J.K. Gehlawat.
13. Sugarcane as a renewable energy crop, in "Biomass Energy Systems", Eds. P.R. Venkata and S.N. Srinivas, Tata Energy Research Institute, 1997, p. 464, J.K. Gehlawat.
14. Design of Bubble Column Reactor, *Indian Chemical Engineer*, 39(1), 1997, J.K. Gehlawat.
15. Effect of counter current and cocurrent flow of a gas and a liquid between two rotating disks on gas phase controlled absorption, in *Advances in Chemical Engineering*. Allied Publishers, New Delhi (1996), pp. 119-124. Eds. Y.B.G. Verma, Ch.D. Rao et al.
16. Formation and growth of holes in thin films, in *Advances in Chemical Engineering*, Allied Publishers, New Delhi (1996), pp. 137-142. Eds. Y.B.G. Verma, Ch.D. Rao et al.

#### DEPARTMENT OF CHEMISTRY

1. Tetrahedral Recognition of a Water Molecule by Heteroditopic Cryptands: X-ray Structural Studies O.K. Chand, K. Raghunathan, P.K. Bhadravaj and T.C.W. Mak *J. Org. Chem.*, 61 (1996), 1169.
2. Ni(II), Cu(II) and Zn(II) Cryptate-Enhanced Fluorescence of a Trianthrylcryptand: A Potential Molecular Photonic OR Operator, P. Ghosh, P.K. Bhadravaj, S. Mandai and S. Ghosh *J. Am. Chem. Soc.*, 118 (1996), 1553.
3. Cryptand-Based Metal-Free or Complexed Amphiphiles which Readily Forms Vesicles, P. Ghosh, T.K. Khan and P.K. Bhadravaj, *Chem. Commun.*, (1996), 189.

4. Synthesis of a Heteroditopic Cryptand Capable of Imposing a Distorted Coordination Geometry onto Cu(II): Crystal Structures of the Cryptand (L). [CuU(CN)(picrate) and Cu(L)(NCS)(picrate) and Spectroscopic Studies of the Cu(II) Complexes. D.K. Chand and P.K. Bhadravaj. *Inorg. Chem.*, 35, (1996), 3380.
5. Synthesis and Uses of Macrobicyclic Cryptands: From Complexation of Transition Ions to Molecular Devices. D.K. Chand, P. Ghosh, R. Shukla, S. Sengupta, G. Das, P. Bandyopadhyaya and P.K. Bhadravaj. *Proc. Ind. Acad. Sci. (Chem. Sci.)*, 28, (1996), 229.
6. Size Mismatch Between Two Tripodal Units: A New Synthetic Strategy for Tricyclic Cryptand, D.K. Chand and P.K. Bhadravaj, *Tetrahedron Lett.*, 37, (1996), 8443.
7. Synthesis and X-ray Structures of Mixed Ligand Salicylaldehyde Complexes of Mn(III), Fe(III) and Cu(II) Ions: Reactivity of the Mn(III) Complex Towards Primary Monoamines and Catalytic Epoxidation of Olefins by the Cu(II) Complex. G. Das, R. Shukla, S. Mandal, R. Singal and P. K. Bhadravaj. *Inorg. Chem.*, 36, (1997), 323.
8. Complexation Propensities of a Heteroditopic Cryptand Towards Cu(II) and Ni(II) Ions: X-ray Crystal Structures of the Cryptand L and its Ni(II) Cascade Complex [Ni(L)(Hp)(MeCN)(ClO<sub>4</sub>)(rHp).2MeCN]. P. Ghosh, S. Sengupta and P.K. Bhadravaj. *J. Chem. Soc. Dalton Trans.*, (1997), 935.
9. A Molecular Theory of Frequency and Wavevector Dependent Dynamic Response Functions of Electrolyte Solutions. A. Chandra, D. Jana and S. Bhanacharjee. *J. Chem. Phys.*, 104, (1996), 8662.
10. Dynamics of Ion Atmosphere Relaxation Around a Newly Created Dipolar Solute. A. Chandra. *J. Chem. Phys.*, 104, (1996), 1.
11. Electron Transfer Reactions in Electrolyte Solutions: Effects of Ion Atmosphere and Solvent Relaxation. A. Chandra. *J. Chem. Phys. Lett.*, 253, (1996), 56.
12. Dynamics of Electrolyte Solutions at Finite Wavevectors: Theoretical Results for Ions in a Molecular Solvent. K. Mahajan and A. Chandra. *J. Chem. Phys.*, 106, (1997), 2360.
13. New Lipophilic, Air-stable silane triols: First example of an x-ray crystal structure of a silanetriol with Si-N bonds. R. Murugavel, V. Chandrasekhar, A. Voigt, H.W. Roesky, H.G. Schmidt, M. Noltemeyer. *Organometallics*, 15, (1996), 5298.
14. Discrete silanetriols: Building blocks for three-dimensional siloxane networks. R. Murugavel, V. Chandrasekhar, H.W. Roesky. *Acc. Chem. Res.*, 29, (1996), 123.
15. Silanetriols derived from silanetriols: X-ray crystal structures of (2,4,6-trimethylphenyl)<sub>3</sub>Si(OSiMe<sub>2</sub>)(OH) and (2,4,6-trimethylphenyl)<sub>3</sub>Si(OSiMe<sub>2</sub>R)(OH)<sub>2</sub> [R = CH<sub>2</sub>(2-NH<sub>2</sub>-3,5-Me<sub>2</sub>C<sub>6</sub>H<sub>3</sub>)] R. Murugavel, A. Voigt, Y. Chandrasekhar, H.W. Roesky, H.G. Schmidt, M. Noltemeyer. *Chem. Ber.*, 129, (1996), 391.
16. Cyclic and polyhedral aluminosiloxanes with Al<sub>2</sub>Si<sub>4</sub> and Al-Si<sub>4</sub>O<sub>12</sub> frameworks: X-ray crystal structures of [(2,4,6-MP)(H<sub>2</sub>N(SiMP))Si(OAlBu-i)(OAl(Bi-i))<sub>2</sub>] and [(2,6-Me<sub>2</sub>C<sub>6</sub>H<sub>3</sub>)N(SiMP))Si<sub>3</sub>Al<sub>4</sub>HP<sub>2</sub>J<sub>4</sub>Y. Chandrasekhar, R. Murugavel, A. Voigt, H.W. Roesky, H.G. Schmidt, M. Noltemeyer. *Organometallics*, 15 (1996), 918.

17. Facile and rational route for high-yield synthesis of titanasiloxanes from aminosilane triols A. Voigt, R. Murugesvel, V. Chandrasekhar, N. Winkhojer, H.W. Roesky, H-G. Schmidt, J. Ugon *Organometallics*, 15 (1996), 1610.
18. Platinum(IV) and palladium(II) complexes of tetrakis(pyrazolyl) cyclotriphosphazenes K.R. Justin Thomas, V. Chandrasekhar, P. Zanello, F. Laschi *Polyhedron*, 16, (1997), 1003.
19. Copolymerization of 2-(4'-vinyl)-4-biphenyloxy pentachlorocyclophosphazene with acrylate and methacrylate. monomer 1. Immanuel Selvaraj and V. Chandrasekhar *Polymer*, 38, (1997), 3617.
20. Synthesis and Properties of 2,3,7,8,11, 12,17,18-Octakis (methylthio) porphyrin (OMTP) K. Suguira, M. Ravikumar, T.K. Chandrasekhar and Y. Sakata *Chemistry Letters*, (1997), 291.
21. Improved Synthesis of meta-substituted 21-oxa and 21-thiatetraphenyl porphyrins A. Srinivasan, B. Sridevi, M.Y. Reddy, S.J. Narayanan and T.K. Chandrasekhar *Tetrahedron Letters*, (1997), 4149.
22. Bromo(N,N-dibutyl-N'-phenyl thiourea-S) bis(triphenylphosphine-P) Copper(I), [Cu(PPh)<sub>2</sub>(dbptH)Br] S.K. Dikshil and Ramsharan Singh *Acta Cryst.*, C52 (1996) 635.
23. Protonation Reactions of a Few Benzimidazoles in Non-ionic Micelles: Tweens S.K. Saha and S.K. Dogra *Indian J. Chem.*, 35A (1996), 734.
24. Spectral Characteristics of 2-(2'-aminophenyl) benzimidazole in beta-Cyclodextrin S. Santra and S.K. Ogra *J. Photochem Photobiol.*, 101 (1996), 221.
15. Solvation Chromism and Prototropic Reactions of 2-quinoxalinone S. Santra and S.K. Ogra *Chem. Phys*, 207 (1996), 103.
26. Excited State Proton Transfer Reactions in 2-(2'-hydroxy phenyl) benzimidazole in Micellar Solutions S.K. Oas and S.K. Dogra *Bull. Chem. Soc. Jpn.*, 70 (1997), 307.
27. Thermal decomposition of hexahydrated iron(III)-Citrate N.S. Gajbhiye and Seema Prasad *Chimica Acta*, 285, (1996), 325.
28. Magnetic properties of single domain Fe<sub>3</sub>N synthesized by Panda and N.S. Gajbhiye *J. Appl. Phys*, 8t, (1997), 335.
29. Homolytic displacement at carbon in organocobaloximes part 9 Reactions of organocobaloximes with thiophene-2-sulfonyl-chloride B.D. Gupta and I. Das *Ind. J. Chem.*, 35A, (1996), 1111.
30. Regioselective synthesis of substituted 1-methyl- and 2-methylnaphthalenes, K. Mallik Yadav, A. Xolohanta, H. Ila and H. Junjappa *Tetrahedron*, 52, (1996), 14049.
31. An expedient new synthesis of substituted carbazoles via alpha-oxoketene acetals through heteroaromatic annelation methodology P.K. Patra, J.R. Suresh, H. Ila and H. Junjappa *Tetrahedron Lett.*, 38, (1997), 3119.

32. Trimethyl borate induced thermal cycloaromatization of 1-aryl-1-prop-2-ynyl)-3,3-bis (alkylthio)-2-propen-1-ols through acetylene Cope rearrangement A.K. Gupta, S.K. Samal, H. Tla and H. Junjappa Tetrahedron Lett., **0996**. 37, 2817.
33. Synthesis and Lewis acid assisted rearrangement of novel donor-acceptor substituted cyclopropanes: Highly stereoselective [4+1] annulation approach to substituted and spirocyclopentene derivatives J. Satyanarayana, M.V.B. Rao, H. Ila and H. Junjappa Tetrahedron Lett., 37, (1996), 3565.
34. Direct synthesis of 2-(cycloalkyl amino)-3,4-substituted thiophene via selective deprotonation-cyclization of acyl ketene N,S-acetals (Synth.) K.R. Reddy, M.V.B. Rao, H. Ila and H. Junjappa Comm., 3597 (1996).
35. Highly regio- and stereoselective stepwise reduction of alpha-oxoketene dithioacetals with Zn/TMEDNEtOH K. Mallik Yadav, J.R. Suresh, B. Patro, H. Ila and H. Junjappa Tetrahedron, 52, (1996), 4679.
36. Chemoselective conjugate A-reduction of alpha-oxoketene dithioacetals with Zn in acetic acid: Synthesis of beta-oxodithioacetals Ch. Srinivasa Rao, B. Palli, E. Ila and Junjappa Indian J. Chem., 35B, (1996), 57-59.
37. Cobalt catalyzed Multiple component condensation reaction to beta-amido carbonyl compound libraries M. Mukhopadhyay, B. Bhatia and J. Iqbal Tetrahedron Lett., 38 (1997), 1083.
38. Cobalt(II) porphyrin: A versatile catalyst for the oxidation of organic substrates with dioxygen ..... and 2-methylpropanal A.K. Mandai, V. Khanna and J. Iqbal Tetrahedron Lett., 37 (1996), 3769.
39. A one pot cobalt catalyzed regio and stereo selective synthesis of oxalodithiones from alkene and trimethylsilylthiocyanate S. Rajesh, M. Madhavi Reddy and J. Iqbal Tetrahedron Lett., 37 (1996), 7315.
40. Cobalt(II) Schiff base catalyzed biomimetic oxidation of organic substrates with dioxygen T. Punniyamurthy, M.M. Reddy, S.S. Kalfa and J. Iqbal Pure & Appl. Chem., 38 (1996), 619.
41. A cobalt catalyzed protocol for the synthesis of substituted beta-phenylisoserine derivatives B. Bhatia, S. Jain, Asit De, I. Bagchi and J. Iqbal Tetrahedron Lett., 37 (1996), 7311.
42. Polyaniline supported Co(II) catalyst: Oxidation of alkenes with molecular oxygen B.C. Das and J. Iqbal Tetrahedron Lett., 38 (1997), 1235.
43. An efficient oxidation of sulfides to sulfones using 2-methylpropanal and dioxygen V. Khanna, G.C. Maikap and J. Iqbal Tetrahedron Lett., 37 (1996), 3367.
44. Co(III) DMG catalyzed synthesis of allyl amides from allyl alcohol and acetonitrile M. Mukhopadhyay and J. Iqbal J. Org. Chem., 62 (1997), 18-13.
45. A versatile cobalt(II)-Schiff base catalyzed oxidation of organic substrates with dioxygen: Scope and mechanism T. Punniyamurthy, M.M. Reddy, G.C. Maikap and J. Iqbal Tetrahedron, 53 (1997), 7641.



46. Samarium diiodide: A mild and selective reagent in organic synthesis Faiz Ahmed Khan and Reinhold Zimmer *J. Prakt. Chem.*, 339,(1997), 101.
47. Conformations and vibrations of dicarboxylic acid - an ab initio study P. Tarakeshwar and S. Manogaran *J. Mol. Struct. (Theochem)*, 362, (1996), 77.
48. Vibrational frequencies of prolone and hydroxyproline - an ab initio study P. Tarakeshwar and S. Manogaran *J. Mol. Struct (Theochem)*, 365 (1996), 167.
49. Free field and assignment of vibrational spectrum of anthracene - a screened prediction D. Chakraborty, R. Ambashta and S. Manogaran *J. Phys. Chem.*, 100 (1996), 13693.
50. Highly stabilized low-spin iron(II) and cobalt(III) complexes of a tridentate bis-amide ligand 2,6-bis(N-phenyl carbonyl)pyridine. Novel nonmacrocyclic tetraamido-N coordination and two unusually short metal-pyridine bonds M. Ray, D. Ghosh, Z. Shirin and R.N. Mukherjee *Inorganic Chemistry*, 36, (1997), in press.
51. Binuclear iron, manganese and copper centres in biology: Synthetic analogue approach R.N. Mukherjee *Current Science*, 72 (1997), 802.
52. Sunlight- induced synthesis of tricarbonylhexahaptobuckminsterfullerene Subrata Roy and Sabyasachi Sarkar *Proc, Indian Acad. Sci. (Chem. Sci.)*, 108 (1996), 59-64.
53. Inhibition patterns of a model complex mimicking the reductive half reaction of sulphite oxidase Pradeep K. Choudhury, Samar K. Das and Sabyasachi Sarkar *Biochem. J.*, 319, (1996), 953.
- +
54. Quantum chaos in collinear (He,  $\sim$ ) collisions S. Mahapatra, R. Ramaswamy and N. Sathyamurthy *J. Chem. Phys.*, 104(1996),3989.
55. Collinear (He, HD<sup>+</sup>) and (He,DH<sup>+</sup>) collisions: transition state resonances and dynamics by time-dependent quantal wave packet approach S. Mahapatra and N. Sathyamurthy *J. Chem. Phys.*, 105 (1996) 10934.
56. Possibility of proton oscillations through the benzene ring R.S. Shresth, R. Manickavasagam, S. Mahapatra and N. Sathyamurthy *Current Sci.*, 71, (1996), 49.
57. Resonance enhancement in the continuum Raman spectrum of HI N. Chakrabarti, C. Kalyanaraman and N. Sathyamurthy *Chem. Phys. Letters*, 267 (1997),31-36.
58. Time-dependent quantum mechanism approach to reactive scattering and related processes N. Balakrishnan, C. Kalyanaraman and N. Sathyamurthy *Physics Reports*, 280, (1997), 79.
59. Negative imaginary potentials in time-dependent quantum molecular scattering S. Mahapatra and N. Sathyamurthy *J. Chem. Soc. Faraday Trans.*, 93 (1997), 773.
60. Resonances and chaos in the collinear collision system (He, H<sup>+</sup>) and its isotopic variants S. Mahapatra, N. Sathyamurthy and R. Ramaswamy *Pramana*, 47 (1997),411.
61. Zeolite (H-ZSM-5) catalysed regioselective isomerisation of glycidic esters to alpha-hydroxy-beta,gamma-unsaturated esters M.V. Ram Reddy, S.V. Pitre, I. Bhattacharya and Y.D.Vankar *Synlett.*, (1996), 241. .

