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4. Optimal design of composite plates with multiple constraints (Proc. 13th Int. Symp. on Space Tech. & Sc. Tokyo, 1982)
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61. Vibrational Spectra and Phase Transitions in $Ni(CH_3COO)_2 \cdot 4X_2O$ (X=H, D) (J. Mol. Struc. 1983, (in press))
G.S. Raghuvanshi, M. Pal, M.B. Patel & H.D. Bist
62. Vibrational Spectra and Phase Transitions in Mercury Perchlorate Hexahydrate (J. Chern. Phys. 1983, (in press)
. M. B. Patel & H. D. Bist

63. Normal Modes of MOO₄ Ion in Tb_{1.8}Eu_{0.2}(MoO₄)₃ Single Crystal
(J. Solid State Chem., 1983, in press)
S. S. Saleem, G. Aruldas, H. D. Bist
64. Raman Spectra of GdTb (MOO₄)₃ and Tb_{1.8}Eu_{0.2}(MoO₄)₃ in the region 20-200 cm⁻¹.
(Spectrochim. Acta, **A**, 1983, in press)
S. S. Saleem, G. Aruldas, H. D. Bist
65. Low Frequency Vibrational Spectra of Lithium Formate Monohydrates and its aqueous Solutions
(Can. J. Chem. (Commun.)
A. Agarwal, D.P. Khandelwal, H. D. Bist
66. Evans Holes in the IR spectra of some Transition Metal Formate Dihydrates
(Can. J. Chem. (Commun.)
G.D. Tewari, V.P. Tayal, D.P. Khandelwal and H. D. Bist
67. Single Crystal Raman Spectra of Magnesium and Zinc Perchlorate Hexahydrates (38th Symposium on Molecular Spectroscopy, Ohio, State Univ. USA, 1983, (Commun.)
M. B. Patel, A. Agarwal & H. D. Bist
68. Effect of bee-fee Phase Transition on the Compton Profiles of Iron (Appl. Physics A **28**, 119, 1982)
K.R.K. Gandhi & R.M. Singru
69. Calculation of Point-slit Angular Correlation Curves in Paramagnetic Chromium
'Positron Annihilation' ed. by P.G. Coleman, S.C. Sharma & L.M. Diana, North Holland Pub. Co., Amsterdam, 1982, p. 343)
A. K. Singh & R. M. Singru
70. 2D ACPAR: Comparison between theory and Experiment (Review Article)

(Positron Annihilation ed. by P.G. Coleman,
S.C. Sharma & L.M. Diana, North-Holland Pub. Co.,
Amsterdam, 1982)

R.M. Singru

71. Study of Na₂₀-SiO₂-Fe~Oa-Y_{20a} glass by
Mossbauer and EPR spectroscopy
(J.Mater. Science **17**, 1687, 1982)
Akhilesh Prasad, D. Bahadur, R.M. Singru
and D. Chakravorty
72. Magnetic Properties of Glass Ceramics in System
45Pbo-35B_{20a}-4Al_{20a}-IOFe_{20a}-6Y 203
(J. Magn. & Magn. Materials 31-34, 1583, 1983)
D. Bahadur, D. Chakravorty, Akhilesh Prasad &
R. M. Singru
73. Study of the Electron Momentum Distribution in
Vanadium by Positron Annihilation
(Solid State Commun. **45**, 799, 1983)
A. A. Manuel, R. Sachot, P. Discounts, M. Peter,
R.M. Singru and A.K. Singh
74. Exact Solution of Schrodinger's equation for a
Particle in a Tetrahedral Box
(J ournal of Physics, A15, 2131, (1982)
H. S. Mani, H.R. Krishnamurthy, H.C. Verma
75. Electromagnetic quark Mass Difference and
Dynamical Symmetry Break-down
(Phys. Rev. (In Press))
H. S. Mani, J anardan P. Singh
76. Critical Dynamics of the Superfluid Transitions
High Temperature Expansion for T> T_A.
(Phys. Rev. **B25**, 216, 1982)
J. K. Bhattacharjee, R. A. Ferrell
77. Magnetoresistance in Canonical Spin
Glasses (Phys. R"ev. B27, 495, 1983)
A. K. N~am,A. K. M~umdu

78. Deviations from Curie-Weiss Law in AuMn and AgMn Spin Glasses (Solid State Commun. **45**, 907, 1983)
A.K. Majumdar, V. Destreich & D. Weschenfelder
79. Proof of the T^{5/2}-term in the Magnetization of Fe(BC) Metallic Glasses
(Phys. Rev. May 1983)
A.K. Majumdar, V. Gestreich, D. Weschenfelder and F.E. Luborsky
80. Transition from Anti-ferromagnetism to Field-induced Ferromagnetism in FeNiCr Alloys
(Europhysics Conference on Solid State Physics, Manchester, U.K., March 22-25, 1982)
A. K. Majumdar, P. V. Blanckenhagen
81. Spin-Waves in FeBC Ternary Metallic Glasses
(Ibid)
A.K. Majumdar, V. Oestreich, D. Weschenfelder and F. E. Luborsky .
82. Correlation between Magnetoresistance and Magnetization in AgMn and AuMn Spin-Glasses (Internal Report IC/82/147, International Center for Theoretical Physics, Miramare-Trieste, Italy, Aug. 1982)
A. K. Majumdar
83. Study of Magnetic Alloys
(Presented at Symp. of Indian Cryogenic Council, Dec. 1982)
R. K. Ray
84. Dislocation Dipoles and Loops in Magnesium Oxide Crystals (Phil. Mag. A 1982, Vol. 46, No.4, 641-651)
G. K. Rao, A. S. Parasnis
85. Teaching of Polarization of Electromagnetic Waves
(Prbc. UNESCO Conf. Bangi, Malaysia, 1982)
A. S. Parasnis
86. Teaching of Diffraction and Image Formation
. (Proc. UNESCO Conf. Bangi, Malaysia, 1982) -
A. K. Gupta & A. S. Parasnis

87. Spin Structure of Baryon Fragmentation Functions
(Phys. Letters 115B, 313, 1982)
R. Ramachandran, R. P. Bajpai
88. Hadron Polarisation in e^+e^- Annihilation
(Phys. Rev. D to be published)
R. Ramachandran, H. S. Mani
89. Spin Structure of Nucleons
(Pramana, to be published)
R. Ramachandran
90. Structure of Magnetization Studies of Ti-substituted
 $Ni_{0.5}Zn_{0.5}$ Ferrite (J. Appl. Phys., 53, 2272, 1982)
D. C. Khan, M. Mishra, A. R. Das
91. Mossbauer and Magnetization Studies of
Nd-Fe³ Alloys (Proc. Ind. Acad. SC.,
1982)
N. V. Nair, D. C. Khan
92. Absorption Studies of K-O-KBr-B Glasses (Phys. Stat. Solidi Oct. 1982)
A. Mookerjee, D. S. Srivastava, S. C. Sen
93. Photoluminescence Studies of K-O-KBr-B-OA
Glasses (Phys. Stat. Solidi, in press)
A. Mookerjee, D. S. Srivastava, S. C. Sen
94. Transverse Magneto-resistance and Hall Resistivity in
Cd and Its Dilute Alloys
(Pre print IC/82/112 ICTP, Trieste, Italy)
O. P. Katyal, K. M. Khanna
95. Microscopic Description of the Onset of Large
Deformation in the Zirconium Region
(Phys. Letts. 1198, 257, 1982)
S. K. Khosa, P. N. Tripathi, S. K. Sharma
96. Yrast Bands in Light Nuclei and the effective Inter-
actions in $3=0, 2$ States (Phys. Rev. 26, 2706,
1982)
S. K. Sharma, V. Pottahare, V. K. B. Kota
97. Characteristics Debye Temperature of Ammonium
Fluberyllate (NH-HBeFi (Acta Cryst. A38, 388, 1982)
Anita Garg, R. C. Srivastava

