

PUBLICATIONS IN 1973-74

AERONAUTICAL ENGINEERING

Title	Author	Journal
Similarity of Bluff Body Near Wakes Including the Effects of Blockage	R. K. Sullerey A. K. Gupta C. S. Moorthy	Tech. Rep. No. AE/20/1974
Nonlinear Effects of High Temperature on the Vibrations of Beams with Time Dependent Boundary Conditions	K. S. Arvamudan N. G. R. Iyengar P. N. Murthy	Proc. 2nd Int. Conf. on Structural Mechanics in Reactor Technology, Sep. 1973.

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Nonlinear Effects of High Temperature on the Vibration of a Simply Supported Beam with a Central Mass by Mathematical Programming Technique	N. G. R. Iyengar P. N. Murthy	Proc. 2nd Int. Conf. on Structural Mechanics in Reactor Technology, Sep. 1973.
Effects of Material Nonlinearities on Vibration	P. N. Murthy N. G. R. Iyengar	Proc. 1973 Tokyo Seminar on Finite Element Method
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Effects of Transverse Shear and Rotatory Inertia on the Natural Frequency of a Cantilever Beam with Tip Mass	N. G. R. Iyengar	Proc. Noise, Sound and Vibration Conf. Australia, May 1974
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An Algorithm for Optimal Material Choice for Multifunctional Criteria	J. K. S. Rao P. N. Murthy C. V. S. K. Rao V. K. Kapur	Jr. of Computer and Structures, Vol.3, pp. 715-724, 1973
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SUMMER SCHOOLS, SHORT/INTENSIVE COURSES, CONFERENCES

Symposia, Seminars and Colloquia

The following sequential summer school, advanced/intensive courses, seminars and conferences were conducted during the period involving a sizeable number of participants from a cross section of industries, educational institutions and other organizations in India and abroad :

AERONAUTICAL ENGINEERING

Flight Laboratory Course for students of IIT Madras, C. V. R. Murthy
Bombay, Kharagpur, Punjab Engg. College, Chandigarh

CHEMICAL ENGINEERING

Winter School on System Approach to Design and Analysis of Chemical Process A. B. L. Agarwal

Seminar on syllabi in Chemical Engg., IIT Madras J. P. Gupta

26th Annual IChE Meeting, Coimbatore R. Barrios

M. Weibel

J. P. Gupta

A. E. Humphry

4th All India Symposium on Biomedical Engineering R. Nagarajan

IIT Delhi

J. P. Gupta

Advanced School on Systems Approach to Design and Analysis of Chemical Processes	D. N. Saraf A. K. Gupta
Ist European Conference on Mixing and centrifugal separation held at Cambridge	R. N. Sharma
Member, International Advisory Board of Encyclopedia of Chemical Processing and Design, U.S.A.	A. P. Kudchadker
Member, National Committee for Data on Science and Technology (CODATA)	A. P. Kudchadker
Member, C.S.I.R. Research Committee	V. S. Rao
Member, U.P.S.C Selection Committee	V. S. Rao
Member, Defence Research Selection Committee	V. S. Rao

CIVIL ENGINEERING

Seminar on Curriculum Development Mechanics of Solids	Y. C. Dass
Design and Production of Industrial Structures, ISTE Summer School, M.N.R. Engg. College, Allahabad	M. P. Kapoor (Coordinator)
Selected Topics in Water Resources Systems Design, Q. I. P. Course	V. Lakshminarayana S. Ramasehan
Exploration and Development of Ground Water Resources, Q. I. P. course	V. Lakshminarayana
Modern trends in Hydrologic analysis and Design, Q. I. P. course	V. Lakshminarayana
Optimization Methods in Sanitary & Environmental Engineering, ISTE-Water School	S. D. Vokil
Modern foundation design methods, Q.I.P. course	M. R. Madhav
Remote sensing for Natural resources and Environmental studies, Q. I. P. course	B. C. Raymahashay Yudhbir
Hydraulic Transients, Q. I. P. course	S. Surya Rao

International Conferences (Participation)

7th U. S. National Congress of Applied Mechanics; University of Colorado, Boulder, Colo, U. S. A.	N. S. V. Kameswara Rao
IUTAM Symposium, Warsaw, Poland	M. P. Kapoor