62. Synthesis of chiral vinylic epoxides and alpha-hydroxy-beta-gamma-unsaturated esters via (-)-menthol based auxiliary and enzymatic resolution respectively Y.D. Vankar, I. Bhattacharya and Y.D. Vankar *Tetrahedron: Asymmetry*, 7, (1996), 1683.
63. Zeolite (H-ZSM-5) catalysed reduction of conjugated nitroalkenes with sodium cyanoborohydride A. Gupta, A. Haque and Y.D. Vankar *J. Chem. Soc. Chem. Commun.* (1996) 1653.
64. Palladium catalysed conversion of vinyl bromoalkenes into corresponding vinyl aldehydes (or ketones) and oxidation of secondary alcohols to ketones S.V. Pitre, P.S. Vankar and Y.D. Vankar *Tetrahedron*, 52, (1996), 12291.
65. Acetoxy-selenation of olefins with selenium dioxide-acetic anhydride reagent system S.V. Pitre, M.V. Ram Reddy, Y. D. Vankar and K.P. Madhusudan *Synth. Commun.*, 27 (1997), 267.
66. Chlorotrimethylsilane catalysed acylation of alcohols I. Kumaresan, A. Gupta and Y.D. Vankar *Synth. Commun.*, (1997), 277.
67. A mild method for the cleavage of tert-butyl dimethylsilyl and tetrahydropyranyl ethers by ceric ammonium nitrate A. Datta Gupta, R. Singh and V.K. Singh *Synth. Commun.*, (1996), 69.
68. Facile bromination of O-benzylidene sugars and THP ethers with NBS in chloroform in the presence of AIBN S. Raina, K.K. Srivastava, E. Sampath Kumar and V.K. Singh *Synth. Commun.* (26) (1996), 121.
69. Catalytic enantioselective allylic oxidation of olefins with copper complexes of chiral nonracemic bis(oxazolyl)pyridine type ligands A. Dana Gupta and V.K. Singh *Tetrahedron Lett.*, 37 (1996), 2633.
70. Asymmetric synthesis of 5-hexadecanolide, Pheromone of the queen of the oriental hornet *Vespa orientalis* S. Raina and V.K. Singh *Tetrahedron*, 52 (1996), 479.
71. Design, synthesis and application of chiral nonracemic lithium amide bases in enantioselective deprotonation of epoxides D. Blumnia, A. Datta Gupta and V.K. Singh *J. Org. Chem.*, 61 (1996) 6108.
72. Cu(OTf)<sub>2</sub>-DBN/DBU complex as an efficient catalyst for allylic oxidation of olefins with tert-butyl perbenzoate G. Sekar, A. Datta Gupta and V.K. Singh *Tetrahedron Lett.*, 37 (1996), 835.
73. The antioplastic bellaviosin: An ab initio study S. Yadav and V.K. Singh *J. Mol. Structure (Theochem)*, 389 (1997), 191.
74. Rearrangement of epoxides with lithium dialkylamide-lithium tert-butoxide P. Saravanan, A. Datta Gupta, D. Bhuniya and V.K. Singh *Tetrahedron*, 53 (1997), 1855.
75. Catalytic enantioselective cyclopropanation of olefin using carbene chemistry Y.K. Singh, A. Datta Gupta and G. Sekar *Synthesis*, (1997), 137.
76. A practical synthesis of (2R, 5R)-Hexanediol *J. Org. Chem.*, 62 (1997), 2670, P. Saravanan, S. Raina, T. Sambamurthy and V.K. Singh.

77. 3,4-Dehydro-2-Hydroxy-6- (2-Phenylethyl) tetrahydropyran. Acyclic 1,3-Diastereoselection in reaction with MeOH and its application to the synthesis of a racemic mevinolin analog Ind. J. Chern., 35B (1996), 0008, v'K. Yadav and K.K. Kapoor

78. KF adsorbed on alumina effectively promotes the epoxidation of electron deficient alkenes by anhydrous t-BuOOH V. K. Yadav and K.K. Kapoor Tetrahedron, 52 (1996) 3659.

79. Mevinolins and the related analogs. The synthetic aspects V.K. Yadav and K.K. Kapoor Ind. J. Chern., 35B (1996), 1125-1143.

## DEPARTMENT OF CIVIL ENGINEERING

I.A Note on the Back Analysis of Slopes, Indian Geotechnical Journal, 26(4),1996, Bhattacharya, G. and Basudhar, P.K.

2.Rectangular Plates Resting on Tensionless Elastic Foundation: Some New Results, II. of Engineering Mechanics, ASCE, Vol. 122, NO.4, April 1996, Mishra, R.C. and S.K. Chakrabarti.

3.Network-wide optimal scheduling of Transit Systems using Genetic Algorithms, Microcomputers in Civil Engg.: Journal of Computer Aided Civil & Infrastructure Engg. (in press), P. Chakraborty, K. Deb., B. Srinivas.

4.Sand-Based Filtration/Adsorption Media, Journal of Water Supply Research and Treatment, AGUA, Vol. 45, 1996, pp. 67-71, M. Ahammed M and Malay Chaudhuri.

5.Manganese-Aided Lime Clarification of Municipal Wastewater, Water Research, Vol. 30, 1996, pp. 1548-1550, P.K. Goel and Malay Chaudhuri.

6.Removal of Arsenic from Ground Water by Iron Oxide-Coated Sand, Journal of Environmental Engineering (ASCE), Vol. 122, 1996, pp. 769-771, A. Joshi and Malay Chaudhuri.

7 .Multiobjective Management of a Contaminated Aquifer for Agricultural Use, Water Resources Management, Kluwer Academic Publisher, Netherlands, Vol. 10,373-395, 1996, Keshari, A.K. and B. Datta.

8. Chance Constrained Optimal Monitoring Network Design for Pollutants in Ground Water, Journal of Water Resources Planning and Management, ASCE, Vol. 122, NO.3, 1996, Datta, B. and S.D. Dhiman.

9.Optimal Monitoring Network and Groundwater Pollution Source Identification, (in press), ~ scheduled for Jul./Aug., 1997, Journal of Water Resources Planning and Management, ASCE, Mahar, P.S. and B. Datta.

10.Textural classification for ecological research using ATM images, International Journal of Remote Sensing, 1996, Vol. 17 No, 5, pp 887-915, Onkar Dikshit.

II.An Empirical Investigation of Image Resampling Effects upon the spectral and Textural Supervised classification of a High Spatial Resolution Multispectral Image, Photogrammetric Engineering and Remote Sensing, 1996, Vol. 62, NO.9 pp. 1085-1092, Onkar Dikshit, D.P. Roy.

12. A note on IS: 875-1987 approach to along-wind building response, *J. Struct. Eng. (SERC)* 23(3), 121-127, Chandra Sekher, K.Y.S. and Y.K. Gupta.
13. Ordered peak statistics through digital simulation, *Earthq. Eng. Struct. Dyn.* 25, 1061-107 Basu, B., and Y.K. Gupta.
14. A note on damage-based inelastic spectra, *Earthq. Eng. Struct. Dyn.*, 25, 421-433, Basu, I and Y.K. Gupta.
15. Expected seismic damage during narrow-band structural responses, *Struct. Eng./Earthq. Eng. (OSCE)*, 13(2), 119-123, Basu, B. and Y.K. Gupta.
16. A Markovian approach to ordered peak statistics, *Earthq. Eng. Struct. Dyn.*, 25, 1335-1351 Basu, B. and Y.K. Gupta.
17. On generating ensemble of design spectrum-compatible accelerograms, *European Earthq. Eng.*, X(3), Shrikhande, M. and Y.K. Gupta.
18. The 1993 Killari Earthquake in Central India: A New Fault in Mesozoic Basalt Flows? *Journal of Geophysical Research*, Vol. 101, No. B4, April 1996, pp. 8543-8560, Seeber L. Ekstrom G., Jain S.K., Murty C.Y.R., Chandak N., and Armbruster I.G.
19. Discussion on Prestress Force Effect of Vibration Frequency of Concrete Bridges, *Journal of Structural Engg. ASCE*, April 1996, Jain S.K. and Goel S.C.
20. Lateral Free Vibrations of a Single Pile With and Without Axial Load, *Journal of Sound and Vibration*, Vol. 195, NO.3, Aug. 1996, pp. 531-544, Halabe U.B. and Jain. S.K.
21. Deformational Analysis of Soft Ground Reinforced with Columnar Inclusions, *Computers and Geotechnics*, Vol, 18, NO.4 pp 267-290, M.R. Madhav, M. Alamgir, N. Miura and H.B. Poorooshasb.
22. Settlement of Vertical Drain Treated Ground, *Indian Geotech. J.*, Vol. 26, NO.4, pp 386-406, Oct. 1966, M.R. Madhav, M. Paul and N. Miura.
23. The Soil Component of Environmental Geology Maps, 5th Annual Mines & Mineral Conservation Week Souvenir Vol. Feb., 1997, Tata Chemicals, Mithapur, Gujarat. pp. 155-160, B.C. Raymahashay.
24. Complete hydrodynamic border-strip irrigation model. *Journal of Irrigation & Drainage Engineering*, ASCE, Vol. 122, NO.4, Jul./Aug., 1996, pp 189-197, Vivekanand Singh & S. Murty Bhallamudi.
25. Attenuation relations for strong Ground Motion in the Himalayan region, *Pure & Applied Geophysics*, Y. 147, NO.1, p. 161-186, 1996, R.P. Singh, A. Aman and Y.J.J. Prasad.
26. Atmospheric Monitoring with a Spectrographic Imager, *Int. Journal of Remote Sensing*, Y. 18, NO.5, p. 1183-1188, 1997, R.P. Singh, C. Olbert, C. Lindemann, M. Sehaale and R. Furrer.

27. Influence of geomorphometric factors on satellite snow covered area vs. snowmelt runoff relationship in the Punjab Himalaya, Jour. Geol. Soc. India, 48(4), p. 449-456, Rajiv Sinha.
28. Uptake of Cationic Dyes by Sulfonated Coal: Sorption Mechanism, Ind. Engg. Chem. Res., 35, 1996, 1472-1474, Mittal, A.K and C. Venkobachar.
29. Immobilised Microbial Reactor for heavy Metal Pollution Control, Int. J. Env. and Pollution, .6. 1996, 277-284, C. Venkobachar.
30. Utilization of Flyash in Dyke Construction - presented in the 12th Int. Conf. on Solid Waste Technology and Management, November 17-20, 1996, Philadelphia, U.S.A. Umesh Dayal.
31. O-D Matrix Estimation using ordinal & cardinal Information; TETRA '97, Warangal, India, August 1997; KH. Reddy & P. Chakraborty. A New stochastic approach for seismic floor spectra generation, Symp. on Earthquake Effects on Structures, Plant and Machinery, New Delhi, I (II-4), 1-12, v'K. Gupta.
32. On evolutionary seismic response and peak factors, Proc. Structural Engg. Convention 1997, Dept. of Civil Engg. IIT Madras, Chennai, 511-517, Shrikhande M., and VK. Gupta.
33. Dynamics of Horizontal Setback Buildings with Flexible Floor Diaphragms, proceedings of the Eleventh World Conference on Earthquake Engg., held at Acapulco, Mexico, June 1996, Jain S.K and Jain C.K
34. Torsional Failure of Elevated Water Tanks: The Problem and Some Solutions, proceedings of the Eleventh World Conference on Earthquake Engg. held at Acapulco, Mexico, June 1996, Dutta S.C., Murty C.V.R. and Jain S.K.
35. Experimental Evaluation of Fundamental Period of R.C. Frame Buildings with Brick Infills, Journal of Structural Engg. Vol. 2.3, NO.4, Jan. 1997, pp. 189-196, Jain S.K., Saraf V, and Mehrotra B.
36. A Review on Seismic Design of Bridges, proceedings of the 'Symposium on Earthquake Effects on Structures, Plant and Machinery, New Delhi, Nov. 13-15, 1996 (in press), Jain S.K and Murty C.V.R.
37. Post buckling strength of symmetrically laminated plates, 19th Int. Congo & Theort, & Appl. Mech., 25-31 Aug. 1996, Kyoto, Japan, Ashwini Kumar.
38. Progressive failure of symmetric laminates under in-plane loads, 4th ICCE, New Orleans, USA, 22-26 Jul., 1996, Ashwini Kumar.
39. Failure and strength of symmetric laminates under in-plane loads, 6th National Symposium on Aerostructures, NAL, Bangalore, 7-8 Nov., 1996, Ashwini Kumar.
40. Nonlinear response and failure analysis & laminated plates using FEM, 12th National Conf. of Mech. Engineers, Allahabad, Jan. 31 - Feb. 2, 1997, Ashwini Kumar.
41. Seismic Design of Reinforced Earth wall, Ind. Geotech. Conf., Madras, Dec. 1996, pp 338341, M.R. Madhav and N. Sabhahit.

42. Seismic Analysis of Nailed Soil Slopes - A Pseudo-dynamic Approach, Int. Symp. on Earth Reinforcement, Fukuoka, Nov. 1996, pp 821-824, M.R. Madhav, N. Sabhahit and P.K. Basudhar.
43. Semi-rigid Piled Raft Systems for Subsiding Ground, Int. Symp. on Earth Reinforcement, Fukuoka, Nov. 1996, pp 665-670, M.R. Madhav, Shivashankar, R., Miura, N., Umezaki, K. and Y. Goto.
44. Densification of Granular Deposits by Dynamic Methods, Conf. on Problematic Subsoil Conditions, Kakinada, Oct. 1996, pp. 107-114, M.R. Madhav .
45. Analysis of Granular Piles - Effect of Non-homogeneity, Symp. on Advances in Geotechnical Engineering, Kanpur, Aug. 1996, pp 59-66, M.R. Madhav and K.U. Raj.
46. Geosynthetics for Ground Improvement. Int. Seminar on Environmental Geotechnics with Geosynthetics, New Delhi, Aug. 1996, pp 191-203, M.R. Madhav.
47. Load-Settlement Behaviour of Piled-raft Foundation in Soft Clay, 11 Int. Conf. on Soft Soil Engineering, Nanjing, China, May 1996, pp 6642-647, M.R. Madhav, Wu, W.J. and N. Miura.
48. Design of Granular Piles for Embankments on Soft Ground, 12th Southeast Asian Conf. Geotechnical Engineering, Kuala Lumpur, May 1996, pp. 285-289, M.R. Madhav and D.O. Nagpure.
49. Numerical Modelling and Analysis of Reinforced Strip-soil Interactions, II Int. Conf. Civil Engineering - Computer Applications, Bahrain, April 1996, pp. 579-588, M.R. Madhav and N.K. Pitchumani.
50. Effect of Brittle Masonry Infills on displacement and Ductility Demand of Moment Resisting Frames, Proceedings of eleventh World Conference on Earthquake Engineering, Acapulco, Mexico 23-28, June 1996, Murty, C. V.R. and Nagar, A.
51. Torsional Failure of Elevated Water Tanks: The Problems and Some Solutions, Proceedings of Eleventh World Conference on Earthquake Engineering, Acapulco, Mexico, 23-28 June, 1996, Dutt S.c., Murty, C.V.R. and Jain, S.K.
52. Importance of Torsional-to-Lateral Strength Ratio on Seismic Performance of Reinforced Concrete Elevated Tanks, Proceedings of the International Conference on Urban Engineering in Asia, Countries in the 21st Century, Bangkok, Thailand, 20-23 Nov. 1996, pp 0.183-0,188, Murty C.V.R.
53. Environmental Impact Assessment at Project Site: Selected Examples, Int. Workshop on Environmental Management for SAARC Countries, 23-27; Oct., 1996, JNU, New Delhi. B. (Raymahashay).
54. Coupled Vibrations of Footings on Elastic Half-Space, 3rd Int. Conference on Vibration Problems, Siliguri, India, Nov. 1996, K. Bhowmik and N.S.V. Kameswara Rao.
55. Ideal Seismic Design of a Girder - A State-of-the-Art Review, Proceedings National Conference on Modern Trends in Bridges and Flyovers, Aug. 30 .. 31, 1996, Visakhapatnam, pp. 325-331, A.S.R. Sai.
56. Vision - 2000, Construction Industry Development Council, New Delhi, Jan. 1997, A.S.R. Sai.