98. Electric Field Gradient and Its Temperature Variation at ^{111}Cd Nuclei in Hafnium Metal
(Phys.Rev. **B25**, 7474, 1982)
L. Hermans, M. Rots, G. N. Rao,
R. Conssement, M. Cogneau
99. Heating or Cooling of Gases with Tunable Laser Radiation (Optics Commun. **40**, 254, 1982)
J. S. Goela, R. K. Thareja
100. Cooling or Heating of Gases through Energy Transfer Using Lasers (Optics Commun. **42**, 417, 1982)
J. S. Goela, R. K. Thareja
101. Experimental Investigation of Self-generated Magnetic Fields in ICF Targets (B.A.R.C. Proceedings)
R. K. Thareja

COMPUTER SCIENCE PROGRAMME

1. The Method of successive updated iterated defect corrections and its applications to second kind Volterra Integral Equations
(BIT, Bind 22, Heffe No.3, 1982)
D. D. Sathiaraj and R. Sankar
2. Statistical Design Verification
(12th Int. Symp. on Fault Tolerant Computing (FTCS-12), Santa Monica, June 1982)
S. C. Seth with V. D. Agrawal
3. Characterizing the LSI Yield Equation from the Chip-test Data (The 1982 Int. Conf. on Calc. a Syst (ICCC), Sept. Oct. 1982)
S. C. Seth with V. D. Agrawal
4. The Use of Rademcher-Walsh Spectrum in Testing and Design of Circuits (ICCC, Sept. Oct. 1982)
S. C. Seth with T. C. Hsiao
5. An Algorithm to Decide Feasibility of Linear Integer Constraints occurring in Decision Tables
S. Bisvyas & V. Rajaraman

6. Algorithm specification with Test Action Separation S. Biswas & V. Rajaraman

**INDUSTRIAL AND
MANAGEMENT
ENGINEERING
PROGRAMME**

1. A Convex Polytope of Diameter one (Applied Discrete Math. Vol. 5 No.1, 1983)
A. K. Pujari, S. K. Gupta,
A. K. Mittal
2. An Extension of Edge Covering Problem (Math. Programming, Vol. 23, No.1, 1982)
S. Agarwal, A. K. Mittal,
P. Sharma
3. Scheduling Components for Automatic Manufacturing of Printed Circuit Board (Proceedings of XV Annual Convention of ORSI, Kharagpur)
A. K. Mittal, P. V. Ramana
4. Bivalent Quadratic Integer Programming-A Computational Study (Presented at Annual Convention of CORSI, Winnipeg ,Canada, .May 1983)
S. K. Gupta, K. P. Reddy,
A. K. Mittal
5. Interactive Solution of Bicriteria Mathematical Programmes (Naval Research Logistics

6. A Multiobjective Approach to the National Transport Policy (Annual Convention of ORSI, 1982)

S. Sadagopan, T.
Rajendran

7. Innovation in Indian Firms:

Myths and Reality

(Accepted for publication in forthcoming Economic and Political Weekly)

A. P. Sinha

8. Interpretative Structural

Modelling of a Food

Supply System

(Proceedings of the Int. Conf. on Food System of the World with Special Reference to India Feb. 15-20, 1983, Aligarh)

Wasim Abbas, J. L. Batra

PUBLICATION

9. An Integrated Approach for Productivity Improvement (Proceedings of the All-India Seminar on Productivity Maximization in Industry, The Institution of Engineers (India) April 1983)
Wasim Abbas, J. L. Batra
10. A Note on Combinatorial Optimization with Rational Objective Functions (Mathematics of O.R., pp 314, Vol. 8, NO.2, May 1983)
R. K. Ahuja, J. L. Batra, S. K. Gupta
11. Convex Cost Network Flow and Related Problems (Accepted for publication in European Jr. of Operations Research)
R. K. Ahuja, J. L. Batra, S. K. Gupta

12. The Parametric Network Feasibility Problem
(Accepted for publication in Cahiers Du Centre D Etudes
De Recherche Operationnelle)
R. K. Ahuja, J. L. Batra, S. K. Gupta
13. Minimizing Unconstrained Quadratic Bivalent Functions
(Accepted for publication in European Jr. of Operations
Research)
S. K. Gupta, V. P. Gulati, A. K. Mittal
14. Constrained Optimum Communication Tree and
Sensitivity Analysis (Accepted for publication in
SIAM Jr. of Computing)
. S. K. Agarwal, A. K. Mittal, P. Sharma

MATERIAL SCIENCE PROGRAMME

1. Melt Spinning Parameters and the Metallic Glass Ribbons
geometry (J. Mat. Sci Lett. 1(9), 385)
D. C. Agrawal
2. Mossbauer spectroscopic studies on some Fe-B Metallic
Glasses (Proc. Int. Conf. on Mossbauer Effect Indian
National Science Academy, 1982, 335)
U. Ramakrishna, Akhilesh Prasad, R. M. Singru, T.
R. Ramachandran, E. C. Subbarao and
R. Hasegawa

3. Effect of Aluminium Substitution of Hydrogen Storage in $MNi_{1-x}Al_x$ Systems
(Pergamon Press 1982, Vol. 3, p. 1245-1254)
R. Rani, S. Gupta,
J. Kumar and K. N. Rai
4. Microstructure and Optical Absorption of Silver Granules in Oxide Glasses Introduced by Ion-Exchange and Reduction Treatments (Journal of Materials Sci. 18~250-256, 1983)
P. Sarkar, Jitendra Kumar, D. Chakravorty
5. Spin-state equilibrium in $YbCoO_3$
(Bull. Mat. Sci., 4, 7, 1982)
D. Bahadur
6. Preparation of Glass Ceramics Containing YIG
(J. Mat. Sci. Letts. 1, 106, 1982)
D. Bahadur, B. Sharma & D. Chakravorty
7. Study of $Na_2O-SiO_2-Y_2O_3$ glass by IR and EPR Spectroscopy.
(J. Mat. Sci. 17, 2687, 1982)
A. Prasad, D. Bahadur, R. M. Singru and
D. Chakravorty
8. Electron Transport and Magnetic Properties of $La_{1-x}Sr_xCo_{1-y}Si_yO_3$ ($x = 0$ or $x = 1$)
(J. Solid State Chem. 46, 197, 1983)
D. Bahadur & Om Prakash
9. Effect of nucleating agents on the crystallisation in $Na_2O-SiO_2-Y_2O_3-Fe_2O_3$ glass system
(J. Appl. Phys. 53, 7813, 1983)
D. Bahadur, P. K. Das & D. Chakravorty
10. Magnetic and Electrical Properties of Ti Substituted Yttrium Iron Garnet.
(J. Appl. Phys. 53, 8228, 1982)
Om Prakash, D. Bahadur