CHEMISTRY

C. N. R. Rao	IUPAC Congress, Hamburg (FRG) International Congress on Chemical Education, Poland
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C. N. R. Rao	IUPC Congress, Hamburg (FRG) International Congress on Chemical Education, Poland
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- C. N. R. Rao II Session of the U. N. Committee on Science and Technology for Development, New York; International Conference on Data for Science and Technology, Erevan, U.S.S.R.
- P. T. Narasimhan First International Congress on Quantum Chemistry, Menton, France
Visiting Professor, Max Planck Institute für Medizinische Forschung, Abteilung Molekulare Physik, Heidelberg, W. Germany
Second International Symposium on Nuclear Quadrupole Resonance Spectroscopy held in Viareggio, Italy
Hyperfine Interactions held at Univ. of Liege, Belgium
Invited talk on ESR Line Widths, Spin Densities and Internal Motions in Free Radicals at the Department of Chemistry, Catholic University, Nijmegen, Holland
Molecular Structure and Dynamics at the 61st Session of the Indian Science Congress at Nagpur
Participated as Member of the International Organizing Committee of the Fifth International Symposium on Magnetic Resonance, Bombay
Invited talk on Design of X-Band EPR and NMR Double Resonance Spectrometers at the Symposium on Microwave Technology held in New Delhi
- M. V. George Gordon Research Conference in Organic Photochemistry Tilton, New Hampshire, USA
Sixth International Conference in Organometallic Chemistry, Amherst, Mass., U.S.A.
Invited lectures on our current research activities were given at the following places
University of Rochester, New York, USA
The Ohio State University, Columbus, Ohio
The Upjohn Company, Kalamazoo, Michigan, USA
Shering Corporation, Bloomfield, New Jersey
Universität München, Germany
- P. S. Goel Fifth Lunar Science Conference at Houston, Texas, USA

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- A. Chakravorty XV International Conference on Coordination Chemistry, Moscow
Gave an invited lecture at the Golden Jubilee Symposium of the Indian Chemical Society, Calcutta
- S. Ranganathan Visiting Scientist at the Ohio State University, USA
Harvard University, Cambridge, USA, fascinating problems in organic reaction mechanisms
The Ohio State University, Columbus, USA, fascinating problems in organic reaction mechanisms
The University of Illinois, fascinating problems in organic reaction mechanisms
Pfizer, Groton, USA, fascinating problems in organic reaction mechanisms
Convention of Chemists, Madras, Molecular rearrangements
Convention of Chemists, Calcutta, Application of Woodward-Hoffmann rules to synthesis and reaction mechanisms
Delhi University : application of Woodward-Hoffmann rules to synthesis and reaction mechanisms
IIT Bombay, application of orbital symmetry principles
IIT Kharagpur, novel system alpha, beta-unsaturated nitroso
- D. Devaprabhakara Chemistry of Cyclononadienes, Chemistry Symposium, University of Madras, Madras
Process Development of Some Imported Chemicals, Symposium on Industrial Chemistry
International Conference on Organometallics, Univ. of Mass., Amherst, USA
Chemistry of Cyclononadienes, Dept. of Chemistry Rice University, Houston, USA
Some New Reactions of Allenes, Chemistry Section, ESSO Research Centre
Unusual Reactions of Medium-ring Dienes, Department of Chemistry, Univ. of Texas, Austin, USA
Some New Reactions of Allenes, Chemistry Section, Columbia Carbon Co., New Jersey, USA
Woodward-Hoffmann Rules, eight lectures in a

- course on organic reaction mechanisms, organized by UGC for College Teachers at I.I.Sc.
- J. C. Ahluwalia Thermodynamics of Aqueous Solutions of Hydrophobic Solutes, in the Golden Jubilee Celebrations of the Indian Chemical Society held at Calcutta
Thermodynamic Symposium held at the Department of Metallurgical Engineering IIT Kanpur
- D. Balasubramanian Golden Jubilee Symposium of the Indian Chemical Society at Calcutta — Optical Rotatory Dispersion and Circular Dichroism
International Conference on Biomembranes, at Madurai on Physico-Chemical Aspects of Ion complexation and Transport Across Membranes by Ionophores
Devising the curriculum, and writing text-book material and experiments, for secondary school level students in rural areas at (1) Kishore Bharti M. P. and (2) Science Education Centre, Arrra, U.P.