57. Residual sediment discharge control in ash disposal ponds, National Workshop on Ash Ponds and Ash Disposal Systems, IIT Delhi, 11-13 April 96, pp. 187-195, Rajiv Sinha.
58. Hydrogeological Investigations in Gangetic Basin using remote sensing and Basement DEMA case study, Proc. of 17th Asian Conference on Remote Sensing, Nov. 4-8, 1996, Colombo (Srilanka), J-2-1 to J-2-6, Ajay Srivastava, Nitin Kumar Tripathi and KVGK Gokhale.
59. Determination of soil salinity using digital enhancement & GIS, Proc. of National Symposium on Remote Sensing for Amr Resources with special Emphasis on Water Management, Dec. 1996, Pune, India, Nitin Kumar Tripathi.

#### DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

1. DSPACE(n):= A Degree Theoretic Characterization, the special issue of the Journal of Computer and Systems sciences on the tenth Structure in Complexity Theory conference, volume 54(3), pages 383-392, 1997, M. Agrawal.
2. Incremental Data Dependence Analysis, High Performance Computing, 1996, K Praveen, Sanjeev Aggarwal, R.K. Ghosh.
3. On TC<sub>1</sub> and Arithmetic Circuits, in proceedings of the 12th Conference on Computational Complexity, 1997, pp 134-148. Invited to the special issue of the journal of computer and Systems Sciences on the conference, M. Agrawal, E. Allender, and S. Dutta.
4. Pinpointing Computation with Modular Queries in the Boolean Hierarchy, in proceedings of the sixteenth FST & TCS conference, Hyderabad, 1996, LNCS 1180, pp 322-334, M. Agrawal, R. Beigel and T. Thierauf.
5. Reducing the Complexity of Reductions, in proceedings of the 29th Symposium on Theory of Computing, 1997, pp 730-738, M. Agrawal, E. Allender, R. Impagliazzo, T. Pitassi and S. Rudich.
6. The Boolean Isomorphism Problem, in proceedings of the 37th IEEE Symposium on Foundations of Computer Science, 1996, pp 422-430, M. Agrawal and T. Thierauf.
7. A note on DNA representation of binary strings, International workshop on Molecular Computing, August 17-24, Mangalia, Somenath Biswas.
8. Platform Independent Tool for Designing Quality User Interfaces, Basque International Workshop on Information Technology 97, July 2-4 1997, Biarritz, France, T.N. Nigam and T.V. Prabhakar.
9. Internet Protocol: Present and Future, Proceedings of CSI COMNET'96 Lucknow, V.P., D. Sanghi.
10. Optimal Parallel Algorithms for the Generation of Combinatorial Objects, Seventh National Seminar on Theor Comp Sci, pp C-98 to C-101, June 11-14, 1997, Madras, N. Chitti Raju and Sanjeev Saxena.
11. Wasteful but Fast Parallel Edgewise Coloring, Seventh National Seminar on Theor Comp Sci, pp C-36 to C-39, June 11-14, 1997 Madras, Sajith G. and Sanjeev Saxena.

12. Efficient Algorithm for Electing r Lead~rs in a Synchronous Ring, Seventh National Seminal on Theor Comp Sci, pp C-74 to C-77 June 11-14, 1997 Madras, Prince Francis and Sanjee\ Saxena.

#### DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

1. The Oriya Emphatic Particles NIJ and NiE, Indian Linguistics, 57, 1996, pp.73-80, Patnaik B.N.

2.Private Funding of Higher Technical Education; A Sceptics' Points of View. Workshop on "Privatization of Higher Education". IIT Kanpur. Sept.7-8, 1996, Patniak B.N.

3.Role of Mass Media in Controlling Violence. CPAI Bulletin; A Publication of the Community Psychology Association of India, 4,1996, pp.5-II, Sharma, N.K .

4.Human Approach is needed to Handle Social Conflicts; How do we go about it? in S.K. Srivastava (ed), Developing Human Relations and Ethnic Understanding (Proceedings of the 2nd Asi to and 33rd II\AP International Conference, Gurukul Kangri University, Haridwar, Feb.26-28, 1997). Department of Psychology, Gurukul Kargri University, Haridwar, pp.1123, Sharma, N~K

5.Structural Change in Cost Shares of Primary Inputs of Indians Industries; An Input-oulp~t Approach. The Indian Journal of Economics LXXVII Apri I 1997, Page no. 443-472. Sangeeta Dhawan and K.K Saxena.

6.An Empirical Regional Dynamic Input-Output Model for the Economy of Orissa State 29th International Regional Science Conference on Regional Sustainable Development and New Economic Policy. Delhi School of Economics, Delhi. Jan. 31- Feb. 2, 1997. Page No. 100-101. Sarat Bhal and KK. Saxena.

7.Environmentally S stainable Development: The Conceptual Framework 79th Conference volume. Indian Economic Association, Gwalior Conference, Dec. 27-29. 1996 pp.393399, Barthawal, R.R.

8.Science Technology Society; The Interface, March 13-15, 1997. ISSA Agra Published paper entitled "Privatisation of Technical Education -Boon or Bane", Sharan, R.

9.Confessions of a Male Ingenue. Manushi (a Journal about women and society). Nov. 95, July Aug. 96. pp. 512, Sah, P.P.

10. Socialization Antecedent of Allocation Rule Preferences in India. Psychology and Developing Societies, 1997 Vol. 9 (1),133-148, L. Krishnan

II.Ecology Movements in Kerala: A Sociological Enquiry, Guru Nanak Journal of Sociology, XVII, NO.2. Oct. 1996. (Jointly with climes Augustine), Sharma, AK

, 12.Rural Housing: Problems and Perspectives; Kurukshetra 34, 8+9, pp.35-38, Sharma, AK

13.Teesari Kranti; Sambhavnayen Evam SarnJIdhan, Samaj Vivichan, 4, pp. 1-14 (in Hindi), Sharma, AK



14. Population dynamics in U.P., Kamla Gupta and Arvind Pandey (eds.) Population and Development in V.P. B.R. Publishing Corporation, Delhi, 1997. pp. 3-18, Sharma, A.K.
15. Schema based instruction: some theoretical issues. *Psycho-lingua*, 26 (2), 117-124, Dixit, Shikha
16. Sangraha - A Painting reproduced in V.P. State Lalit Kala Academy Journal, Bhatnagar, RK.
17. A new Methodology of Estimating the Socio-economic Dimensions of standard of Living. *Orissa Eco. Journal*, Vol. XXVIII, No.1 and 2, 1997, pp.67-77, with U.K. Dash and Acharya, Rath, B.
18. Organisational Estnography; An Illustrative Application in the Study of Indian R&D Setting (Review). *Productivity*, Vol. 37, April-June 1, 1996, pp.169-171, Rath, B.

#### DEPARTMENT OF MATHEMATICS

1. Effect of changing habitat on species species: Application to Keoladeo National Park, India. *Ecological Modelling* 86 (1996) 91-99, J.B. Shukla, and B. Dubey.
  2. Effect of environmentally degraded soil on crop yield: The role of conservation. *Ecological Modelling* 86 (1996) 235-240 A. Shukla, B. Dubey and J.B. Shukla.
  3. Simultaneous effect of two toxicants on biosystem: A mathematical model. *J. Biological Systems* 4(1) (1996) 109-130, J.B. Shukla, B. Dubey.
  4. Effect of changing habitat on survival of species. *Ecological Modelling* 87 (1996) 205-216 J.B. Shukla, B. Dubey and H.I. Freedman.
  5. A representation for functionals of superprocesses via particle picture. *Stochastic Processes and Their Applications* 64 (1996) 173-186, S.K. Iyer.
  6. Attractive polymer models for two and three dimensional Brownian motion. *Stochastic Process and Applications* 66 (1997) 271-281, S.K. Iyer.
  7. On the generalized Hamming weights of cyclic codes. *IEEE Transactions on Information Theory* 43(1) (1997) 299-308, A.K. Lal and H.L. Janwa.
  8. Effect of viscous dissipation on a non-Darcy natural convection regime. *Int. J. Heat Mass Transfer* 40 (1997) 1251-1260, P. Singh.
  9. Integral solution for Forcheimer free convection over a horizontal surface. *J. Heat Mass Transfer* 32 (1997) 207-211, P. Singh.
  10. Single and product moments of Cauchy order statistics. *Commun. Statist. - Theory Meth.* 25(8) (1996) 1837-1844, S. Chakraborty and P.c. Joshi.
11. Variable mesh difference scheme for singularly perturbed boundary value problems using splines. *J. Optimiz. Thea. & Applic.* 90(2) (1990), M.K. Kadalbajoo and R.K. Bawa.

12. Performance analysis of AGE algorithm for singular perturbation problems. *Paranel Algorithms & Applications* 10 (1997), M.K. Kadalbajoo, (with A. Appaji Rao).
13. Element method for singular perturbation problems. *Boundary Element Communications* (1997), M.K. Kadalbajoo, (with K. Arumugam).
14. Isometric multipliers of the space of p-integrable vector valued functions. *Proc. Nat. Acad. Sci. India* 65(A), IV (1995) (brought out in 1996) 427-435, Mamta Karma and U.B. Tewari.
15. Natural convection heat transfer from a horizontal wavy surface in a porous enclosure *Numerical Heat Transfer: Part A*: 1996, B.V Rathish Kumar.

#### DEPARTMENT OF MECHANICAL ENGINEERING

1. I. G. Biswas, K. Torii, D. Fujii and K. Nishino, Numerical and Experimental Determination of Flow Structure and Heat Transfer Effects of Longitudinal Vortices in a Channel Flow *International Journal of Heat and Mass Transfer*, Vol. 39, pp 3441-3451, (1996).
2. T. Cziesla, H. Braun, G. Biswas and N.K. Mitra, Large Eddy Simulation in a Channel with Exit Boundary Conditions, ICASE Report No. 96-18, NASA Contract No. NAS1 19480, Langley Research Center, Hampton, Virginia, USA, (1996).
3. H. Laschefski, T. Cziesla, G. Biswas and N.K. Mitra, Numerical Investigation of Heat Transfer by Rows of Rectangular Impinging Jets, *Numerical Heat Transfer, Part A*, Vol 30, pp 87-101, (1996).
4. A.K. Saha and G. Biswas, Application of a Multigrid Method for Flows Behind Bluff Bodies in a Channel, *Journal of Institution of Engineers (Aerospace)*, vol 77, pp 13-21, (1996).
5. B.L. Owsenek, T. Cziesla, N.K. Mitra and G. Biswas, Numerical Investigation of Heat Transfer in Impinging Axial and Radial Jets with Superimposed Swirl, *International Journal of Heat and Mass Transfer*, vol 40, pp 141-147, (1997).
6. A.K. Saha, K. Muralidhar and G. Biswas, Comparison of Numerical and Experimental Studies of Flow Past a Square Cylinder, *Proceedings of The Ninth International Symposium on Transport Phenomena*, Singapore, pp 327-332, 1996.
7. P. Sandilya, G. Biswas and A. Sharma, Effect of Co current and Countercurrent Flow of A Gas and A Liquid Between Two Rotating Disks on Gas-Phase Controlled Absorption, *Proc Int Conf. on Advances in Chemical Engineering*, pp 119-124, IIT Madras ICACHE-96, Dec, 1996.
8. A.K. Saha, G. Biswas and K. Muralidhar, Effect of Inlet Shear on Vortex Shedding and Wake Structure Behind a Square Cylinder, *Proc. Int. Conf. on Advances in Mechanical and Industrial Engineering*, Univ. Roorkee, pp 427-434, February, 1997.
9. S.K. Choudhury, N.N. Oudimenko, V.A. Kudinov - "On-line control of Machine Tool Vibration in Turning" *International Journal of Machine Tools and Manufacture* (1997).
10. P.M. Dixit, S. Saxena & G.K. Lal. Analysis of cold strip rolling under hydrodynamic lubrication, *J.Mater. Process Technol.*, Vol.58, 1996, pp. 256-266.

11. P.M. Dixit, S. Dhar, and R. Sethuraman, A continuum damage mechanics model for void growth and micro crack initiation, *Engg. Fracture Mech.*, Vol. 53, NO.6, 1996, pp. 917-928.
12. P.M. Dixit and U.S. Dixit, A finite element analysis of flat rolling and application of fuzzy set theory, *Int. J. Mach. Tools Manufact.*, Vol. 36, NO.8, 1996, pp. 947-969.
13. P.M. Dixit, N.Y. Reddy & G.K. Lal, Analysis of axisymmetric tube extension, *Int. J. Mach. Tools Manufact.*, Vol. 36, No. 11, 1996, pp. 1253-1267.
14. P.M. Dixit, N.V. Reddy & G.K. Lal, Central bursting and optimal die profile in axisymmetric extrusion, *ASME J. Manufacturing Science & Engineering*, Vol. 118, NO.4, 1996, pp. 579~584.
15. P.M. Dixit, K. Ramesh, S. Shukla & N. Karuppaiah, Numerical Evaluation of SIF for radial cracks in thick annular ring using cyclic symmetry, *Engng. Fracture Mech.*, Vol. 56, No.2, 1997, pp. 141-153.
16. R. Bhattacharya, V.K. Jain and P.S. Ghoshdastidar, Numerical Simulation of Thermal Erosion in EDM Process, *The Institution of Engineers(I) , Production Engg. Division*, Vol. 77 , pp. 13-19, 1996.
17. R. Jagirdar, v.K. Jain, J.L. Batgra and S.G. Dhande, Characterization of Shearing Features for Sheet Metal Components in 2-D Layout, *Int. J. Prod. Res.*, Vol. 34, NO.1, pp. 157-190, 1996.
18. Y.P. Singh, v.K. Jain, Prashant Kumar and D.C. Agrawal, Machining Piezoelectric (PZT) Ceramics Using an Electrochemical Spark Machining (ECSM) Process, *Journal of Materials Processing Technology*, Vol. 58, pp. 24-31, 1996.
19. P. Koshi, V.K. Jain and G.K. Lal, Mechanism of Material Removal in Electrical Discharge Diamond Grinding, *Int. J. Mach. Tools Manufact.*, Vol. 36, NO.10, pp. 1173-1185, 1996.
20. P. Koshi, V.K. Jain and G.K. Lal (Accepted), Stochastic Simulation Approach to Modelling Diamond Wheel Topography, *Int. J. Mach. Tools Manufact.*
21. S.K. Purwal, V.K. Jain and M. Sundararajan, Analysis of Plastic Deformation Characteristics During Metal Cutting by Finite Element Method, 17th AIMTDR, pp. 21-26, 1997.
22. Naveen Gautam & V.K. Jain, Experimental Investigations into ECSM Process Using Flow of Electrolyte, *Proc. International Conference on Advances in Mechanical and Industrial Engineering*, held at Deptt. of Mech. & Ind. Engg., University of Roorkee, pp. 717-724, 1997.
23. H. Ram Mohan, V.K. Jain and Kripa Shanker, Feature Based Process Planning System for Sheet Metal Components: An Object Oriented Perspective, *First Int. Conference on Operations and Quantitative Management*, held at Jaipur, pp. 291-298, 1997.
24. R.K. Jain and V.K. Jain, Abrasive Fine Finishing Process - A Review, *Proceedings International Manufacturing Engineering Conference*, held at Connecticut, pp. 169-171, 1996.
25. S. Chatterjee and A.K. Mallik, Bifurcations and Chaos in Autonomous Self-excited Oscillators with Impact Damping - *Journal of Sound and Vibration*, 191(4), pp. 539-562, 1996.