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11. Magnetic properties of PbO-BzO₂-Al₂O₃-Fe₂O₃-Y₂O₃ glass Ceramics
(J. Magnetism and Magnetic Materials 31-34, 1513, 1983) D. Bahadur, D. Chakravorty, A. Prasad, R. M. Singru
 12. On the Mechanism of Degradation in Si/SiO₂/Ag MOS Solar Cells
(J. Appl. Phys. 53, pp. 4435-4440, 1982)
S. Kar and R. Varghese
 13. On the Mechanism of Carrier Transport in Metal-Thin Oxide-Semi-conductor Diodes on Polycrystalline Silicon. (IEEE Trans. Electron Devices ED-29, Dec. '82)
S. Kar, K. M. Panchal, S. Bhattacharya & S. Verma
 14. Interface Investigation using Transparent Conductor-Oxide-Silicon Structures.
(J. Appl. Phys. 53, pp. 7039-7043, 1982)
S. Kar, S. Verma, P. Saraswat & S. Ashok
 15. The effect of illumination on Inversion Layer formation in Metal-Thin Oxide-Silicon devices
(J. Appl. Phys. 54, pp. 1124-1126, 1983)
D. Shankar & S. Kar

Nuclear Engineering & Technology Programme

1. Solution of the energy Dependent Neutron transport equation by Separation of variables
(Nucl. Sci. and Engg. 82, 372, 1982)
A. Sengupta
2. A Transport Theoretic approximation method for the monoenergetic neutron transport equation
(J. Phys. (A) 15, L 487, 1982)
A. Sengupta
3. Experimental programme in gas discharges and plasma diagnostics at IIT/K
(Presented at Workshop on Fusion, IP A, Bombay)
M. S. Kalra

4. X-ray Fluorescence applications to grinding process
(ANS Transactions, June 1982)
K. Sri Ram
5. Vibration analysis of periodically supported pipe
without and with absorbers
(accepted for publication in Journal of
Applied Mechanics, 1983)
A.K. Mallik, S.B. Kulkarni and K. Sri Ram
6. 'Analysis of Steam generator transients with
RETRAN - 02' (International Retran
Conference, San Diego, April 1982)
K. B. Ramsden, P. Munshi,
7. Suppression pool temperature transient
analysis using RETRAN -01
(International Retran
Conference, San Diego, April
1982)
P. Munshi

Summer Schools, Short/Intensive Courses, Conferences

DEPARTMENT OF AERONAUTICAL ENGINEERING

Conferences

A. Organised at the Institute

1. Conference on "History, Philosophy and Policy of Science & Technology in India", December, 1982, IIT, Kanpur
K .Ghosh

B. Attended by Faculty elsewhere

1. "Design Engineering" Sept. 6-8, 1982
(Organised by Engineering Staff College, Hyderabad)
Vijay Gupta.
2. 13th Congress of the International Council of Aeronautical Sciences/ AIAA Aircraft Systems & Tech. Conf.
Aug. 22-27, 1982, Seattle, Washington
N. G. R. Iyengar

3. International Symposium on Numerical Models in Geomechanics. Sept. 13-17, 1982, Zurich, Switzerland
N. G. R. Iyengar
4. Annual General Meeting of the Aero. Society of India Dec. 9-11, 1982, IIT, Madras
N. G. R. Iyengar
5. 13th International Symposium on Space Science and Technology, Japan. June 28 to July 3, 1982, Tokyo, Japan
A. C. Jain
6. 11th National Conference on Fluid Mechanics & Fluid Dynamics, Hyderabad, Dec. 16-18, '82, Hyderabad
R. S. SuHarey

Summer & Winter Schools/Workshops

Attended by Faculty elsewhere

1. Short course on 'Stability of Structures' at the Engineering Staff College of India, organised by Dr. N. G. R. Iyengar & Dr. Ashwini Kumar, Sept. 27--Oct. 2, 1982, Hyderabad
N. G. R. Iyengar
2. Short course on "Aircraft Design" sponsored by ARDB Oct. 1982, IIT Bombay
N. G. R. Iyengar
3. Workshop-Seminar on State & Parameter Estimation Techniques in Aerospace Engineering (organised by IISc, Bangalore & ISRO) Dec. 13-18, 1982, Bangalore
M. Krishnamurthy
4. Workshop on Mechanics & Application to Design March 7-19, 1983, IISc, Bangalore.
D. Yadav

CHEMICAL ENGINEERING**a. Organized**

1. Compact Heat Exchangers at Tata R&D Centre, Poona, Jan. 1982
J. P. Gupta
2. Recent Advances in Membrane Separation Processes, at IIT-R, December 6-18, 1982
R. P. Singh, P. R. Bhattacharya
3. Micromixing and the Selectivity of Chemical Reactions at IIT-R, March 31-April 2, 1983
R. N. Sharma

b. Attended by Faculty elsewhere

1. UGC symposium: Ion Exchange in Teaching and Research-Recent Developments - VishWa Bharti University, 1982,
R. N. Sharma
2. 4th European Conference on Mixing, BHRA, U.R., Paper J3 (1982)
R. N. Sharma
3. Workshop on Science and Technology held at IIT-Ranpur in December 1982; paper entitled 'Technological Self-Reliance and Multinational Corporations'
R. S. Gandhi
4. Seminar entitled "On some Problems in Modelling Polymerisation Reactors" was presented in I.I.Sc., Bangalore in May 1982
R. S. Gandhi
5. A paper entitled "An experimental investigation of three-phase flow of water-oil-gas mixtures through wetted porous media" presented by Professor D. N. Saraf in March 1982 at Soc. Pet. Eng., California Meeting, San Francisco, U.S.A.

6. Three phase flow through porous media, Seminar delivered by Professor D. N. Saraf at Mobil Research Centre, Dallas, Texas, U.S.A. in March 1982 and Petro Canada Research Center, Calgary, Alberta (Canada), May 1982
7. Process simulation of Ammonia Plants, Seminar delivered at University of Calgary (Jan. 1982),
D. N. Saraf
8. Attended 34th Annual IChE Conference held in 1981 J.
K. Gehlawat
9. Attended A.LCh.E. Conference, New Orleans, U.S.A. in November 1981
R. D. Srivastava
10. Wasserstoff Informationstagung Symposium, Berne, Switzerland, June 1982
R. D. Srivastava
11. Attended Institution of Chemical Engineers Jubilee Symposium, London, April 1982
R. D. Srivastava
12. Seminars at California Institute of Technology, Pasadena, U.S.A., June 1981
R. D. Srivastava
13. Clarkson College, Potsdam, U.S.A., October 1981
R. D. Srivastava
14. Syracuse University, Syracuse, U.S.A., October 1981
R. D. Srivastava
15. University of Delaware, Newark, U.S.A., Nov. 1981
R. D. Srivastava
16. Illinois Institute of Technology, Chicago, U.S.A., December 1981
R. D. Srivastava
17. Stevens Institute of Technology, Hoboken, U.S.A., December 1981
R. D. Srivastava

18. University of Maryland, College Park, U.S.A.,
December 1981
R. D. Srivastava
19. E.I.duPont de Nemours & Company, Wilmington,
DE, U.S.A., December 1981
R. D. Srivastava
20. Witco Chemical Corporation, Oakland, N.J., U.S.A.,
January 1982
R. D. Srivastava
21. Imperial Chemical Industries, Runcorn, England,
March 1982
R. D. Srivastava
22. University of Napoli, Naples, Italy, March 1982
R. D. Srivastava
23. E.T.H., Zurich, Switzerland, April 1982
R. D. Srivastava
24. University of Erlangen, Erlangen, West Germany,
May 1982
R. D. Srivastava
25. Ecole Poly tech, Lausanne, Switzerland, June 1982
R. D. Srivastava
26. Seminar on Polyethylene terephthalate at Indian Aca-
demy of Sciences, 48th National Meetings, Nainital,
October 1982
S. K. Gupta
27. Two seminars at IPCL, R&D Department, Baroda on
modelling and optimization of Polycondensation
Reactors and Effects of Diffusion on Step-Growth
Polymerization, 1983
S. K. Gupta
28. 35th Annual Session of IChE, Waltair held from
January 2-5, 1983 attended by Professor M.S. Rao
Chairman of session on Reaction Engg. II'

29. Lectured in Short Courses: Recent Developments in Process Engineering, IIT-Delhi, 1982 and Computer Applications in Chemical Engineering, RRL, Hyderabad, 1982
Ariil' Kumar
30. Attended CHEM-TECH Conference on Pollution Control and monitoring, Feb. 1983
A. B. L. Agarwal

Department of Chemistry

Invited lectures, Symposium and Conferences

1. National organic symposium, Calcutta, March 1983
S. Ranganathan
2. Poona University, March 1983
S. Ranganathan
3. First National bio-organic symposium, Bangalore, August 1982
S. Ranganathan
4. Professor Kulkarni Endowment Lectures, Bombay, March 1982
S. Ranganathan
5. Glaxo Research Laboratories, April 1982
S. Ranganathan
6. Ciba-Geigy research centre, April 1982
S. Ranganathan
7. XIth International Sea-weed Symposium in Quigdao, Peoples' Republic of China (19...25 June 1983), Paper presented on "Chemical constituents of red Algae of the Indian ocean region
D. N. Dhar
8. Invited talk: Seminar on the chemistry of the evolution of life; Mahabaleswar, Jan. 10-17, 1983
P. S. Goel

CONFERENCES/SEMINARS

9. Invited Talk: Workshop on evolution of atmosphere over geological times, Trom Feb. 7-9, 1983
P,. S. Goel
10. Two papers based on the Ph.D. work of krishna were presented at the National on Radio and Radiation chemistry (D.A, Pune University in Dec. 1982
S.'Mukherji
11. Conference of American Society of Biol New Orleans, Louisiana, U.S.A., April]
S. S. Katiyar
12. Conference 'of American Society of Biol San Francisco, California, U.S.A., June
S. S. Katiyar
13. Invited talks by Dr. N. Sathyamurthy o a prototype alkali-hydrogen halide exc given at:
 - (i) Hahn-eitner Institute, Berlin, West Sept. 1982
 - (ii) Max-Placnk Institute for stromung Gottingen, West Germany, Sept. 19
 - (iii) Department of Chemistry, Univ. of Toronto, Canada, Jan. 1983
 - (iv) Univ. Division, NRC, Ottawa, Canal
14. 7th International Symposium on Gas Ki Gottingen, West Germany, Aug. 1982
15. Symposium on the chemistry of natura: Sydney university, Sydney, Australia,
S. Chandrasekharan
16. Delivered six lectures to Post-Graduate CSO in a summar school held at IIT Ca June 1983
S. K. Dikshit

17. Participated in the symposium held at IIT/Bombay to review the chemistry course at B.Tech., M.Sc. and Ph.D. level
S. K. Dikshit
18. An invited lecture on (Recent development in kinetic methods of analysis for trace constituent determination' at the National Symposium on recent trends in micro-analytical chemistry held at the Presidency College, Calcutta, from Dec. 27-30, 1982
P. C. Nigam
19. An invited talk on 'Mechanism of ligand replacement reactions in octahedral nickel (II) complexes at the National Symposium on Coordination chemistry held at the M.L.K. College, Balrampur, U.P. (Oudh Univ.) from Feb. 5-6, 1983
P. C. Nigam
20. Presided over a session and presented a paper at the National Symposium on Kinetics and mechanism of reaction in solution held at The University of Mysore, Mysore from July 23-25, 1983
P. C. Nigam
21. Presented a paper at the second Annual Conference of Indian Council of Chemists held at the Univ. of Srinagar, Srinagar from Nov. 6-8, 1983
P. C. Nigam
22. National Symposium on Kinetics and Mechanism of reactions in solution, University of Mysore, Mysore, July 1983, paper presented on 'Proton transfer reaction of 3-Aminofluoranthene
A. K. Mishra and S. K. Dogra
23. Delivered a plenary lecture at the 2nd Annual Conference of the Indian Council of Chemists held at Srinagar (Kashmir), in November 1982
, P. R. Singh

Sponsored Projects

1. 'Selective peptide formation under captive environments' DST, 1983-1986
S. Ranganathan
2. 'Evolution of earth's atmosphere over geological times' DST started in Jan. 1982
P. S. Goel
3. 'Study of reactive and non-reactive collisions' DST - sponsored
N. Sathyamurthy
4. 'Transition metal reagents in organic synthesis' DST supported
S. Chandrasekaran
5. 'Organonopalladium chemistry in organic synthesis': Development of new synthetic methods and total synthesis of Natural products, DST sponsored
Y. D. Vankar

Honours

1. Professor S. S. Katiyar was elected (1) Fellow of Indian National Science Academy, India
(2) Member of the American Society of Biological Chemists, U.S.A.
2. Professor S. Ranganathan was selected as:
(i) Professor Kulkarni Endowment Lectures
(ii) the Co-convenor of the National Symposium for bio-organic chemistry.
3. Professor P. R. Singh is elected sectional president of the organic chemistry section, Indian Council of chemistry for the year 1983.

CIVIL ENGINEERING

1. National seminars, on housing, environment and habitat Andhra University, Waltair (Attended), Aug. 1982
C. Venko bchar

2. Delivered lectures on "Design of small waste water treatment plants" Inst. of Engg. at Lucknow Sub-Centre, 1982
C. Venkobachar
3. Lectures on "Sediment transport in water treatment plant" QIP course on Erosion & Sediment Control," IIT Kanpur, July 1982
C. Venkobachar
4. IInd International Conference on Chitinal Chitoson Sapporo, Japan (Attended & presented a paper) July 1982
A. V. S. P. Rao
5. 27th Congress of Indian Society of Theoretical and Applied Mechanics, Calcutta, Dec. 1982
A. S. R. Sai
6. All India Seminar on economical design construction & rehabilitation of culverts, Inst. of Engineers, Lucknow October 1982
A. S. R. Sai
7. Non destructive testing of structural components, Defence Laboratory, Jodhpur (Invited lectures) October 1982
A. S. R. Sai
8. Short-term course on 'Stability of Structures' Engineering Staff College of India, Hyderabad (Delivered lectures), September 27--October 2, 1982
Ashwini Kumar
9. 4th International Conference on Numerical Methods in Geomechanics, Edmonton, Canada (Attended) May--June 1982
N. S. V. Kameswara Rao
10. "Ore-forming solution-- Volume consideration" Geomodelling Workshop, Silver Jubilee Celebration, IIT Bombay, September 17--20, 1982
B. C. Raymahashay

- , _ _ -----
11. Delivered lectures in the QIP Short-term course on Erosion and Sediment control, IIT, Ranpur, July 1982
B. C. Raymahashay
 12. Chaitman of a Technical Session of National Symposium on Planning & Design of Water Resources Systems February 1983
V. Lakshminarayana
 13. Coordinator of the QIP short-term course on Erosion and Sediment Control and delivered lectures, July 1982
T. Gangadhariah

Books Published

1. Prestressed concrete structures Oxford, IBH Pub. Co
3rd Edition, 1982
P. Dayaratnam
- Design of reinforced concrete structures, Oxford & IBH-1983
P. Dayaratnam
3. Flow in open channels--2
Vols. Tata McGraw-Hill; 1982
R. Subramanya

ELECTRICAL ENGINEERING

Consultancy Projects

1. Power System Cell, UPSEB
R. R. Padiyar
2. Design and Development of a Microprocessor based Rail Car Axle Counting Indoor Processing Sub-system, CEL
R. R. Sharma

Intensive Courses, Summer & Winter Schools, etc.