26. S. Chatterjee, A.K. Mallik and A. Ghosh, Impact Dampers for Controlling Self-excited Oscillation- Journal of Sound and Vibration, 193(5), pp. 1003-1014, 1996.
27. S. Chatterjee and A.K. Mallik, Three kinds of Intermittency in a Nonlinear Mechanical System - Physical Review (E), 53(5), pp. 4362 - 4367.
28. P. Munshi, M. Maisl, H. Reiter, A new method of characterizing patterns in tomographic images of composites, Nuclear Instruments and Methods "in Physics Research, pp 205-21 B 108(1996).
29. G. Davis, P. Munshi & J.C. Elliott, Analysis of hard biological tissues using the tomographic error formula, Journal of X-ray Science and Technology, pp. 63-76,6(1996).
30. D. Datta, P. Munshi, & N.N. Kishore, Automated Ultrasonic NDE of composite specimens by cluster and fractal analysis, Nondestructive Testing and Evaluation, pp. 15-30, 13(1996).
31. P. Munshi, K.J. Machin & S. Webb, A fidelity check of a cone-beam tomography algorithm Nuclear Instruments and Methods in Physics Research, pp. 337-340, B11(1996).
32. P. Munshi, M. Maisl, H. Reiter, Experimental aspects of the approximate error formula for computerized tomography, Materials Evaluation, pp. 188-191,55(1997).
33. P.M. V. Subbarao, P. Munshi, K. Muralidhar, Performance evaluation of iterative tomographic algorithms applied to reconstruction of a three dimensional temperature field, Numerical Heat Transfer B, (in press).
34. P.M.V. Subbarao, P. Munshi, K. Muralidhar, Performance of iterative tomographic algorithms applied to non-destructive evaluation with limited data, NOT and E International, (in press).
35. A.K. Verma and V. Eswaran, Overlapping control volume method for convective-diffusion problems, Int. J. for Num Methods in Engg., Vol. 23, 15 November 1996.
36. D. Datta, N.N. Kishore, P. Munshi, Automated nondestructive evaluation of composite specimen by fractal analysis, Proc. Fourteenth World Conference on Nondestructive Testing~ Oxford IBH N. Delhi, pp. 1779-1784, 1996.
37. P. Munshi, Fourier Vision in NDT, Proc. Fourteenth World Conference on Nondestructive Testing, Oxford IBH, New Delhi, pp. 1817-1820, 1996.
38. D. Datta, N.N. Kishore, P. Munshi, Features of ultrasonic NDT to identify defects in composite materials modelled by FEM, Proc. Fourteenth World Conference on Nondestructive Testing, Oxford IBH, N. Delhi, pp. 2139-2144, 1996.
39. D. Datta, P. Munshi, N.N. Kishore, Application of acoustic tomography in nondestructive testing, Proc. Fourteenth World Conference on Nondestructive Testing, Oxford IBH N. Delhi. pp. 2335-2340, 1996.
40. V. Eswaran, G. Biswas, V. Srinivas Rao and V.K. Pande, Prediction of Velocity field in the Spiral Casing of a Hydraulic Turbine, Twenty-third Conference on Fluid Mechanics and Fluid Power, pp. 27-29, Dec. 1996, Bhopal, India.

41. P. Bera, V. Es\ : aran, P. Singh, Application of the Spectral Element Method to Natural Convection in Rectangular Enclosures, Sixtyh-Second Annual Conference of the Indian Mathematical Society, pp. 23-25, Dec. 1996, Kanpur, India.

42. Om Prakash, Indentation Creep, The Johannes Weertman Symposium, TMS Annual Meeting. Anaheim, California, Feb. 4-8, pp. 155-170, 1996.

#### DEPARTMENT OF MATERIAL SCIENCE AND PROGRAMME

1. "Machining piezoelectric (PZT) ceramics using an electro-chemical spark machining (ECSM) process", Y.P. Singh, Ijaya K Jain, Prashant Kumar and D.C. Agrawal, J. Mat. Processing Tech. 58 (1996) 24.

2. "Optical and Microstructural Characterization of Sol-Gel Derived Cerium Doped PZT Thin Films" S.B. Majumdar, Y.N. Mohapatra and D.C. Agrawal, J. Mat. Sc. 32 (1997).

3. "Sol-Gel Derived TiO<sub>2</sub> - SiO<sub>2</sub> Fibres", B.G. Muralidharan and D.C. Agrawal, J. Sol-Gel Sc. and Tech. 2 (1997) 85.

4. "Fatigue Resistance in Lead Zirconate Titanate Thin Ferroelectric Films: Effect of Cerium Doping and Frequency Dependence", S.B. Majumdar, Y.N. Mohapatra and D.C. Agrawal, App. Phys. Lett. 70 (1997) 138.

5. "On the existence of distribution of barrier heights in Pd<sub>2</sub>Si/Si Schottky diodes", Subhash Chand and Jitendra Kumar, Journal of Applied Physics, 80, 288-294 (1996).

6. "Current transport in Pd<sub>2</sub>Si/n-Si (100) Schottky barrier diodes at low temperatures", Subhash Chand and Jitendra Kumar, Applied Physics A: Solids and Surfaces, 63, 171-178 (1996).

7. "Temperature and field dependence of electron mobility in n-channel MOS transistors", K.S. Yadav, M.S. Tyagi and Jitendra Kumar, Semiconductor Devices, Krishan Lal (Editor), Narosa, New Delhi (1996) p.48-50.

8. "On the barrier heights distribution in Pd Si/Si Schottky barrier diodes", Subhash Chand and Jitendra Kumar, Semiconductor Devices, Krishan Lal (Editor), Narosa, New Delhi (1996) p.196-198 (Adjudged as the best paper in the International Workshop on the Physics of Semiconductor Devices, New Delhi, December 11-16, 1995).

9. "Formation of nanosize iron particles, their morphology and interaction with alumina support film", Rajeev Ranjan and Jitendra Kumar, The Science and Technology of Atomically Engineered Materials, P. Jena, S.N. Khanna and B.K. Rao (Editors), World Scientific, Singapore (1996) p.159-164.

10. "Evidence for the double distribution of barrier heights in Pd<sub>2</sub>Si/n-Si Schottky diodes from IV-T measurements", Subhash Chand and Jitendra Kumar, Semiconductor Science and Technology, II, 1203-1208 (1996).

#### DEPARTMENT OF PHYSICS

1. "A superspace formulation of BRS/anti-BRS Symmetric Yang-Mills effective action", Z Phys C 70, 1996, 673, S D Joglekar and B P Mandal.

2. Local BRS transformation and aSp (3, 1/2) symmetry of Yang-Mills theories, *Z Phys C* 7 1997, 179, S D Joglekar and B P Mandai.
3. WT identities for proper vertices and Renormalization in a Superspace formulation of Gauge Theories, *Phys Rev D* 55, 1997, 5038, S D Joglekar and B P Mandai.
4. Bound on non local scale from g-2 of muon in a non local WS model, *Z Phys C* 75, 1997, Gail Saini and S D Joglekar. 5. z' in the 3-3-1 model, *Phys Lett B*, 1997, P Jain and S D Joglekar
6. Resistivity saturation in substitutionally disordered gamma-Fe<sub>80-x</sub>Ni<sub>x</sub>Cr<sub>20</sub> (14 < x < 31 alloys, *Phys Rev B* 53, 1996, 12148, T K Nath and A K Majumdar.
7. Relaxation of thermoremanent magnetization in different magnetic phases of Fe-rich gamma FeNiCr alloys, *J Magn Magn Mat* 164, 1996, 345, G Sinha, R Chatterjee, M Ushara and A : Majumdar.
8. Quantum interference effects in (Ni<sub>0.5</sub>Zr<sub>0.5</sub>)<sub>1-x</sub>Al<sub>x</sub> metallic glasses, *Phys Rev B* 55, 199~5554, T K Nath and A K Majumdar.
9. Hydrogen depletion from KH<sub>2</sub>P<sub>04</sub> under He<sup>+</sup> ion bombardment, *Nucl Instru & Meth B* 12~1997, 244-246, T Som, S Dhar, S N Minwalla and V N Kulkarni.
10. Electrically active defects in as-implanted deep buried layers in p-type silicon, *J Appl Phys* 81, 1997, 260-263, P K Giri, S Dhar, V N Kulkarni and Y N Mohapatra.
11. Compound formation under local thermal spikes during ion-beam mixing: Model and its experimental verification, *Phys Rev B* 54, 1996, 5769-5777, S Dhar, Y N Mohapatra and V Kulkarni.
12. Electrically active defects due to end-of-ion range damage in silicon irradiated with MeV Al ion, *Nucl Instrum & Meth in Phys Res. B* 111, 1996, 285-289, P K Giri, S Dhar, V N Kulkarni and Y N Mohapatra.
13. A study of hydrogen in diamond like carbon films, *Vacuum* 47, 1996, 1265-1267, M Malhotra, T Som, V N Kulkarni and S Kumar.
14. Radiation induced redistribution of implanted impurities in Al, *Surface & Coatings Technol*, 83, 1996, 88-92, D C Kothari, V N Kulkarni, A Miotello, L Guzman, G Linker and B Strehlau.
15. A Two Scale Model for Aggregation and Etching, *Phys Rev E* 53, 1996, 3920, G C John and Vijay A Singh.
16. Vibrational spectra of defects in silicon: An orbital radii approach, *Phys Rev B* 53, 1996, 9831, H C Verma, G C John and Vijay A Singh.
17. Model for the photoluminescence behaviour of porous silicon, *Phys Rev B* 54, 1996, 4416, G C John and V A Singh.
18. Role of ambient gas on the laser ablated plumes for thin carbon film deposition, *Phys Rev B* 55, 1997, 2660, R K Thareja, R K Dwivedi and Abhilasha.

19. Carbon thin films through laser ablation, *Phy Lett A* 222, 1996, 199, R K Thareja and R K Dwivedi.
20. Laser induced break down of Ar, nitrogen, oxygen gases using 1.6, 0.532, 0.55, 0.260 micron radiation, *Appl Phys* 63, 1996, 623, A Sircar, R K Dwivedi and R K Thareja.
21. A numerical study of the nonlinear cascade of energy in MHO turb, *J Geophys Res* 101, 1996, 21619, M K Verma, O A Roberts, M L Goldstein, S Ghosh and W T Stribling.
22. Nonclassical viscosity and resistivity of the solar wind, *J Geophys Res* 1-1, 1996, 27543, M K Verma.
23. Role of turbulence dissipation and thermal convection in solar wind's temperature evolution, *J Geophys Res* 101, 1996, 27549, M K Verma.
24. Entropy-driven vertical phase separation in a binary mixture of amphiphiles at air-water interface, *LANGMUIR, The ACS Journal of Surfaces and Colloids*, 12, 1996, 1098, D Chowdhury.
25. Domain growth in weakly disordered magnets, *Physica A*, 229, 1996, 72, B Biswal, S Puri and D Chowdhury.
26. Conformation of amphiphilic molecules grafted or adsorbed on a solid substrate: Monte Carlo simulation, *Int J Mod Phys C* 7, 1996, 73, D Chowdhury, A T Bernardes and D Stauffer.
27. Discrete SOS model of Interface with Bending Rigidity: Roughening versus Crumpling, *Phy Rev E* 54, 1996, 2670, P K Maiti, D Chowdhury and J K Bhattacharjee.
28. Particle hopping models for two-lane traffic with two kinds of vehicles: effects of lane-change-rules, *Physica A* 235, 1997, 417, D Chowdhury, DE Wolf and M Schreckenberg.
29. Stochastic traffic model with random deceleration probabilities: Queueing and power law gap distribution, *Journal of Physics A (letter to editor)*, 30, 1997, L221, D Ktitarov, D Chowdhury and DE Wolf.
30. Electronic transport and metastabilities in P-doped a-Si:H, *J Appl Phys* 81, 1997, 3214, P Agarwal and S C Agarwal.
31. Comparison of thermal and light induced metastabilities in lithium doped a-Si:H, *J Non Crystalline Solids*. 201, 1996, 163, P Agarwal, S K Tripathi, S Kumar and S C Agarwal.
32. Heterogeneities in Hydrogenated Amorphous Silicon, *Ind J Pure & Appl Phys* 34, 1996, 597, S C Agarwal.
33. Low energy DC Hand 0 plasma source ion implantation facility at IIT Kanpur, *Proc of National Symp on Plasma Science*, ed. P K Ghosh, 1996, Prentice-Hall New Delhi, 103-106, T Som, SOhal and V N Kulkarni
34. Channeling study of low energy DC plasma ion implanted N in Si and GaAs, *Solid State Physics (India)*, 1996, 39C, 225, T Som, R Paily, S Dhar, Y N Mohapatra and V N Kulkarni.

35. Ion induced synthesis of low resistive metal germanide phases, Solid State Physics (India, 1996, 39C, 374, S Dhar, P K Giri, I Som, Y N Mohapatra and V N Kulkarni.

36. Trapping characteristics of MeV ion implanted buried layers, Solid State Physics (India 1996, 39C, 195, P K Giri, S Dhar, V N Kulkarni and Y N Mohapatra.

37. RBS studies on YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> thin films deposited by sputtering, Solid State Physics (India), 1996, 39C, 268, R Chandra, A K Gupta, N Banerjee and V N Kulkarni.

38. Parallelization of spectral MHD turbulence code, Parallel Computing Applications in Science & Engg, III Kanpur, Jan 6-8, 1997, p.61, M K Verma and G Oar.

39. MHD turbulence in Solar Wind, Solar Physics Workshop, P.R.L. Udaipur, Oct 3, 1996, i press, M K Verma.

40. Role of Hydrogen on the Electrical Transport Properties of Porous Silicon, Physics of Semiconductor Nanostructures, Narosa, 1997, p.155, Proc. Symp on Physics of Nanoclusters, New Delhi, 23-25 Jan, 1997, A Srivastava and S C Agarwal.

#### DEPARTMENT OF INDUSTRIAL & MANAGEMENT ENGINEERING

1. "Models and Solution Methodologies for Generalized problem in Cellular Manufacturing" International Journal of Production Research, Vol 35, No.2, pp 513-38, 1997, Kripa Shankel and Anil Agrawal.
2. "Total Quality Management : The Mindset", IE(I) Journal (Production Division), Vol 77 November 1996, Tapan P Bagchi.
3. "Foodgrains distribution in the Indian context: An operational study, Proceedings of the International conference on OR for development, Ahmedabad, India; Eds. Prof. A Tripathy and Prof. I. Rosenhead, New Age International Publishers, New Delhi, 1996, pp 212-227, RRK Sharma.
4. "A Sequencing based Multipass Heuristic for Improved Performance in MRP Context", Proceeding of Second International Symposium on Operations Research and its Applications, ISORA '96, Guilin, China, Dec. 11-13, 1996; Eds. Prof. Du. Prof. Zhang and Prof. Cheng, World publishing Corporation Beijing, 1996, p. 659-668, RRK Sharma and Sharat Sinha.
5. "Guiding Simulation Runs by Genetic Algorithms in Product Design", IASTED International Conference on Modelling, Simulation and Optimization, May 6-9, 1996 Gol Coast, Australia, 7 Tapan P Bagchi.
6. "Blocking Flowshop Scheduling using Genetic Algorithms", Optimization Days 1996 International Conference (INFOR), May 13-15, 1996, Montreal, Canada, Tapan P Bagchi.
7. "Software Quality: World ISO 9000 Impact It?" INFORMS Spring 1996 Conference, May 5<sup>th</sup>, 8, 1996, Washington DC, USA, Tapan P Bagchi.
8. "A Genetic Algorithm to Minimize Makespan in a Blocking Flowshop", 1996 Asia Pacific DSI Conference, June 21-22, 1996, Hong Kong Proceedings, Tapan P Bagchi and Chelliah Sriskandarajah.



9. "Multicriteria Robust Design using Enhanced Genetic Algorithms", 76th Annual Technical Meeting, UK State Institution of Engineers (India), November 16-17, 1996 (Best Paper Award), Tapan P Bagchi, Krishan Raman and Puneet Sharma.

10. "Injection Molding Productivity Improvement by Re-visiting Design of Experiments", ICOQM International Conference Jaipur, January 5-8, 1997, Deepak Saxena, Jugal Prasad, Subodh Kumar, A.K. Shah and Tapan P Bagchi.

11. "Multicriteria Robust Design using Nondominated Sorting Genetic Algorithms", III ISSAT International Conference on Reliability and Quality in Design, March 12-14, 1997, Anaheim, California, USA Proceedings, Tapan P Bagchi, Krishan Raman and Puneet Sharma.

12. "Quality Engineering: An Introduction", XII National Conference IE (India), January 31-February 2, 1997, Proceedings, Tapan P Bagchi.