1. A short term course entitled "Error control coding for digital communication", sponsored by DRDO and QIP, Dec. 6-18, 1982
2. A short term course entitled "High voltage transmission, laboratory and dielectric techniques", sponsored by ISTE. Dec. 8-21, 1982
3. A workshop on "Curriculum for Science and Technology Policy Studies," jointly organized by the EE Dept., IIT, Kanpur and IIM, Bangalore, sponsored under QIP, Dec. 2-6, 1982
4. An intensive course in microprocessors and their applications, for Engineering College Teachers, Sponsored under the Microprocessor development and training program of the Ministry of Education. Jan 31-March 5, 1983
5. A short-term course on Advanced Power System Analysis and Dynamics. Sponsored under QIP. May 9-21, 1983

Awards to Students

1. Chanchal Chatterjee and P. A. B. Prasad

For their paper: "On the analysis and synthesis of Hindi Consonants: a study" in the

- (a) Annual Student Paper Contest-1983 of the Computer Society of India. Third Prize
- (b) Annual Technical Paper Contest of the Alumni Association, IIT, Kanpur. First Prize

2. S. Halda and G. B. Singh

For their paper : "Recognition of variable Font type written characters by dimensionality reduction using K-L expansion" in the Student Paper Contest-1983 of IEEE(India Chapter). Second Prize

Seminar Talks in the Department

About 25 invited talks were organized in the department during 1982-83 .

HUMANITIES AND SOCIAL SCIENCES

Attended by Faculty elsewhere outside India:

English:

1. VIII International James Joyce Symposium, Dublin, June 1982
Presented: "Walking Joyce's Dublin Streets"
S. K. Aithal
2. Trollope Centenary Conference, London, June 1982
S. K. Aithal

Psychology :

1. International Association of Cultural Psychology VIth World Congress, Abudeen, 1982, Presented "Interpersonal construct system and Work styles of Indian managers" Usha Kumar and S. B. Saxena
2. International Association of Applied Psychology, 20th International Congress, Edinburgh, 1982
Presented "Work and Identity: Reflection on the experience of the Indian Working Women" in a symposium on Women at work
Usha Kumar

Sociology:

1. International Symposium on Small Towns in National Development: Towards action for Rural-Urban Integration in Developing Countries held at the Asian Institute of Technology, Bangkok, Thailand, Dec. 1982
Presented "Development of Small Towns and medium-

size towns in India, Experience and Policy Implications"

E. Haribabu

B) Attended by Faculty elsewhere in India

Economics:

1. Delivered lectures on Econometrics of Managerial Decisions in the Industrial Management Department Indian Institute of Science, Bangalore
T. V. S. Ramamohan Rao
2. 65th Annual Conference of the Indian Economic Association, University of Jabalpur, Dec. 82, Presented: "Production Linkages and Identification of Key industries in Indian economy"
R. R. Barthwal
3. Discussion group on Water Resource Development and its Socioeconomic impact. Organized by WRSP, Patna University, BCE, Patna, July 1982
B. Rath
4. 65th Annual Conference of the Indian Economic Association, University of Jabalpur, Dec. 82
B. Rath
5. 16th Annual Conference of the Orissa Economic Association, Ravenshaw College, Cuttack, March 1983
B. Rath
6. 2nd National Conference on the Avenue of Social Service, in University Education, Juhari Devi Girls Degree College, Kanpur, February 1983
B. Rath
7. ISTE Summer School on Integrated Rural Development, organized by the Rural Development Centre, NT, Kharagpur, June 1982
B. Rath

ENGLISH

- 1 XVII Annual Conference of the Indian Association for American Studies, Annamalai, University, February 1983.
Delivered Presidential Address: "Image of Man in the Post-Second World War American Fiction"
P. P. Sharma
2. Extra-moral lecture at Roorkee University, March 1983.
"A Course in Indian Literature for Engineering Institutions"
P. P. Sharma
3. Lecture at Gurukul Kangri University, March 1983.
"Appreciating Literature" ...
P. P. Sharma
4. Emerson Centenary Symposium organized by Dhvanyaloka: The Literacy Centre for English Studies, Mysore, May 1982. Presented "Emerson and the American Image of India"
R. K. Gupta
5. Seminar on Stylistics and Language Teaching, Patiala, August 1982. Presented: "Place of Stylistics in the English Language teaching Programme in India"
B. N. Patnaik
6. Seminar on "What should go into a grammar" held at Central Institute of Indian Languages, Mysore, Jan. 1983.
Presented: "On the structuring of Pedagogical Grammars for L 1 Teaching"
B. N. Patnaik
7. Workshop on Communicative Grammar, Central Institute of Hindi, Agra, Feb. 1983
P. P. Sah
8. All India Painters' Camp, organized by the National Academy of Art at Trichura
It It Bhatnagar
9. National Exhibition of Art 1983
R. K. Bhatnagar

PHILOSOPHY

1. , Seminar on Value and Reality Indian Council of Philosophical Research, New Delhi, December 1982
R. Prasad
2. International Seminar on Perspectives of Meaning and Aurobindo, organized by Jadavpur University, Calcutta, January, 1983
R. Prasad
3. Seminar on Contemporary Trends in Philosophy, Calcutta University, Calcutta, January 1983
R. Prasad
4. Seminar on Language and Reality Lucknow University, Lucknow, January 1983
R. Prasad
5. Presented four invited lectures on Muslim Ethics in the Department of Philosophy, Poona University, Pune, February 1983
S. A. Shaida

Psychology

1. Conference of the Indian Academy of Applied Psychology, Osmania University, Hyderabad, March, 1983. Presented: "Time Perspective, Locus of Control and Delay of gratification in a Modernizing Society"
L. Krishnan
2. 70th Session of the Indian Science Congress, Tirupati, January, 1983. Presented: "Bilingualism and Internal representation of Linguistic information"
N. K. Sharma

SOCIOLOGY

1. Delivered 6 invited lectures on Social Cybernetics at Workshop on Research Methodology, (sponsored by UGC) at Jodhpur University, Jodhpur, July 1982
P. N. Rastogi

2. Delivered a series of lectures on Quantitative Methods in a course on Research Methodology at Kanpur Univ. Kanpur, February, 1983
P. N. Rastogi
3. Contributed invited paper, ("Prediction, Explanation, and Problem Solving in social systems"
P. N. Rastogi.
4. XVIth All India Sociological Conference, organized by the Department of Sociology, Annamalai University, Annamalai Nagar, in December 1982.
Presented: "Theoretical Issues in Modernization Theory"
R. Pandey
5. Vth Uttar Pradesh Sociological Conference, organized by the Department of Sociology, Kanpur University, Kanpur, February, 1983 .
Presented: "Max Weber's theory of Social Stratification: Controversies, contexts and Correctives"
R. Pandey
6. National Seminar on Social Relations of Scientific and Technical Change, Administrative Staff College of India; Hyderabad (sponsored by UNESCO)
Presented: "Scientific Growth and the Nature of Scientific Community"
V. R. J airath
7. XVI All India Sociological Conference at Annamalai Univ., Annamalai Nagar, December, 1982
E. Haribabu