13. Computer Integrated Manufacturing Technology in India, APO Seminar on Computer Integrated Manufacturing Systems, Deol, June 18-24, 1996, Kripa Shanker.

14. Feature Based Process Planning System for Sheet Metal Components: An Object Oriented Perspective, First International Conference on Operational and Quantitative Management, Jaipur, Jan 1997, Kripa Shanker.

#### PAPERS PRESENTED AT CONFERENCE/WORKSHOPS ETC. BUT NOT PUBLISHED IN PROCEEDINGS

#### DEPARTMENT OF AEROSPACE ENGINEERING

1. First Annual Meeting of Indian Society for Mathematical Modelling and Computation Since Dec. 17-18, 1996. NAL Bangalore, N.G.R. Iyengar.

2. Modelling of Progress failure of laminates under Inplane loads, S.B. Singh, Ashwini Kumar, N.G.R. Iyengar.

3. Concept of Cascade Wind Turbines in Extraction of Energy from Waves, NIOT, Madras 1712-96.

4. Application of Wind Energy in Ship Propulsion and Water Pumping, Auroville, 19-12-96.

5. Sectarian Nationalism and Linguistic Exclusion Principle, Asiatic Society, Calcutta, 2-1-97.

6. Satellite Attitude Maneuver through Tether: A Novel Concept, 47th IAF Congress, Beijing, China, Oct. 6-11, 1996, Krishna Kumar and K.D. Kumar.

7. Satellite Attitude Management through Tether, Beijing Univ. of Aeronautics & Astronautics, Oct. 13, 1996.

#### DEPARTMENT OF CHEMICAL ENGINEERING

1. Breakup and dewetting of the corneal mucus layer: An update. Second International Conference on the Lacrimal Gland, Tear Film and Dry Eye Syndromes: Basic Science and Clinical Relevance, Bermuda, October 1996. Sharma A.

2. Hydrodynamics of meniscus induced thinning of the tear film. Second International Conference on the Lacrimal Gland, Tear Film and Dry Eye Syndromes: Basic Science and Clinical Relevance, Bermuda, October 1996, Sharma A., Tiwari S., Khanna R. and Tiffany IM.
3. Surface chemical pathways of the tear film breakup: Does corneal mucus have a role? Second International Conference on the Lacrimal Gland, Tear Film and Dry Eye Syndromes: Basic Science and Clinical Relevance, Bermuda, October 1996. Shanna A.
4. Catalytic Pyrolysis of Hydrocarbons, 12th International Symp. on Analytical & Applied Pyrolysis, Venezia, Italy, October 14-18, 1996, Pant, K.K. and Kunzru, d.
5. Catalytic Pyrolysis of n-Heptane on Unpromoted and Potassium Promoted Calcium Aluminate, National Symp. on Advances in Chemical Reaction Engg., March 5-7, 1997, Vavanan.
6. Biomass for energy needs of Indian rural population, Proc. APCSEET'96 Conference, Singapore, 19-21 June, 1996, p. 410. J.K. Gehlawat.
7. Integrated Sugar Complexes, Proc. STAI Conf., Lucknow, Feb. 6, 1997, J.K. Gehlawat.
8. Sustainable Energy Resources for the Agriculture Sector - an overview, Proc. Conf. C.S.A. University of Agri. & Tech., Kanpur, May 27, 1997, p. 15, J.K. Gehlawat.

#### DEPARTMENT OF CHEMISTRY

1. Modelling the Active Sites of Some Copper and Iron Proteins P.I. (Bharadwaj Symposium on Advances in Bioinorganic Chemistry, TIFR, 1996).
2. Metal Ion Recognition of Macropolycyclic Cryptands, P.K. Bharadwaj One Day Symposium on Molecular Recognition, IIT, Kanpur, 1996.
3. Synthesis and Derivatization of Heteropolytopic Cryptand, P.K. Bharadwaj, 6th National Bio-Organic Symposium, IISc, Bangalore, 1997.
4. Dynamics of confined liquids, A. Chandra, Theoretical Chemistry Discussion Meeting, Mahatma Gandhi University, Kottayam, Kerala, Dec. 5-8, 1996.
5. Interaction of Transition metals with phosphazenes and siloxanes - From multisite metal recognition heterocycles to three dimensional cages, V. Chandrasekhar. Plenary lecture at the Tenth Annual National Symposium, Department of Chemistry, Panjab University, Chandigarh, March 15, 1997.
6. New phosphazene polymers containing coordinating groups, V. Chandrasekhar, Invited lecture at a symposium entitled, "Modern Trends in Main Group Chemistry" held at Department of Chemistry, IIT Delhi, March 4-5, 1997.
7. Synthesis of nanosized NiFe<sub>2</sub> by thermal decomposition of the citrate precursor, Seema Prasad and N.S. Gajbhiye, Natl. Symp. on Solid State Chemistry and Advanced Materials, Dec. 21-23, 1996, Gorakhpur University, Gorakhpur

8. Magnetic properties of M-type SrFe<sub>2</sub>P<sub>19</sub> particles synthesized by citrate precursor technique, N.S. Gajbhiye and A. Vijayalakshmi, Natl. Symp. on Solid State Chemistry and Advanced Materials held at Gorakhpur University, Dec. 21-23, 1996.
9. Surface effects in single domain Fe<sub>3</sub>N nanoparticles, R.N. Panda and N.S. Gajbhiye, National Conference in Science and Technology of Surfaces and Interfaces, Department of Physics and Meteorology, IIT Kharagpur, Dec. 16-18, 1996.
10. Magnetic properties of single domain Fe<sub>4</sub>N, R.N. Panda and N.S. Gajbhiye, Int. Conf. on Frontiers in Materials Modelling and Design, IGCAR, Kalpakkam, August 20-23, 1996.
11. Polyaniline supported cobalt catalyst: Oxidation of hydrocarbons and alkenes with Dioxygen, B.C. Das and J. Iqbal, 7th International Conference on Polymer supported Reactions in Organic Chemistry, June, 1996, Warsaw, Poland, 353.
12. Combinatorial synthesis of peptidomimetic inhibitors of HIV 1 Protease, J. Iqbal, M. Mukhopadhyay, B.C. Das, S. Rajesh, Asit De, R. Sanghi and Swati Jain, Indo-German Symposium on Organic Synthesis-Growing Interface with Adjacent Sciences, Sept. 1996, Hyderabad, India. L-13.
13. A new methodology for combinatorial synthesis of beta-phenylisoserine derivatives using a Novel polyaniline supported cobalt(II) catalyst, J. Iqbal, B.C. Das, T. Punniyamurthy and E.N. Prabhakaran, National Symposium on Emerging Trends in Organic Chemistry
14. Chiral nonracemic lithium amide bases: Enantioselective deprotonation of epoxides, A. Dutta Gupta, D. Bhuniya and Y.K. Singh, NOST Proceeding 1996, 0000.
15. Synthesis of Cryptands and their Derivatization, at the Inorganic and Physical Chemistry Department, Indian Institute of Science, Bangalore, April, 1996, P.K. Bharadwaj.
16. Supramolecular Chemistry, at the Tata Institute of Fundamental Research, Bombay, India, 1996, P.K. Bharadwaj.
17. Macropolycyclic Cryptands as Building Blocks in Supramolecular Chemistry, at the Department of Chemistry, Indian Institute of Technology, Bombay, June, 1996, P.K. Bharadwaj
18. Heteroditopic Cryptands: Potential Molecular Devices, at the Department of Chemistry, Banaras Hindu University, Varanasi, July, 1996, P.K. Bharadwaj.
16. Preparative technique of Advanced Materials, Shivaji University, Kolhapur, February 56, 1997, N.S. Gajbhiye.
17. Department of Chemistry, Waseda University, Tokyo, Japan, Dec. 1996, N.S. Gajbhiye.
18. Department of Chemistry Kyoto University, Japan, Dec. 1996, N.S. Gajbhiye.
19. Department of Pharmacy, Niigata Univ., Japan, Dec. 1996, N.S. Gajbhiye.
20. Bismethylthio methylene functionality as powerful cationic cyclization terminator/initiator in Novel Carbocyclic and polyene synthesis, invited lecture delivered at National Symposium on challenges in Organic Synthesis, Jan. 29-30, 1996 held at Department of Organic Chemistry, Indian Association for the Cultivation of Science, Jadavpur, Calcutta-32, H. Ila.

21. Chemoselective and stereoselective addition. Elimination of organocopper and organozinc reagents to beta,beta-heteroatom substituted enolles/nitroethylenes and their synthetic application, Invited lecture delivered at National Symposium on Emerging Trends in Organic Chemistry, Nov. 18-19, 1996, held at Regional Research Laboratory, CSIR, Trivendrum, H. Ila.
22. Synthesis and Lewis acid rearrangement of novel donor-acceptor substituted cyclopropanes Versatile building blocks for substituted and spirocyclopropanes and polyeneesters, Invited lecture delivered at National Symposium on Frontier Areas in Organic Chemistry, 14-15 Feb., 1996 held at Department of Chemistry. University of Pune. Pune-411 007, H. Ila.
23. Cationic ring opening of cyclopropyl ketones: Novel approaches to cyclopentanoids invited lecture delivered at Department of Organic Chemistry, Universite Joseph Fourier, 11th June Grenoble, France, 1996, H. Ila.
24. Synthetic approaches to cyclopentanoids and polyenes via alpha-oxoketene dithioacetals invited lecture presented at Laboratoire De Chimie Organique, Universite De Rouen, Mou Saint Aignan France, on 6th June, 1996, H. Ila.
25. Syntheses of biologically empowered heterocycles via alpha-oxoketene dithioacetals, invited lecture delivered at Laboratoire de Chimie Therapeutique. Universite De Bordeaux II, Place de la Victoire. France, 3rd June, 1996. H. Ila.
26. Synthetic approaches to cyclopentanoids and polyenes via alpha-oxoketene dithioacetals, invited lecture delivered at Fakultat fur Chemie, Universitat Kouslauz, Germany, 24th June. 1996, H. Ila.
27. Cationic ring opening and Tandem cyclization of cyclopropyl ketones: Novel approaches to cyclopentanoids, invited lecture delivered at Institute fur Organische Chemie, Johannes Guteuberg Universitat Mainz, Mainz, Germany, June 26. 1996, H. Ila.
28. Tandem carbocationic cyclization of cyclopropyl ketones: Novel approaches to cyclopentanoids and polyenes invited lecture delivered at Institut fur Organische Chemie, der Universitat Karlsruhe, Karlsruhe, Germany, 21 st June, 1996. H. Ila.
29. Regional Research Laboratory, Trivandrum, Dec. 4, 1996, N. Sathyamurthy.
30. National Seminar on Concepts in Chemistry, C.M.S. College, Kotayam, Feb. 10-13. 1992, N. Sathyamurthy.
31. Delivered two lectures at Defence Research Laboratory, Gwalior, Nov. 1996, YD. Vankar.
32. Hydrocarbon Research Institute. Los Angeles, USA. April 9, 1997, YD. Vankar.
33. Stanford Research Institute. International, Menlo Park, California, USA, April 24, 1997, YD. Vankar.
34. Department of Chemistry, University of California, Santa Cruz, USA, April 25, 1997, YD. Vankar.
35. ISIS Pharmaceuticals. Carlsbad, California, USA, May, 1997, YD. Vankar.

36. Plenary Lecture at a 65th Birth Anniversary of Prof. U.R. Ghatak on a symposium, "Challenges in Organic Synthesis", January 29-30, 1996 held at LA.C. Calcutta, V.K. Singh.

37. Plenary Lecture at a 48th ACS Southeast Regional Meeting, Nov. 10-13, 1996 held at Greenville, S.c., U.S.A., VK. Singh.

38. Lecture on Nov. 8. 1996 at Bionumeric Corporation, San Antonio, U.S.A., VK. Singh

39. Lecture on Nov. 14, 1996 at Northeastern University, Boston, U.S.A., VK. Singh.

40. Departmental seminar in January 1997 at Department of Chemistry, Panjab University, Chandigarh, V.K. Singh.

41. Plenary Lecture at a 60th Birth Anniversary of Prof. M.S. Wadia on a symposium, "Frontier Areas in Organic Chemistry", February 14-15, 1997 held at Pune University, Pune, VK. Singh.

## DEPARTMENT OF CIVIL ENGINEERING

1. The Potential of Coal- Based Sorbents for the Removal of Pathogens, Heavy Metals and Toxins from Water, IORC Workshop on Toxicological Monitoring of Drinking Waters in Developing Countries, Ottawa (June 17-19, 1996), S.A. Sattar and Malay Chaudhuri.

2. Seismic Retrofitting of Concrete Structures, National Seminar on Recent Advances in Civil Engineering, Roorkee, Sept. 28, 1996, S.K. Jain.

3. A Review of Seismic Zone Maps from Engineering Perspective, Workshop on Design Practices in Earthquake Geotechnical Engineering, Roorkee, Sept. 26-27" 1996, s.K. jain

4. Inspection and Maintenance of Concrete Structures, Int. Conference on Durability of concrete structures, Hyderabad, India, March, 1997, Sudhir Misra.

"-

5. A Review on Seismic Design of Bridges, presented at the Symposium on Earthquake Effects on Structures, Plant and Machinery, New Delhi, 11-13, Nov., 1996, Jain, S.K., and Murty, C.VR.

6. Analysis of Reinforced Foundation Beds, QIP Course on Computational Methods and Advances in Geotechnical Engg. IISc. Bangalore, July 1996, M.R. Madhav.

7. Doctoring the Ground, Institution of Engineers, Karnataka State Centre and Indian Geotechnical Society, Bangalore Local Chapter, Bangalore, July 1996, M.R. Madhav.

8. Trends in Engg. Education for the 21 st Century, Address to the Faculty, Gandhi Institute of Technology and Management, Visakhapatnam, July 1996, M.R. Madhav.

9. Ground Improvement Techniques, Intensive Course for the Engineers of Municipal Corporation of Hyderabad, Organised by eRRI, New Delhi, at Institution of Engineers (India), A.P. State Centre, Hyderabad, July 1996, M.R. Madhav.

10. Ground Improvement with Geosynthetics, Int. Seminar on Environmental Geotechnology with Geosynthetics. New Delhi, Aug. 1996, M.R. Madhav.

(i) Deep Dynamic Densification of Granular and Waste Fills.

(ii) Vertical Drain Treated Ground.

(iii) Granular Pile/Stone Column Reinforced Ground.

Lectures at the Seminar on Recent Advances in Ground Improvement Methods, Regional Engg. College, Warangal, Oct. 1996.

II. Columnar Inclusions in Soft Ground, Int. Seminar on Soft Ground Engg., Saga Univ., Saga, Japan, Nov. 1996, M.R. Madhav.

12. Some Studies on Vertical Drain Treated Ground, National Univ. of Singapore, Nov. 1996, M.R. Madhav.

13. Doctoring the Ground, IIT Kanpur Jan. 1997, M.R. Madhav.

14. Reclamation and Remediation of Landfills, Workshop on Waste Disposal in Engineered Landfills, IIT Delhi, Feb. 1997. M.R. Madhav. Chaired the Session on Current Practices and Emerging Trends, Nat. Seminar on Solid Waste Processing and Disposal, IIT Delhi, Feb. 1997.

15. Vertical Drain Treated Ground, J.N.T.U., College of Engg., Kakinada, Feb. 1997, M.R. Madhav.

16. Settlement of Vertical Drain Treated Ground, College of Engg., Andhra Univ. and IGS Local Chapter, Visakhapatnam, Feb. 1997, M.R. Madhav.

17. Reinforced Ground with Columnar Inclusions, IIT Madras, Feb. 1997, M.R. Madhav.

18. Automation and Quality Control in Concrete Construction, Institution of Engineers, Allahabad Chapter, Sudhir Misra.

19. Some aspects of modern concrete construction, in house training programme of the Associated Cement Companies, Sudhir Misra.

20. (1) Sediment - Water Interaction, (2) Decay of Building Stones, Staff Training Program, NIO, Goa, 9-10 Sept., 1996, B.C. Raymabashya.

#### DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

1. Gandhi as a Communicator, Seminar on "Gandhi-The End of Century Perspective, IIT Kanpur. 26-27 Dec. 1997, Patnaik, B.N.

2. Department of Philosophy, University of Rajasthan. To deliver lectures on "Similarities Between Ancient Indian and Chomskian in linguistics". Dec. 1996. (Gave 3 Lectures, Patnaik, B.N.

3. Department of HSS, IIT Delhi. Gave Seminar on "Ancient Indian and Chomskian Grammatical perspectives." March 3, 1997, Patnaik, B.N.

4. Logical and Psychological Evaluation of Translated Texts. First Symposium of the Society for Machine Aids for Translation and Communication, JNU, New Delhi. April 11-12, 1996, Sharma, N.K.

- 5.Environment and School Performance. Symposium on Children with Poor School Performance (organised by the Rotary Club of Kanpur west Distt. and the Indian Academy of Pediatrics, Kanpur District Branch) Meghdoot Hotel, Kanpur, April 4, 1996, Sharma, N.K.
- 6.Problems of Slum Dwellers of K WpUT: A Case Study based on Focussed Group Interview. National Seminar on Rehabilitation and Resettlement, IIT Kanpur, Aug. 9-10, 1996. S.P.Planiswamy, N.K. Sharma and K.K. Saxena.
7. Virtual class Room; Some Technological and Human Consideration. International Conference on Cognitive Systems (ICCS - 1996, Organised by NIIT New Delhi), Jamia Hamdard, New Delhi, Dec. 13-15 1996. P.K. Kalra and N.K. Sharma.
- 8.A structural Decomposition analysis of Energy Use Changes Between 1979-80 to 1991-92. Indian Econometric Conference, Central University Hyderabad, U.K. Dash and K.K. Saxena.
- 9.Computer Application in Economic analysis and Surveys. Conference on Computer Application in Humanities and Social Sciences, March 1-2, 1997, BITS, Pilani, Saxena, K.K.
- I O.Some Issues in Conducting Method Viable Culture based Research. National Academy of Psychology, India, Sinha, A.K.
- 11.Indian Mothers; Perspection of Distribution Fairness from the Child Perspectives. International Congress of Psychology, Montreal Canada, Aug.21, 1996, Krishnan, L.
- 12.Power Distance and Perceived Fairness in the Indian Culture. International Association of Cross-Cultural Psychology, Montreal, Canada. Aug. 16, 1996, Krishnan, L.
- 13.Faimess in the Indian Perspective. Talk. Department ofHSS, IITK. Feb.19, 1.997, Krishnan, L.
- 14.Fetility Needsa New Mind Set. One day Seminar on Fertility in U.P. , Yojna Bhawan, Lucknow 16, Jan. 1997, Sarma, A.K.
- 25.Neelakantan, G. Contemporary Literary Theory; A Critical Overview. Presented at Recent Literary Theories and the Teachingof Literature at BHU, Banaras, 14-16 Dec .. 1.996.
- 26.Role of Bureaucracy in the context of Our Recent Rehabilitation & Resettlement Policies, National Seminar on Role of Bureaucracy, IIT Kanpur, April 13-14, 1996 Rath, B.
- 27.Compensation Payment as a Means of Rehabilitation of the PAPs. National Seminar on Re-habilitation & Resettlement, IIT Kanpur, Aug. 8-10,1996 Rath, B. & Mahapatra, R.
- 28.Scope of Income Aug menting Schmes for women PAPs in the Project Affected Villages National Seminar on Rehabilitation & Resettlement, IIT Kanpur Aug. 8-10, 1996 Rath, B. & Sasmita Dash.
- 29.Social Cost of Land Acquisition of an Irrigation Project: A Case Study of Salandi Irrigatiol Project. Orissa National Seminar on Rehabilitation & Resettlement, IIT Kanpur Aug.8-10 1996, Rath, B. & Nayak, P.K.
- 30.Scope of Social Forestry as a Tool of RAP in the Project Affected Areas. National Semina on Rehabilitation & ResettRement, IIT Kanpur, Aug. 8-10, 1996 Rat~, B. & Acharya S.

31. Role of Socio-Economic Studies in Drawing R&R Policies. National Seminar on Rehabilitation & Resettlement, IIT Kanpur, Aug. 8-10, 1996, Rath, B.
32. New Challenges for Social Scientists in the Wake of Structural Reforms. National Seminar on Role of Humanities & Social Sciences in Engg. Education, JNTU, Hyderabad, Oct. 26-27, 1996 Rath, B.
33. Scope of NOOs in Development of Social Forestry as a Means for Rural Development. XXIX Orissa Economic Conference, Rourkela, Orissa, Feb. 8-9, 1997 Rath, B. & Acharya S.
34. Development of Consumption Expenditure in Rural U.P. XXIX Orissa Economic Conference, Rourkela, Orissa, Feb. 8-9, 1997 Rath, B. & Mahapatra R.
35. Quantification of External Benefits of Forest Development Programmes. 33rd Indian Econometric Conference, Central University, Hyderabad, March 3-5, 1997 Rath, B. & Acharya S.
36. Seminar on "Scope of Social Benefit Cost Analysis in India" at IIT Madras, HSS Department, Aug. 23, 1996, Rath, B.
37. Organised a National Seminar on Rehabilitation and Resettlement, IIT Kanpur, Aug. 8-10, 1997, Rath, B.
38. Problems in Rehabilitation of Street Children. National Seminar on Rehabilitation and Resettlement. IIT Kanpur. Aug. 9-10, 1996. Suhita Chopra & S. Ahuja. Also Chaired one Session, Chopra, P.
39. The Need to Intergrate Science and Religion - The Case of AIDS Prevention. World Congress on Synthesis of Science and Religion Calcutta. Jan. 1997, Suhita, Chopra.

## **DEPARTMENT OF MATHEMATICS**

1. Removal of pollutants from the atmosphere of an industrial city by rain: A non-linear model, First Annual Meeting of the Indian Soc. for Mathematical Modelling and Computer Simulation, National Aerospace Laboratories, Bangalore, December 17-18, 1996, I.B. Shukla, A. Agrawal, B. Dubey and Ram Naresh.
2. Synergistic effects of two or more Toxicants on biological species: A non-linear model, First Annual Meeting of the Indian Soc. for Mathematical Modelling and Computer Simulation, National Aerospace Laboratories, Bangalore, December 17-18, 1996, J.B. Shukla, B. Dubey and A. Agrawal.
3. Modelling the depletion of dissolved oxygen in an aquatic system due to organic pollutants and survival of species, First Annual Meeting of the Indian Soc. for Mathematical Modelling and Computer Simulation, National Aerospace Laboratories, Bangalore, December 17-18, 1996, J.B. Shukla, A.K. Misra and B. Dubey.
4. Modelling erosion of top soil due to wind and its conservation, Second National Conference on Mathematical Modelling of Ecological and Environmental Systems, Jadavpur University, Calcutta, March 29-30, 1997, B. Dubey, A. Shukla and J.B. Shukla.



5. Mathematical Modelling in Ecotoxicology (Invited Lecture), Second National Conference on Mathematical Modelling of Ecological and Environmental Systems, Jadavpur University, Calcutta, March 29-30, 1997, J.B. Shukla.

6. Limit theorems for branching particle systems, International Workshop on Percolation, Indian Statistical Institute, New Delhi, December 9-20, 1996, S.K. Iyer.

7. Attractive polymer models for two and three dimensional Brownian motion, Conference on Stochastic Processes and Applications, Utkal University, Bhubaneswar, January 7-9, 1997, S.K. Iyer.

8. Effect of viscous dissipation on non-Darcy free convection in porous media, ISMMACS, NAL Bangalore, December 1996, P. Singh.

9. Three dimensional free convection flow and heat transfer in porous media, IMS, I.I.T. Kanpur, December 1996, P. Singh, (with U.N. Mishra).

10. Simulants analysis of free convection flow and heat transfer in non-Darcy porous media, IMS, I.I.T. Kanpur, December 1996 P. Singh (with P.V.S.N. Murthy).

11. Moments of Cauchy order statistics and some identities involving Riemann zeta functions, XVII Annual Conference of the Indian Society for Probability and Statistics and National Seminar on New Dimensions in Theoretical and Applied Statistics, Department of Statistics, B.H.U., Varansi, February 10-13, 1997, P.c. Joshi and S. Chakraborty.

12. On existence of finite universal Korovkin sets in Segal algebras, AMS Meeting, Liousville, ew Jersey, U.S.A., October 5-6, 1996, Manju Rani Agrawal and U.B. Tewari.

13. Parallel FEA of NS equations using EBE solver, (Invited talk in the workshop on Parallel & Scientific Computing, IMS, IIT, Kanpur, Dec 1996), B.Y. Rathish Kumar.

14... Computational study of heart valve design, IMS Conf, IIT Kanpur, Dec 1996, B.V. Rathish Kumar.

15 Parallel iterative solver on T800 transputer based system, IMS Conf, IIT Kanpur, Dec 1996, B.Y. Rathish Kumar.

DEPARTMENT OF MECHANICAL ENGINEERING

J. G. biswas, Invited Lecture on Incompressible Navier-Stokes Solv6~s, DRDL-CFD-96, Hyderabad, 1996.

2. S.P. Singh, P. Munshi, N.N. Kishore, C. Babu Rao, Baldev Raj, Devdopment of an Xwindows based user-friendly software for computerized tomography, Workshop on Image Proce 'sing and applications, 1996, Visakhapatnam.

3. Om Prakash, J.D. Embury light Weight Cellular structures based on alluminium composites, Symposium on light weight structural materials, TMS Annual Meeting, Anacheim, California, Feb. 7, 1997.

4. P. Munshi, Tomographic Imaging of Multi-phase'Hg-Nz flow, B.A.R.C., May 16, 1996. 145

## DEPARTMENT OF MATERIAL SCIENCE PROGRAM I

1. Mechanical properties of piezoelectric ceramics, Ninth National Seminar on Ferroelectrics and Dielectrics, National Physical Laboratory, New Delhi, October 08 - 11, 1996, D.C. Agrawal (invited paper).

2. Improvement of the electrical degradation behaviour of sol-gel derived Ce doped PZT thin films, Ninth National Seminar on Ferroelectrics and Dielectrics, National Physical Laboratory, New Delhi, October 08 - 11, 1996, S.B. Majumdar, Y.N. Mohapatra and D.C. Agrawal.

3. Enhancement in Mechanical properties of PZT ceramics by in-situ ceria precipitation, Ajay Garg and D.C. Agrawal, Ninth National Seminar on Ferroelectrics and Dielectrics, National Physical Laboratory, New Delhi, October 08 - 11, 1996.

## DEPARTMENT OF INDUSTRIAL & MANAGEMENT ENGINEERING

1. Course on Small industrial Enterprise management, sponsored by SIOBI, Apr 15 - Aug 30, 1996, Arun P Sinha and Rahul Varman.

2. INFRA96, A Workshop on India's strategy for the Development & Management of Infrastructure Sector, Oct. 15-15, 1996, Arun P Sinha and A K Mittal.

3. Manufacturing Strategy, May 18 - 24, 1996 R.R.K. Sharma, Arun P Sinha.

4. Statistical Methods in ISO 9000: Systems, Tools, and Techniques, Nov 18-22, 1996, Tapan P Bagchi.

5. Production Management for Productivity and profits, Dec 6-13, 1996, R.R.K. Sharma and Tapan P Bagchi.

6. Arun P Sinha, expert for India at APO meeting on Development of supporting Industry in South Asia Countries, Kathmandu, Nov 18-22, 1996

## DEPARTMENT OF PHYSICS

1. Position of Dangling bond states in Doped a-Si:H, 3rd International Conference and Intensive Tutorial Course on Semiconductor Materials and Technology, New Delhi, Dec 16-21, 1996, A K Sinha, S K Tripathi, G S Narayana and S C Agarwal.

2. Potential Fluctuations and Staebler Wronski Effect, 3rd International Conference and Intensive Tutorial Course on Semiconductor Materials and Technology, New Delhi, Dec 16-21, 1996, Pratima Agarwal and S C Agarwal.

3. Bulk and Surface States in a-Si:H, Solid State Physics Symposium (DAE), BARC, Bombay, Dec 27-31, 1996, A K Sinha, S K Tripathi, G S Narayana and S C Agarwal.

4. Lateral photovoltage in a-Si:H, Solid State Physics Symposium (DAE), BARC, Bombay, Dec 27-31, 1996, Alok Srivastava and S C Agarwal.

5. Thermal Stress in Diamond Films Deposited by Oxacetylene Flame, First Meeting on CVD Diamond and Diamond Like Carbon Thin Films and Coatings, IIT New Delhi, Jan 10, 1997, G S Narayana, A K Sinha, S K Tripathi and S C Agarwal.

6. Relaxation of Metastable States in a-Si:H, International Conference on the Physics of Disordered Materials, Jaipur, Jan 27-29, 1997, Pratima Agarwal and S C Agarwal.
7. Density of Surface States in Li Doped a-Si:H, International Conference on the Physics of Disordered Materials, Jaipur, Jan 27-29, 1997, A K Sinha, G S Narayana, S K Tripathi and S C Agarwal.
8. Transport Properties of a-Si:H - A Theoretical Approach, International Conference on the Physics of Disordered Materials, Jaipur, Jan 27-29, 1997, A K Sinha and S C Agarwal.
9. Effect of Fast Cooling on Electronic Transport in Phosphorous Doped a-Si:H, International Conference on the Physics of Disordered Materials, Jaipur, Jan 27-29, 1997, Pratima Agarwal and S C Agarwal.
- I a. A Position Sensitive Detector Using Hydrogenated Amorphous Silicon, 4th National Seminar on Physics and Technology of Sensors, Vallabh Vidyanagar, Feb 3-5, 1997, Alok Srivastava ; IOD S C Agarwal.
- II. Particle-hopping Models of Vehicular Traffic: A Statistical Physics Perspective, Invited Talk at the DAE SSP Symposium, BARC, Mumbai, 1996, D Chowdhury.
12. Laser in thin film deposition: Physical processes and characterisation, 2nd Meeting on Current Trends in Optics, S N Bose National Centre for Basic Sciences, Calcutta, Jan 14-17, 1997, R K Thareja.
13. Optical Spectroscopic diagnostics of laser ablated plumes for thin film deposition, 2nd Discussion meeting/seminar on Laser Spectroscopy & Application, IIT Delhi, Aug 23-24, 1996, R K Thareja.
14. Temporal Logic Formalism for Histories Based Generalised Quantum Mechanics, Workshop in Foundations of Quantum Theory, Sept 9-12, 1996, TIFR, Mumbai, Thsi Dass and Yogesh Joglekar.
15. Transport and magnetic properties of stainless steel alloys and CuMn, Invited talk at the Discussion Workshop on Electronic Structure and Phase Stability of Alloys, S N Bose National Center of Basic Sciences, Calcutta, April 23-26, 1996, A K Majumdar.
16. Resistivity minima in disordered systems, Invited talk at the 15th National Symposium on Cryogenics 1996, National Physical Laboratory, New Delhi, Sept 12-14, 1996, A K Majumdar.
17. Resistivity minima in Amorphous and Crystalline Alloys, Invited talk at the Indo-French Workshop on Recent Advances in Magnetism and Magnetic Materials, Udaipur, Nov 3, 7, 1996, A K Majumdar.
18. Finite Field-Dependent BRS Transformations, Invited talk at Department of Physics, University of Pune, June 14, 1996, S D Joglekar.
19. Saha Institute of Nuclear Physics, Calcutta, January 1997. D Chowdhury.

1.

## CONFERENCE ATTENDED OUTSIDE IIT KANPUR

### DEPARTMENT OF AEROSPACE ENGINEERING

1. 48th AGM of Aero. Soc. of India Jan. 31-Feb. 1, 1997, Trivandrum Member of Technical Committee. Chaired a session on composite, N.G.R. Iyengar.

2. 6th National Seminar on Aerospace Structures, NAL Bangalore Nov. 7-8, 1996, Chaired a session, N.G.R. Iyengar.

3. 12th National Convention of Aerospace Engineers, Trivandrum, March 5-7, 1997, Presided over the Inaugural Session, Chairman of Technical Session, N.G.R. Iyengar.

4. The 9th International Symposium on Transport Phenomena in Thermal Fluids Engg., Singapore, June 25-28, 1996, R.K. Sullerey.