B) Organized at IIT/Kanpur

1. The following faculty members participated in the National Workshop on Profiles in Indian Languages, Organized by the Indian Language Society, IIT/Kanpur in December, 1982
 1. "Central Pahari Languages"
P. P. Sah

~~ "An Approach to Language Planning and Language Education in India"

B. N. Patnaik

3. "Novel as Anti-Purana: A Study of **Neela ShaH** and **N~Jadri Bijaya**"

B. N'- Patnaik

4. "Modern Indo-Aryan Languages"

A. C. Pandey

2. Workshop on Curriculum for Science and Technology polky Sutdies, IIT, Kanpur, December 1982 Presented: "Technological Self-Reliance and MultiNational Corporations"

V. R. J airath and K. S. Gandhi

DE~'U~TMENTAL SEMINARS

1. "The Problem of gender in Hindi" 1982

A.C. Pandey

VI Distinctions Conferred;

Prof. P. P. Sharm.a: Elected President of the Indian Association for American Studies, for the second time, fo'." the year 1982-83

Prof. P. N. :Rastogi (i) Awarded Senior Fellowship by the ICSSR. (ii) Appointed member of the Editorial Board, **Journal of Sociological Studies**

Prof. S. K. Aithal: Appointed Bibliographer in the General Literature Section of the **M.L.A. International Philo~sophy**, the most valuable research tool in English studies. Dr. R. K. Bhatnagar: Two of his paintings were selected .for the National Collection of art.

The following speakers presented seminar in the Departmen during 1982-83 :

Dr. A. C. Pandey Dr. B. Rath

Dr.N. K. Sharma

IIT/Kanpur

IIT/Kanpur

IIT/Kc.mpu

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Ms. G~etha	IIT/Kanpur
Ms. Premlata	IIT/Kanpur
Ms. Jaishri	IIT/Kanpur
Ms. Asha Kaul	IIT/Kanpur
Mr.' Sanjeev	IIT/Kanpur
Sharma Mr. L. Behara	IIT/Kanpur
Mr. Neeroj Banerjee	IIT/Kanpur
Ms. Rajyashree	
Khusu	

Dr. A. K. Sinha (Engli~h) Delhi University, Delhi

Dr. C. J. Daswani (English) Poona University, Poona

Dr. Hennig Coher (English) Pennsylvania University, U.S.A.

Dr Ghanshyam Singh (English), University of Belfast, Ireland

Dr. R. Jha (Economics), Institute of Public Enterprise, Hyderabad

Dr. Kant Rao (Economics), Pennsylvania State Univ., U.S.A.

Prof. Jai Zarotia (Fine Art), College of Art, New Delhi Dr. Jamal Khuraja (Philosophy), Aligarh Muslim Univ., Aligarh

Dr. R. Sundararajan (Philosophy), Poona University, Poona

Dr. S. Kanekar (Psychology), University of Bombay, Bombay

Dr. Dorothy Rowe (Psychology), St. John's Hospital, Lincoln, England

Dr. J ai B. P. Sinha (Psychology), ANS Institute of Social Studies, Patna

Dr. Ype H. Poortinga (Psychology), University of Tilburg, Netherlands

Dr. For~t Tyler (Psychology), University of Maryland, Visiting Prof. AUq.nflQad

Dr. K. L. Sharma (Sociology), Punjab University,
Chandigarh

Dr. Sharit Bhowmick (Sociology), N.E. Hill University,
Darjeeling

MATHEMATICS

Conference organised at the Institute or attended by the
members of the department ~lsewhere

I Silver Jubilee Conference of the Canadian Operations Research Society

May 24-26, 1983, Winnipeg, Canada

1. The role of Maximum Entropy Principle in Operations
Research (Invited address)
J. N. Kapur
2. Bivalent Quadratic Programming Problem:
A Computational Study
S. K. Gupta
3. Thoughts on Operations
Research (Presided over a
session)
J.N. Kapur
4. Whither or Education (Participated as Panelist)
S. K. Gupta

II XI Annual Conference of the Administrative Sciences Association of Canada

May 30 - June 1, 1983, University of British Columbia,
Canada

Derivation of some purchase incidence stochastic
models from entropy maximization principle

J. N. Kapur and S.K. Gupta

III International Biometric Society

6-11 September, 1982, Toloson, France

Use of auxiliary information in the analysis of series of experiments

G. K Shukla

IV Recent Developments in Statistical Theory and Data Analysis

Dec. 15-17, 1982, Tokyo, Japan

Sufficiency of a sufficient statistic for Non-randomized equivariant estimation

Divakar Sharma

V Seminar on Probability and Statistical Inference

June 23-25, 1983, Deptt.of Statistics, Poona University, Poona

Distribution of range and quasi range from doubly truncated exponential distribution

P. C. Joshi

VI Annual meeting of American Mathematical Society

Jan. 1983, Univ. of Colorado, Denver, U.S.A.

1. K-reflexivity and canonical completion M. Gupta
2. Bi-locally convex spaces and schauder decomposition
P. K. Kamthan and M. Gupta

VII Combinatorics and its Applications

Dec. 14-17, 1982, Indian Statistical Institute, Calcutta
Sensitivity analysis of multiterminal flows and optimal communication tree problem

Prabha Sharma, Sunita Agarwal and A.K. Mittal

VIII Annual meeting Orissa Mathematical Society

Feb. 1983, Bhubaneswar

1. Nasty numbers and its characterization S. P. Mohan,ty
2. Mathematics of Finite elements
P. C. bas

IX Symposium on Functional Analysis

27 Oct. 1982, Oberwolfach, West Germany

Why do we study the Schauder basic theory in T.V.S.?
(Invited talk)

P. R. Ramthan

X 48th Annual meeting Indian Mathematical Society

Dec. 1983, University of Bhagalpur, Bhagalpur

1. Summability of conjugate Fourier series by a class of regular methods
R.S.L. Srivastava and R. N. Misra
2. On absolute cesaro summability of factored infinite senes
R.S.L. Srivastava and R.N. Misra

MECHANICAL ENGINEERING

CONFERENCE (Organized)

1. All India Seminar on Alternate Energy Sources-
"their applications and constraints" in collaboration
with small industries services Institute, Ranpur,
March 1983
H. C. Agrawal

SUMMER SCHOOL (organized)

1. Introduction to Fibre Reinforced composites,
April" 1983
B. D. Agarwal

CONFERENCES ATTENDED

1. XI Laser Radar Conference at wisconsin USA,
June 21,...25, 1982
J. S. Goela
2. Symposium on Non-Destructive Evaluation at B.H.U.
Varanasi, February 21 and 22, 1983
J. S. Goela
3. IXth Annual Symposium on ARDB Sponsored projects,
LLT. Delhi, March 23 and 24, 1983
B. D. Agarwal
4. Attitude Stabilization and Reorientation of Space-
pointing Satellites by Radiation pressure, invited paper
presented at the 10th IMACS World Congress on
Systems Simulation and Scientific Computation, Aug.
8-13, 1982, Montreal, Canada; published in the
Conference Proceedings, pp. 231-233
K. C. Pandey
5. Tenth AIMTDR Conference, December, 20-22, 1982
G. S. Kainth
6. Fifth IS ME Conference on Mechanical Engineering,
Dec. 22-24, 1982, Allahabad
G. S. Kainth
7. National Seminar 'Whither Welding in' Industry',
January, 1983. BHEL Trichirapalli
G. S. Kainth
8. Physical Basis of the Mechanical behaviour of materials,
RRC, Kalpakam
S. N. Bandopadhyay