5. World Renewable Energy Congress '96, Denver, Colorado, USA, 15-21, June 1996, Kunal Ghosh.

6. 48th AGM of Aero. Soc. of India, 31, Jan. - 1 Feb. 1997, Trivandrum (Presented a paper), C. Venkatesan.

7. 48th AGM of Material Symposium on Parachute & Lighter than Air systems Technology Agra - presented a paper, Chaired session, Panel Discussion Member, Sanjay Mittal.

8. 23rd National Conference on Fluid Mechanics and Fluid Power, Bhopal, Dec. 27, 1996, Presented a paper, Kamal Poddar.

### DEPARTMENT OF CHEMICAL ENGINEERING

1. Second International Conference on the Lacrimal Gland, Tear Film and Dry Eye Syndromes: Basic Science and clinical Relevance, Bermuda, October 1996, Invited presentation. (A. Sharma)

2. National Symposium on Advances in Chemical Reaction Engineering, March 5-7, 1997, Varanasi-Chaired one session and presented a Plenary Lecture. (D. Kunzru)

3. National Conf. on Carbon, Dec 19-20, 1996, DMSRDE, Kanpur (D. Kunzru)

4. APCSEET'96 Conference, Singapore, 19-21, June, 1996, presented a paper. (J.K. Gehlawat).

### DEPARTMENT OF CHEMISTRY

1. Dynamics of confined liquids, Theoretical Chemistry Discussion Meeting, Mahatma Gandhi University, Kottayam, Kerala, Dec. 5-8, 1996, A. Chandra.

2. Plenary lecture at Tenth Annual National Symposium, Department of Chemistry, Chandigarh, March 1997, V. Chandrashekar.

3. Invited lecture at "Modern Trends in Main Group Chemistry", symposium, Department of Chemistry, IIT Delhi, March 4-5, 1997, V. Chandrashekar.



4. National symposium on Solid State Chemistry and Advanced Materials, Gorakhpur University, December 21-23, 1996. Invited lecture on Nanophasic Magnetic Materials and Chaired the technical session. Panelist in discussion on future prospectus of materials chemistry, N.S. Gajbhiye.

5. Symposium on Advances in Bioinorganic Chemistry, TIFR, Bombay, October 7-11, 1997. Presented invited lecture, R.N. Mukherjee.

6. National Seminar on Molecular Dynamics and Structure, IIT Madras, April 5-6, 1996, N. Sathyamurthy.

7. Academy Discussion Meeting on Theoretical Chemistry, Mahatma Gandhi Univ., Kottayam, Dec. 5-8, 1996. N. Sathyamurthy.

8. Workshop on "Recent Developments in Chaotic Dynamics", Bharatidarsan Univ., Trichirapalli, Dec. 9-13, 1996, N. Sathyamurthy.

#### DEPARTMENT OF CIVIL ENGINEERING

1. Chair Person - Int. Conf. on Solid Waste Technology and Management, Nov. 17-20, 1996, Philadelphia, USA, Umesh Dayal.

2. Conf. on Ash Pond Ash Disposal System, April 1996, IIT Delhi, Umesh Dayal.

3. Symposium on Earthquake Effects on Structures, Plant and Machinery, Ashoka Hotel, New Delhi, Nov. 13-15, 1996, Co-chaired a session as well as presented a contributed paper, Y.K. Gupta.

4. Eleventh World Conference on Earthquake Engg., Acapulco (Mexico), June 23-28, 1996, S.K. Jain.

5. International Conf. on Integration of Public Administration and the Science of Disasters, Beijing (China), Jan. 20-28, 1997, S.K. Jain.

6. Symposium on Earthquake Effects on Structures, Plants and Machinery, New Delhi, Nov. 13-15, 1996, S.K. Jain.

7. National Seminar on Recent Advances in Civil Engineering, Roorkee, Sept. 28, 1996, S.K. Jain.

8. Workshop on Design Practices in Earthquake Geotechnical Engg., Roorkee, Sept. 26-27, 1996, S.K. Jain.

9. 3rd International Conf. on Composites Engineering, New Orleans, USA, 22-26 Jul. 1996, Ashwini Kumar.

10. Nat. Seminar on Solid Waste Processing and Disposal, IIT, Delhi, Feb. 1997, M.R. Madhav.

11. Conf. on Problematic Subsoil Conditions, Kakinada, Oct., 1996, M.R. Madhav.

12. Int. Symp. on Earth Reinf., Fukuoka, Nov, 1996, M.R. Madhav.
13. Int. Sem. on Environmental Geotechnology with Geosynthetics, New Delhi, Aug. 1996. M.R. Madhav.
14. International Conference on Durability of Concrete Structures, Hyderabad, India, March 1997, Sudhir Misra.
15. International Conference on Concrete Structures, Dalian, China, Oct. 1996, Sudhir Misra.
16. Eleventh World Conf. on Earthquake Engg. Acapulco, Mexico, 23-28, June 1996, Delegate presenting two papers (as posters), C.V.R. Murty.
17. Invited paper as Resource person, SAARC Workshop, JNU, New Delhi, 23-25 Oct., 1996, B.C. Raymahashay.
18. 17th Asian Conf. on Remote Sensing, Nov. 4-8, 1996, Colombo, Sri Lanka, Nitin Kr. Tripathi.
19. Workshop on Defluoridation of Water using Activated Alumina held at Dungarpur (Raj.), Aug. 3-4, 1996, C. Venkobachar.
20. Workshop on Defluoridation of Water held at Anantapur (A.P.), March 17-19, 1996, C. Venkobachar.

#### DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

1. Attended the sixteenth FST & TCS conference in Hyderabad in December 1996, M. Agarwal
2. Attended the 12th conference on Computational Complexity in Ulm, Germany in June 1997, M. Agrawal.
3. Attended the sixteenth FST & TCS conference in Hyderabad in December 1996, S. Biswas.
4. Attended the Basque International Workshop on Information Technology in Biarritz, France in July 1997, T.V. Prabhakar.

#### DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

1. XVIII South Asian Language Analysis Round Table, New Delhi, Jan 6-8, 1997. Invited to Chair a Session. Presented a paper entitled "The Oriya JE from a Historical Perspective, Patnaik, B.N.
2. International Seminar on Computer Applications in Humanities and Social Sciences, BITS, Pilani March 1-2, 1997. Presented an invited paper entitled "Computer Technology and the Writing of Grammars, PATNAIK, B.N.
3. 2nd Asian 33rd IAAP International conference, Gurukul Kangri University, Haridwar, Feb. 26-27, 1997. Presented an invited Paper, Sharma, N.K.

4. First Symposium on the Society for Machine Aids for Translation, JNU, New Delhi, Apr 11-12, 1996. Presented on Invited Paper and Chaired a Session, Sharma, N.K.
5. Symposium on Child with Poor School Performance (detail in 3A), Invited Paper. Penali Sharma, N.K.
6. National Seminar on Rehabilitation and Resettlement, IIT Kanpur, Aug. 9-10, 1997, Presented a paper, Sharma, N.K.
7. International conference on Cognition System (Details in 3.A.) Presented a paper, Sharma, N.K.
8. Indian Economic Association, 79th Annual Conference, Gwalior, Dec. 27-29, 1996, Presented as listed under 3A, Barthwal, R.R.
9. Attended the VII National Conference of the National Academy of Psychology, Department of Barkat Ullaha University, Bhopal and chaired a Scientific programme paper session on Cultural Identity, Sinha, A.K.
10. Jan. 18, 1997. Was invited as a Resource Person in a one day Workshop on Curriculum Design for Human Resource Development and Management, Deptt. of Psychology, University of Allahabad, Sinha, A.K.
11. Invited for Discussion Teaching English and Technical Writing at IIT Delhi, HSS Deptt. Feb 19-20, 1997. Neelakantan, G.
12. See 3(A) -ICP and IACCP-Montreal, Canada - Aug. 1996, Krishnan, L.
13. National Academy of Psychology, Barkat Ullah University, Deptt. of Psychology, Bhop. Dec. 1996. Chaired a Session, Krishnan, L.
14. National Seminar on role of HSS in Engg. Education, JNTU, Hyderabad, Oct. 26-27, 1996. Presented a paper and chaired one of the Technical Sessions, Rath, B.
15. XXIX, Orissa Economic Conference, Rourkela, Orissa, Feb. 1997, Rath, B.
16. 33rd Indian Econometric Conference, Central University, Hyderabad, March 3-5, 1996. Chaired one Technical Session and presented a paper, Rath, B.
17. SSA Congress at Grand Hotel, Agra, March 13-15, Chaired a Session on "Women Science and Technology", Sharan, R.
18. Conference attended at SIEMAT, Allahabad. Sept. 7, 1996. "Analysis of Scholl Statistical Methods", Sharan R.
19. World Congress on Synthesis of Science and Religion, Calcutta, Jan. 1997. Presentee Contributed paper, Suhita Chopra.



## DEPARTMENT OF MATHEMATICS

1. First Annual Meeting of Indian Society for Mathematical Modelling and Computer Simulation. National Aerospace Laboratories. Bangalore. December 17-18, 1996, J.B. Shukla.

(i) Participated in the Executive Committee Meeting of the ISMMCS as its General Secretary

(ii) Chaired the session on Modelling and Simulation of Biological and Physical Processes in the Indian Ocean

2. Attended 62nd Meeting of Indian Mathematical Society, IIT, Kanpur, December 22-24, 1996, Organised a National Symposium on Biomathematics, IB. Shukla.

3. Second National Conference on Mathematical Modelling of Ecological and Environmental Systems, Jadavpur University, Calcutta, March 29-30, 1997, IB. Shukla.

(i) Gave an invited lecture on ecotoxicology

(ii) Chaired a session on paper presentation

4. Indian Society of Mathematical Modelling and Computer Simulation. NAL, Bangalore, December 17-18, 1996 Chaired the session and Participated in Discussions: Chaired the session of LM.S. at I.I.T. Kanpur, Dec. 22-26, 1996, P. Singh.

5. Algebraic Topology (an Invited Colloquium Talk), Banasthali Vidyapeetha. Banasthali, Rajasthan, 6th October 1996, Aparna Dar.

6. Symposium on Harmonic Analysis, Ramanujan University of Mathematics, Madras, March 13-15, 1997, Given an Invited Talk, U.B. Tewari.

7. Indian Mathematical Society Annual Conference, IIT, Kanpur. December 22-25, 1996, Chaired a session, U.B. Tewari.

## DEPARTMENT OF MECHANICAL ENGINEERING

1. P. Munshi, Chaired Session on X-ray Tomography at the 14th World Conference on NOT. New Delhi, Dec. 8-13, 1996.

## DEPARTMENT OF MATERIALS SCIENCE PROGRAM

1. Ninth National Seminar on Ferroelectrics and Dielectrics, National Physical Laboratory, New Delhi, October 08 - 11, 1996, invited paper and contributed papers (Dr. D.C. Agarwal).

2. 60th Annual Meeting of the Indian Ceramic Society, SAIL R&D Centre, Ranchi, December 12 - 13 1996, to receive Malviya Award (Dr. D.C. Agarwal).

## DEPARTMENT OF PHYSICS

1. 3rd International Conference and Intensive Tutorial Course on Semiconductor Materials and Technology, Dec 16-21, 1996, Univ of Delhi, Tutorial Faculty, V N Kulkarni.

2. International Conference. in Semiconductor Materials and Technology, Dec 19-22, 1996, Delhi University, Delivered Invited Talk on "Luminescence in Nanocrystalline Semiconductors, V A Singh.

3. National Symposium on Physics of Semiconductor Nanostructures, Jan 23-25, 1997, IIT Delhi, Delivered Invited Talk on Radiative Processes in nanostructures, V A Singh.

4. Workshop in Foundations of Quantum Theory, TIFR, Mumbai, Sept 9-12, 1996, Presented a paper, Tuisi Dass.

5. 2nd Meeting on Current Trends in Optics, S N Bose National Center for Basic Sciences, Calcutta, Jan 14-17, 1997, Invited Talk. R K Thareja.

6. 2nd Discussion Meeting/Seminar on Laser Spectroscopy and Application, TIT Delhi, Aug 23-24, 1996, Invited Talk, R K Thareja.

7. Member, Indian Delegation at the Royal Society-Unilever Indo-UK Forum on Dynamics of Complex Fluids, Cambridge, UK, June 1996, D Chowdhury.

8. Invited Speaker at the DAE SSP Symposium, BARC, Mumbai, 1996, D Chowdhury.

9. Invited participant at SUJAYATA, Golden Jubilee Celebrations symposium, TIFR. Mumbai, Sept 1996, D Chowdhury.

10. Symposium on Novel Materials, Puri, Chaired a session, March 2-6, 1997, S C Agarwal.

II. Int Conf on Plur of Disordered Materials, Jaipur, Jan 27-29, 1997, Invited paper and Chaired a session, S C Agarwal.

## OTHER ACTIVITIES

### (a) Technology Development

#### DEPARTMENT OF AEROSPACE ENGINEERING

1. Improvement of Withering Trough - for Tea Research Association - work continues.

#### DEPARTMENT OF CHEMICAL ENGINEERING

1. Coke Inhibitors for Pyrolysis of Hydrocarbons - Work in Progress.

2. Invert Sugar & High Fructose Syrups.

#### DEPARTMENT OF CHEMISTRY

1. Single domain size particles of  $\text{SrFe}_{12}\text{O}_{19}$  for Recording and permanent magnets including other recording materials -  $\text{Fe}_3\text{N}$ ,  $\text{Fe}_4\text{N}$ ,  $\text{Fe}_3\text{P}$  N.S. Gajbhiye.



## DEPARTMENT OF MECHANICAL ENGINEERING

1. S.K. Choudhury, Organized XI National Convention of Production Engineers at IIT Kanpur, October 25-26, 1996.
2. S.K. Choudhury, Coordinated and Organized Winter School on Production Technology, for the Polytechnic Teachers at IIT Kanpur, December 3-14, 1996.
3. Y.K. Jain, A Self financed winter school on Advanced Machining Processes was conducted during Dec. 1996-1997.
4. Y. Eswaran, Member of the Organising Committee of a Workshop on Parallel Computing Application in Science and Engineering, held at IIT Kanpur, 6-8, January 1997.
5. Om Prakash, An Intensive Course on Advanced Machining Processes Self Sponsored, 23 Dec. 28 Dec., 1996.
6. B. Sahay, Analytical Modelling and Design of Electro hydraulic Servo-Valve, HAL Project, 1996-97.
7. B. Sahay, Analytical Modelling and Design of Variable Delivery Pump for Control Applications, HAL Project, 1996-97
8. FEM Analysis of 3-wheeler frame Structure.

(b) Software Developed

## DEPARTMENT OF CHEMICAL ENGINEERING

1. Software Hazard and Operability Studies (HAZOP). Ready (J.P. Gupta).
2. Data acquisition and analysis software for application in expt. fluid mechanics.

## DEPARTMENT OF CHEMISTRY

1. Time-dependent quantum mechanics. Further development needed, N. Sathyamurthy.

## DEPARTMENT OF CIVIL ENGINEERING

1. Simulation for Heterogeneous Traffic Flow on Narrow Road System on the Indian Highway Network, by S.P. Palaniswamy.
2. Software for Analysis of Black Box Data for Road Transport Fleets, by S.P. Palaniswamy.

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

1. Developed Test Coverage Analyzer for Ada. It is ready for transfer by Sanjeev Aggarwal.
2. Developed Test Coverage analyzer for C. It is ready for transfer by Sanjeev Aggarwal

3. Developed Code Compliance checker for Ada. Further development is needed by Sanj Aggarwal.

4. Developed Computerized Railway Information System. further Development is needed Dheeraj Sanghi.

#### DEPARTMENT OF MATHEMATICS

I. Parallel iterative solver in 4-noded transputer based MIMD platform, B.V. Rathish Kun

#### DEPARTMENT OF MECHANICAL ENGINEERING

I. B. Sahay, Software for Butterfly Valve Design for Hydraulic Applications.

(c) Industry visited/visit to other Institute for research purpose, Period. Illustration/Institute Name, PI

#### DEPARTMENT OF AEROSPACE ENGINEERING

I. Gulma Tea Estate, 4 Days in May 96, Consultancy Work. NfOT (National Inst. of Oce Tech.) Madras, Dec. 96, Auroville Wind Energy Centre, Pondicherry, Dec. 96, Asiatic Sociel Calcuta, Jan. 97

2. ADRDE, Agra, CDAC. Pune, ADA, Bangalore, AHPCRC, Minneapolis. USA.

#### DEPARTMENT OF CHEMICAL ENGINEERING

I. State University of New York at Buffalo, Invited Seminar, (A. Sharma)

2. IPCL, Nagothane for project discussions and presented a Seminar on Coke Formation during Pyrolysis of Hydrocarbons. (D. Kunzru)

3. IPCL, Baroda - for project discussion and gave a seminar on Inhibition of Coke Formation during Pyrolysis of Hydrocarbons. (D. Kunzru)

#### DEPARTMENT OF CHEMISTRY

I. Visited Washington State University, Pullman, USA as visiting Assistant Professor for Collaborative Research work, period from June-July, 1996 and Jan-June, 1997, A. Chandra.