METALLURGICAL ENGINEERING

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Conferences attended by faculty elsewhere

1. V ISME conference held at M.N. Engineering College, Allahabad, 24.,.25 Dec. 1982
R. R. Dube
2. Coordinated a two-day national workshop on 'Computer Applications in Smelting Industry' held at HZL, Udaipur, June 1982
S. P. Mehrotra
3. Annual Technical meeting of LLM., Rourkela, Nov. 82 N.
R. Batra
4. The Annual Electron Microscope Society of India conference in B.H.U., Varanasi, Delivered an invited lecture on 'Quantitative thin foil x-ray microanalysis'. Presented a paper on 'A study of S.R.O. state in Cu-Al alloys containing 16 at. pet. Al', Dec. 1982
T. R. Ramachandran
R. P. Gupta, R. R. Rajendran, S. Das
5. Annual conference of the German Metallurgical Society held in Vullach (Austria), June 1982
R. R. Ray
6. Physical Basis of Mechanical Behaviour at RRC, Ralpakkam, Feb. 1983
G. S. Murty
7. 'Deformation all aspects' at SAIL, Ranchi, March 1983
G. S. Murty, R. C. Sharma, A. R. Jena
8. International symposium on ceramics, 27-30 Nov. 1982
G. S. Upadhyaya
9. 9th Annual technical conference of Powder Metallurgy association of India, Goa, 9-11 April 1983
G. S. Upadhyaya

- 10 Presented a paper on UStructure and magnetisation studies of Ti-substituted $\text{Ni}_{0.8}\text{Zn}_{0.7}\text{Fe}_2\text{O}_4$," at 27th annual conference on magnetism and magnetic materials, Georgia, U.S.A. 1981
D. C. Khan, M. Mishra, A. R. Das
- 11 Presented paper on structure and properties of some dual phase steels-at International conference on Deformation-All aspects held at Ranchi, ~arch 17-19, 1983
G. S. Sharma, R. C. Sharma, A. K. Patwardhan
- 12 Attended International conference on particles at LLT. Madras, Dec. 1982
P. C. Kapur
- 13 Attended a National symposium on ucreep resistant steels for power plants", BHEL Corporate R&D, Hyderabad, January 1983
M. N. Shetty
- 14 Invited to chair a session on uThe Physical Basis for Mechanical Behaviour, R.R.C. Kalpakkam, Madras February 1983
M. N. Shetty
- 15 Presented a paper on upreparation and characterisation of a.-Arsenic single crystals"--National Conference on UCrystal Growth", A. C. College, Madras October 1982
M. N. Shetty
- 16 International Symposium on Superplastic forming of structural alloys, July 6-9, 1982
M. L. Vaidya
- 17 Keynote address entitled UPhysico-chemical aspects of rimming and blowhole formation during ingot dasting of steel" in the discussion meeting on UMaking and processing of semikilled and rimming steels" held at Rourkela Steel Plant, July 22-23, 1982
A. Ghosh

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18. Chief guest in technical seminar on "Modernization of Bhilai steel plant and introduction of quality control circle" held at Bhilai Steel Plant, Nov: 12, 1982
A. Ghosh
 19. Inaugural Lecture on Metallurgical Factors in Study of Corrosion, Symp: on Corrosion Organised by CTDT, SAIL, Metal Finishing Society of India and I.I.T. Bombay, May 14-16, 1981
K. P. Singh'
 20. Thermodynamic Properties of Zr-Nb Alloy, ICNS, Bangalore, July 14-17, 1981
K. P. Singh
 21. Plenary Lecture on High Temp. Corrosion in Conventional Energy Systems at a Symp. on Recent Advances in Chemical Research and Education, Bihar, Univ., Muzaffarpur, Dec. 10-12, 1981
K. P. Singh
 22. Plenary Lecture on Corrosion Problems In Energy Systems, I.I.T. Kanpur, Dec. 17-19, 1981
K. P. Singh
 23. Attended Spring. College on Amorphous Materials and Liquid State at International Centre for Theoretical Physics Trieste (ITAL Y)
K. N. Rai
 24. A paper "Effect of Aluminium Substitution on Hydrogen Storage in $MNi_{1-x}Al_x$ System" was presented at VI World Hydrogen Energy Conference at Pasadena California (USA) Dr. K. N. Rai

SUMMER AND WINTER SCHOOLS

- a) Organised at the Institute:
 1. Mathematical modeling of _____ and mineral metallurgical processes, Dec. 1-14, 1982
S. P. Mehrotra

2. Application of Electronmicroscopy to Engineering practice, Dec. 1-14, '1982

T. R. Ramachandran and A. K. J ena

b) Attended by faculty elsewhere:

1. Delivered invited lecture on "Mass transfer and reaction mechanism in L.D. Steelmaking" at a refresher course held at TISCO, Jamshedpur on "Theory of L.D. Steel making", Dec. 8, 1982

A. Ghosh

c) Seminars:

1. Presented seminar on 'Analytical Electron Microscopy', LLSc., Bangalore, June 1982 and IIT, Madras, June 1982 and Sept. 1982
2. Presented seminar on 'Chemical Analysis in the Electron Microscope', R&D centre for Iron and Steel, SAIL, Ranchi in July 1982

T. R. Ramachandran

3. Presented seminars on :

- i) Electron beam-specimen interaction

T. R. Ramachandran

- ii) Electron diffraction patterns iii)

Theory of diffraction contrast

Seminar series organised by USIC, University of Roorkee Feb. 1983'

PHYSICS

Conferences Attended by faculty

1. Dr. S. C. Agarwal participated in the Second National Conference on Physics of Semiconductors, New Delhi Dec. 1982'

2. Dr. A. S. Parasnis participated in the National Meeting on the Physical Basis of Mechanical Behaviour, Reactor Research Centre, Kalpakkam, Feb. 7-9, 1983
3. Dr. M. Yllsouff participated in
 - (i) International Conference on Theoretical Physics, Delhi University, Jan. 1982
 - (ii) Non-Debye Relaxation, Bangalore, Sept. 1982
 - (iii) Physics of Mechanical Behaviour-RRC, Kalpakkam, Feb. 1983
4. Dr. G. C. Upreti participated in
 - (i) Indo-Soviet Symposium, Dushanbe USSR and presented a paper on EPR studies in single crystals.
 - (ii) 2nd National Conference on Ferroelectric and Dielectrics and 1st National Workshop on Ferroelectric Materials and Device Applications, Raipur and presented a paper on 'Ferroelectric and Ferroelectric Phase Transition Studies Using EPR Technique'.
 - (iii) 14th National Seminar on Crystallography, Kharagpur & presented a paper alongwith Prem Chand on 'Phase Transition in NHil: An EPR Study of Copper Doped NH41 Single Crystals'
5. Dr. R. Ramachandran participated in 'VI High Energy Physics Symposium' held at Mysore (Dec. 6-11, 1982).
6. Dr. R. M. Singru participated in the 'Seventh International Conference on Positron Annihilation,' Fort Worth Texas (USA) April 13-17, 1982 and gave a Key-note address on '2D ACPAR : Comparison between theory and experiment'.
7. Dr. J. K. Bhattacharjee participated in a Conference in Deutsches Physikalische. Gesellschaft Munster West Germany 1982 and gave a talk on '1/n expansions in simple non-equilibrium situations'.

8. Dr. H. D. Bist participated in

(1) 8th International Conference on Raman Spectroscopy held at Bordeaux France (6-11 Sept., - 1982) and presented 3 papers on (i) (Temperature evolution of Raman Spectra in (CH₃COOH)₄D₂ and phase Transition' (H. D. Bist with G. S. Raghuvanshi & A. Agarwal), (ii) (Spectroscopic Studies on Phase Transition in (NH₄)₂ZnCl₄ (H. D. Bist with K. Ram), (iii) (Variable Temperature Raman Studies in the Liquid Phase of Several Cyclo-

propyl Derivatives' (H. D. Bist with J. R. Durig & T. S. Little-presented by T. S. Little).

(2) Fifty Second Annual Session of National Academy of Sciences held at Bhavanagar between Oct. 31 - Nov. 2, 1982.

(3) Second National Conference on Ferro- and Dielectrics & presented the paper (Spectroscopic Evidence of Low Temperature Phase Transition in Pyroelectric (NO₂)₂H₂O by H. D. Bist and O. P. Lamba; O. P. Lamba presented the paper

(4) Fourteenth National Seminar on Crystallography held at IIT Kharagpur between Dec. 20 - 24, 1982 (with M. B. Patel, G. S. Raghuvanshi - presented 3 papers)

(5) Twenty-sixth (DAE) Nuclear Physics and Solid State Symposium held at BHU between Dec. 26-31, 1982 and Papers presented on (i) (Dynamics of Disordered Graphite Lattice, (with G. S. Raghuvanshi, D. P. Khandelwal and V. N. Sarin); (ii) (Relaxation times and Anharmonic and Coordination Effects for Crystal Water in Ni (ClO₄)₂·6H₂O (with P. Chand, D. P. Khandelwal); (iii) (Phase Transition in Ammonium Tetrachlorozincate by Raman Technique' (with A. Agarwal & M. Pal)

9. Dr. D. Saran participated in the IX International Conference on Liquid Crystals held at Bangalore (Dec. 6-10. '1982) .

SUMMER AND WINTER SCHOOLS ATTENDED BY FACULTY

1. Dr. S. C. Agarwal participated in (Workshop on Photovoltaic Devices', Roorkee 1982

2. Dr. K. K. Sharma attended (Winter College on Lasers, Atomic and Molecular Physics', ICTP, Trieste, Italy, Feb. 1 - March 23, 1983)
3. Dr. K. K. Sharma delivered a series of Lectures at the Spectroscopy Symposium (organized by the Kanpur University)
4. Dr. K. K. Sharma delivered a series of Lectures at the Winter College on Lasers, Applications and Technology (Dec. 1982)
5. Dr. R. Ramachandran participated in the 'Advanced Winter Institute on 25 Years Weak Interaction and Current Status of Gauge Theories', Bangalore, Dec. 13-31, 1982
6. Dr. H. S. Mani participated in the 'Advanced Winter Institute on 25 Years of Weak Interaction and Current Status of Gauge Theories', Bangalore (Dec. 13-31, 1982)
7. Dr. R. K. Popli participated in 'Regional Workshop on Role of Science & Technology in Tribal Development (Bishunpur, Bihar)
8. Dr. O. P. Katyal participated in the 'Workshop on Condensed Matter Physics', June 20 - July 29, 1982 (ICTP, Trieste, Italy)
9. Dr. D. C. Khan participated in the 'Workshop on Condensed Matter Physics', June 20 - July 29, 1982, (ICTP, Trieste, Italy)

COMPUTER SCIENCE PROGRAMME

Conferences And Seminars

1. Computer Society of India Annual Conference at Ahmedabad in January 1983. (Attended by 5 persons)

INDUSTRIAL AND MANAGEMENT ENGG. PROGRAMME

Attended by Faculty elsewhere

1. XV Annual Convention of ORSI, Kharagpur, Dec. 1982
A. K. Mittal and S. Sadagopan

2. Seminar on Combinatorics and Application, Kharagpur, Dec. 1982

A. K. Mittal

Summer, and Winter Schools

(a) Organised at the Institute

1. 'Use of Computers in Appraisal, Monitoring and Evaluation of Plan Schemes". Dec. 2-7, 1982
The course was organised for State Planning Institute, Lucknow
A. K. Mittal, A. P. Sinha and J. L. Batra
2. 'Recent Developments in Manufacturing". The Course was organised for Senior Executives from Thapar Group of Industries, March 31- April 5, 1983
G. K. Lal, J. L. Batra, A. Ghosh and G. S. Kainth

MATERIALS SCIENCE PROGRAMME

Attended elsewhere:

1. 36th Annual Technical Meeting of IIM Rourkela, Nov. 1982
D. C. Agarwal
2. 9th International Conference on Liquid Crystals Bangalore, Dec. 1982
K. V. Rao
3. Conference on Deformation - All aspects (SAIL, Ranchi, March 1983)
G. S. Murty
4. Physical Basis of Mechanical Behaviour (RRC Kalpakkam, Feb. 1983)
G.S. Murty
5. World Hydrogen Energy Conference IV (Pasadena, California, USA June 1982)
S. Gupta

6. - Recent Advances in Materials Research (IIT Bombay, Dec. 1982)
K. P. Gupta & D. Bahadur
7. All India Symposium on, "Furnace Technology" (New Delhi, 1983)
B. Sharma.
8. Fourth National Conference on Power Sources (New Delhi, April, 1983)
S. Kar

5. II. SUMMER & WINTER SCHOOL

(a) Organised at the Institute :

1. Applications of Electron Microscopy to Engineering Practice
T. R. Ramachandran & A. K. Jena

(b) Attended elsewhere:

1. Winter School on "Ferroelectric Materials and Devices" held at Dept. of Phys. IIT Kharagpur
K. V. Rao

(c) Participated in Summer/Winter School, organised at the Institute .:

1. Winter School on "High Voltage Transmission, Laboratory & Dielectric Techniques", Dec. 1982
J.Kumar
2. Introduction to Fibre Reinforced Composites, April 1983
D. C. Agrawal
3. Applications of Electron Microscopy to Engineering, Dec. '82
K. P. Gupta

(d) Participated in Winter/Summer Schools organised elsewhere:

1. Magnetic Bubble Materials
(IIT Bombay, March 1982)
D. Bahadur

(e) Lectures delivered on invitation

1. Properties and Applications of Metallic Glasses
(Lecture delivered at the DMSRDO, Kanpur)
D. C. Agrawal
2. Quantitative Electron Microscopy
(Lectures delivered in Workshop on Quantitative Metallography, SAIL, Ranchi)
T. R. Ramachandran
3. Quantitative X-ray Microanalysis of Thin Foils
(Lecture delivered at the Annual Conf. of EMSI at Varanasi),
T. R. Ramachandran

NUCLEAR ENGG. & TECH. PROGRAMME

Conference attended/organized :

1. IAnnual meeting of American Nuclear Society, San-francisco, June 1982
K. Sri Ram
2. IWorkshop on Fusion, Matehorn, Dec. 1982
M. S. Kalra
3. IX annual IARP conference BARC, Bombay, March 1983
K. Sri Ram