#### DEPARTMENT OF CIVIL ENGINEERING

I. Gave a series of 10 invited lectures on Avalanche Dynamics and Open channel flow at GJ Pant University of Agriculture and Technology, Pantnagar, June 1-96" B.S. Murty.

2. Atomic Power Plants at Kakrapar, Narora, etc. as a member of the Atomic Energy Regulator Board inspection team for the safety Committee for the Operating Plants, Sudhir Misra.

3.RDSO, Lucknow and a prestressed concrete sleeper factory in connection with the proje improvement in sleper construction, Sudhir Misra.

4.Centre for Water Resources Studies (CWRS), Patna, Selection Committee for Hydrol< Jan. 18, 1997. B.C. Raymahashay.

5.The IIT Kanpurparticipated for the first time in the Antarctica summer expedition launch< 12 Dec. 1996, and returned on 4 April 1997. The scientific activities involved a study a lakes of the Schinnacher Oasis near the Indian station, Maitri. The major objectives we investigate the thennal structure, water chemistry and sedimentology of these lakes. The ~ samples and sediment cores collected during the expedition would unravel the paleoclr fluctuations during the Quaternary period.

#### DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

1. Visited Cadence India Ltd. for short course and project discussion. He also visited Mahe British Telecom. Pune, Sanjeev Aggarwal. Visited Bell laboratories, Lucent Technolo Holmdel, NJ, USA from December 1996 till July 1997 to work in the area of voice ov( Dheeraj Sanghi.

#### DEPARTMENT OF HSS

1. Population Council, India,Lucknow Office in connection with research on TraDspotation. ( May 1997, Shanna. AK.

2. Sharan, R. (i) HAL, Lucknow  
(ii) Il<""FCO Allahabad for Data  
(iii) ITI Allahabad : collection  
(iv) National Level workshop on Basic Education at Luckno'-', organised by UP Basic Eucation Boar Feb. 7-8. 1997.

3. Krishnan, L. Participation in Advanced Research Training Seminar on Qualitative Rese Methods in Ottawa. Canada, Aug. 1996, Krishnan, L.

4. Sinha, AK. Gave an invited lecture on Current Trends and Futuristic Vision in the arc organisational behaviour, Deptt. of Psychology, Delhi University.

#### DEPARTMENT OF MATHEMATICS

3. (i) Visited Jawahar Lal Nehru Technical University, Hydli~rabad, 14th August, 1991 Interacted with scientists in Environmental and Biotechnology Divisions, J.B. Shu  
  
(ii) Visited Indian Institute of Science, Bangalore, 30th April- 1 st May, 1997. Intera with scientists in the Departments of Mathematics, School of Ecological Sciences, technology Laboratory, etc., J. B. Shukla.  
  
(iii) Visited Visva-Bharati Vniv, Santiniketan, 31st March. 1997, J.B. Shukla.

2. Visited Mehta Research Institute, Collaborated with Professor B. Ramakrishnan during Winter Vacation, A.K. Lal.

#### DEPARTMENT OF MECHANICAL ENGINEERING

1. National University Singapore June 25-30, 1997.

2. Tata Research Development and Design Centre, Pune, August 30-September 7, 1997.

3. P. Munshi, Institute for Nuclear Medicine and Allied Sciences, Delhi, Discussions for project.

4. B. Sahay, H.A.L. Lucknow - Projects

5. B. Sahay, Scooters India Ltd. - Project

3. B. Sahay, L.M.L. Kanpur . Project

#### DEPARTMENT OF PHYSICS

1. Texas A&M University College Station, Texas; Indo-US Project Work, Nov 29-Dec 23, 1991 A K Majumdar.

2. National High Magnetic Field Facility, Tallahassee, Florida; Talk and visit, Dec 16-18, 1991 A K Majumdar.

3. Princeton University, Talk and visit, Nov 27-28, 1996, A K Majumdar.

(d) Patents, (Title, Patents No.)

#### DEPARTMENT OF AEROSPACE ENGINEERING

1. A Device for extracting power from to-and-from wind, patent application filed on 2.12.96.

2. Finite Element structural dynamic analysis of rotating blades.

3. Tata Energy Research Institute. New Delhi, to Test a Burner, Designed Developed by D. Mishra.

#### DEPARTMENT OF HSS

1. Recent Painting, acquired for permanent collection by National Gallery of Modern Art, New Delhi, Bhatnagar. R.K.

#### DEPARTMENT OF MECHANICAL ENGINEERING

1. B. Sahay. Electro-Hydro. Mechanical Stepping Motor. Pt. Application No. 845/DEU91 .. PA (e)  
Awards and Honours  
Title, Awarded by

#### DEPARTMENT OF AEROSPACE ENGINEERING

1. Distinguished Professor in Aerospace Engineering Aeronautical Society of India Oct. 1996.

2. Aerospace Division Gold Medal of the Institution of Engineers for the paper entitled: Influence of Moisture absorption on Fracture Toughness of Kevlar/epoxy composite together with B.D. Agarwal and S. Ravi, Dec. 1996.

#### DEPARTMENT OF CHEMICAL ENGINEERING

1. Maharashtra State National Award, Indian Society for Technical Education (ISTI) A. Sharma.

#### DEPARTMENT OF CHEMISTRY

1. Chosen as the Regional Coordinator for India, Global Supramolecular Chemist Network, Present Headquarters: Institute of Physical Chemistry, Polish Academy of Sciences P.K. Bharadwaj.

2. Elected to Fellow of National Academy of Sciences, Allahabad, 1996, T.: Chandrashekar.

3. Elected Fellow of Indian National Science Academy (FNA), 1997, S.K. Dogra.

4. Elected Fellow of National Academy of Sciences (FASc), 1997, S. Sarkar.

#### DEPARTMENT OF CIVIL ENGINEERING

1. ASCE Journal of Transportation Engg. Best Paper Award for 1996. Awarded by American Society of Civil Engineers, Partha Chakraborty.

2. Career Award for Young Teachers from AICTE, New Delhi, Nitin Kumar Tripathi

3. Prof. S.R. Mehra Memorial National Research Award, 1996, awarded by University of Roorkee, Roorkee, M.R. Madhav.

4. Continued to serve as the Chairman of a Working Group of the Japan Concrete Institute Committee on the Model Code for Concrete Structures, Sudhir Misra.

5. Appointed Technical Appraisal Committee Construction Industry Development Council, New Delhi, A.S.R. Sai.

#### DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

1. Talcher Thermal Power Station of NTPC, May 1996 for Research Exploration Rath, B.

2. ALCO, Angul for Study of its Ash Pond Utilisation Patterns, Rath, B.

3. Vice President of Indian Social Science Association, Sharan R.

4. 4.0mprakash, S. Dr. Ambl~dkar Fellowship Award, Distinguished Service Award was Bestowed on Prof. S. Omprahsh by the Datit Sahatiya Academy New Delhi on Sept. 29, 1996 in Academy's National Convention. Honourable Sri Suraj Bhan, Dy. Speaker Lok Sabha was the Chief Guest. His Excellency Sri Mata Prasad Governor Arunnachal Pradesh presided over the function. His Excellency Sri Mahabir Prasad, Governor Haryana and Himachal Pradesh was the Honourable Chief Guest on this occasion.

#### DEPARTMENT OF MATHEMATICS

I. Got elected as E.C. Member of Indian Society for Probability and Statistics for the period 1996-1998 in the election held in June/July 1996, PC. Joshi.

#### DEPARTMENT OF MECHANICAL ENGINEERING

1. A.K. Mallik, Elected fellow of the Indian Academy of Sciences (Bangalore), Title - EA.Sc.

#### DEPARTMENT OF MATERIAL SCIENCE PROGRAMME

1. Malviya Award, awarded to Dr. D.C. Agarwal by the Indian Ceramic Society, Dec. 12 1996, for contributions in the area of ceramic science and technology.

2. Dr. D.C. Agarwal was invited to be member of the Editorial Advisory Board, Journal of the Indian ceramic Society, for 1997 and 1998.

3. Dr. D.C. Agarwal invited to be member of the advisory board of Materials Forum, Trans Tech. Publications Ltd, Switzerland.

4. Dr. J. Kumar appointed as Reviewer to Physics of letters.

M.Tech. Thesis completed:

1. Current-voltage characteristics of Al-A~03-Al structures, Anand Madhukar, April 1996 (Supervisor: Dr. J. Kumar).

2. Fabrication and characterization of Au/n-Si Schottky barrier diodes, Md. Tayyab Ansari, August 1996 (Supervisor: Dr. J. Kumar).

3. Fabrication and characterization of nickel - metal hydride battery, Sanjiv Tripathi, January 1997. (Jointly supervised by Dr. K.N. Rai and Dr. J. Kumar).

4. Effect of temperature and ageing on the electrical behaviour of Al-AlP3-Al structures, Krishna Kumar Lakhmani, January 1997 (Supervisor: Dr. J. Kumar).

#### DEPARTMENT OF MATERIALS AND METALURGICAL ENGINEERING

#### DEPARTMENT OF PHYSICS

I. Member, Scientific Advisory Committee, "Physics Computing '96", the Biennial Conference of European Physical Society (BPS), under the auspices of the EPS and APS, Krakow, Poland, 1996, D Chowdhury.



## DEPARTMENT OF INDUSTRIAL & MANAGEMENT ENGINEERING

## DEPARTMENT OF CENTRE FOR LASER TECHNOLOGY

(Of Continuing Education Activities)

## DEPARTMENT OF CHEMICAL ENGINEERING

1. Hazard Analysis in Chemical Industry, Feb 24-28, 1997 Self Supporting. IIT Kanpur  
Total 51, All from industries. (J.P. Gupta)

## DEPARTMENT OF CIVIL ENGINEERING

1. Advanced Data Processing Techniques in Remote Sensing, AICTRE Sponsored  
course for teachers/industry, July 1-13, 1996 (22 teachers + 10 from industry participant) Onkar  
Dikshit and Nitin K. Tripathi.

2. The first National Conf. on Global Positioning Systems, Feb. 21-23, 1997 (partici-  
pants 160), C.V.R. Murty, AE; K.R. Srivathsan, EE, Onkar Dikshit.

3. A Workshop on Earthquake Resistant Construction in Civil Engg. Curriculum at IIT  
Kanpur, Oct. 11-13, 1996, CVR Murty and S.K. Jain.

4. Conducted Short Course on Seismic Design of Reinforced Concrete Buildings,  
Bombay, Dec. 1996, organised by IIT Kanpur for professional engineers, C.Y.R. Murty.

"S:QIP short course on "Developments in Concrete Construction, Dec. 1996 attended by  
more than 30 teachers from engineering colleges and about 15 participants from the industry,  
Sudhir Misra.

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

1. Gave a course on Compilers for High Performance Computing in Cadence India,  
Sanjeev Aggarwal.

2. Gave lectures in induction training programme of cadence India at IIT Kanpur, Sanjeev  
Aggarwal, Somenath Biswas, Ajai Jain, TY. Prabhakar, Harish Karnick, Rajat Monna.

3. Gave lectures in Teachers training programme at IBM Ace Hyderabad Centre, Sanjeev  
Aggarwal, somenath Biswas, TY. Prabhakar, Sumit Ganguly, Rajat Moona.

4. Gave lectures in Teachers training programme at IBM Ace teachers at IIT Kanpur,  
Sanjeev Aggarwal, Manindra Agrawal, Somenath Biswas, Ajai Jain, TY. Prabhakar, Sumit  
Ganguly Harish Karnick, Phalguni Gupta.

5. Conducted a course on Next Generation Internet Protocol (IPv6) in IIT Kanpur during  
November 1996, Dheeraj Sanghi.

6. Gave a few lectures in Broadband Networks. Organized and sponsored in part by  
telematics group, IIT Kanpur, December 1996, Dheeraj Sanghi.

7. Gave a course on Internet: Concepts and Trends. Organized and sponsored t  
Rajasthan Govt. Jaipur. September 1997, Dheeraj Sanghi.

#### DEPARTMENT OF HSS

I. Sah P.P. wrote 5 units for the IGNOU Distance Education Course on 'English for  
Practical Purposes'. The Units are as follows, Sah P.P.

Units 29, Writing Memos.

Units 30, Writing Announcement, Circular Letters, Notices and Agenda.

Unit 31, Taking Notes and Preparatory Minutes

Unit 32, Writing Reports-1

Unit 33, Writing Reports-2

2. Coordinated a two day workshop on Privatisation of Higher Technical Education a  
(Sept. 7-8, 1996) organised by the ISTE IIT K chapter and IITK, Dixit Shikha

3. Sponsored by CIICP. The workshop was attended by distinguished academic admi  
istrators, academicians and faculty. In all there were about 50 participants.

4. G. role of of Communication in the Office. Talk delivered in the QIP Session for the Sta  
of IITK, November 1996, Neelakantan.

5. Underpreparation; A book on Industrial Sociology with the help of QIP, Sharma, A.K.

7. Krishnan, L. Refresher Lecturers given at

- (i) Academic Staff College, HSS Gour University, Sagar, Sept 1996. - a.  
Distributive Justice and Reward Allocation.
- b. Research Methods

- (ii) Psychology Department Allahabad University, March 1997.  
Trends in Social Psychology.

8. Seminar Organised. Rath B. organised the National Seminar on "Rehabilitation ani  
Rsettlement", IITK aug. 8-10, 1997.

9. Seminar organised S. Omprakash. A Two day National Seminar Cum Workshop on  
Challenges, Expectations and Performance of Bureaucracy in India 'Nas organised under the  
auspices of Department of HSS, IIT Kanpur and District Administration Kanpur on April 16-  
17, 1996. Top men in Bureaucracy, Judiciary, Journalism, Academicians and Social  
Activists from all over the country as well as from abroad took part  
in this.

10. In Commemoration of Golden Jubilee of Indian's Independence Mr. G.G. Bhargav  
Senior Journalist, Highlighted IITs Kanpur contribution in the National reconstru tion in  
his article WHY DOES BUREAUCRACY GET BASTI-IED IN INDIA? The Tirm of India  
August, IS, 1996.

11. His Excellency the President of India has nominated Prof. Sampla Om prakash as MEMBER: BOARD OF GOVERNORS, Baba Saheb Bhimrao Dr. Ambedkar central Vnivrstit) Located at Luclmow.

#### DEPARTMENT OF MATHEMATICS

1. Gave a course on Abstract Algebra in "Mathematics Training and Talent Search" programme held in Summer 1996 at IIT Kanpur and sponsored by "National Board for Higher Mathematics", A.K. Lal.

2. Delivered 12 lectures on "Analysis of Variance and Design of Experiments" during September 16-28, 1996 in a course sponsored by Indian Oil Corporation Ltd. on Chemometrics at I.I.T. Kanpur. Extensive Lecture Notes written. Course Co-ordinators were: Dr. G.K. Shukla and Dr. Santokh Singh, Organized by Continuing Education Programme, LLT., Kanpur, PC. Joshi.

3. Refresher course in Algebra at Aligarh Muslim University, Lectures on Structure of Finite Groups, February 21-22, 1997, V.B. Tewari.

#### DEPARTMENT OF MECHANICAL ENGINEERING

1. A.K. Mallik, Delivered lectures in a self-sponsored course on Chaos and Fractals for ONGC. ....

Participation in High Level Industry Academia Interaction Programme during summer

#### DEPARTMENT OF CIVIL ENGINEERING

1. Almes and Associates, Inc., USA, 1997 summer, Umesh Dayal.

2. Visited Univ. of Dresden, Germany as Humboldt Fellow during June-July, 1996, R.P Singh.