ELECTRICAL ENGINEERING

Conferences

- Design of multiple slug circuits of microwave solid state sources, Symposium on Microwave Technology K. C. Gupta
- Impurity Profile in a two-step Diffusion Process, 17th Tech. Convention of the Inst. of Electronic & Telecommunication Engineers, New Delhi M. M. Hasan
S. Venkateswaran
- Development of p-i-n diode for radar applications, Symposium on Creature Radar Tech. L R D E, Bangalore M. M. Hasan
R. S. Mehta
R. S. Korde
- A simplified method for minimum Trajectory Sensitivity Design of output feedback systems—Symp. Systems Engineering, H.B.T.I. Kanpur K. E. Hole
- Algorithms for the Design of Controller for output feedback systems—4th Iranian Conf. on Electrical Engineering Pahlavi Uni. Shiraz, Iran K. E. Hole
- Optimal scheduling in Hydro-thermal power systems by the method of local variations, Presented at S. S. Prabhu
R. P. Agarwal

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| I.E.E.E. PES Winter Meeting New York,—International conference on systems and control, at PSG College of Technology, Coimbatore | K. S. P. Rao |
| On line security assessment & Control of interconnected Power System using sensitivity concept, 4th IFAC/IFIP conference on Digital computers in Proun Control, Zurich | M. A. Pai
M. A. Khan |
| An efficient heuristic Procedure to decompose large power network, IEEE-Power Engineering Society Summer Power meeting | M. A. Pai
R. Jegatheesan |
| Outage Studies in Power System using Sensitivity approach, IEEE-Power Engineering Society Summer Power Meeting | M. A. Pai
M. A. Khan |
| Multiple Contingency power flow computation, IEEE-Power Engineering Society Summer Power meeting | M. A. Pai
M. A. Khan |
| Performance of a HV de System,—IEEE winter power meeting | M. Ramamoorthy
J. Bienick |
| A static polyphase distance relay,—I.E. (Ind.) annual meeting | M. Ramamoorthy |
| Steadystate analysis of Invector driven Induction motor,—IEEE I.A. Annual meeting | M. Ramamoorthy |
| Computational method for steady state analysis of phase controlled Induction motor, IEEE I.A, Annual meeting | M. Ramamoorthy |
| Performance of an optimally controlled machine under random disturbance IEEE Winter Power Meeting | M. Ramamoorthy
M. Armugam |
| An automatic single print classification technique,—Conference on Electronic Methods in Crime Detection, Jaipur | C. V. K. Rao
B. Prasada
K. R. Sarma |
| Reciprocity, Symposium on Circuit-Theory & Systems, Osmania Univ. | V. P. Sinha
S. D. Agashe |
| Envelope function for non-linear oscillations—7th Asilomar Conference on Circuits and Systems Nov. 1973 | R. Subramanian |
| Impurity Profile in a two-step Diffusion Process,—17th Tech. Conv. of Inst. of Electronics & Telecomm. Enggrs., India | M. M. Hasan
S. Venkateswaran |

Seminars

Applications of Integrated Circuits, IIT/Kanpur	R. N. Biswas
Workshop on System Design of Electronic Scanning Radars(IIT/Kanpur	K. C. Gupta
Problems of Transmission at 400 kV & above, IIT/K	M. A. Pai
Operations Research and Computer Methods	V. Rajaraman
Special course for officers of Indian Oil Corporation	
Fortran Programming and Computer logic, Intensive	V. Rajaraman
course offered under ACES Programme	
Assembly language and Real Time Systems offered	V. Rajaraman
under ACES programme	
Solid State high speed relays, W. P. I. Worcester	M. Ramamoorty
Mass, U.S.A.	
Q.I.P. Course on Theory and Applications of Micro-	M. S. Tyagi
wave Solid-state Devices	
Microwave Solid State Sources-Intensive Course	R. Saran
IIT/Kanpur Dec. 1973	

HUMANITIES & SOCIAL SCIENCES

Cybenetic Analysis of Industrial organization's	P. N. Rastogi
Summer Course under Q.I.P	

MATHEMATICS

Seminars

On extensions of Groups	Ramji Lal Allahabad University, Allahabad
Sets with unique farthest points	B. B. Panda
On Consecutive integer solutions for Mordell's equation	S. P. Mohanti
Banach Module actions of Glicksberg algebras as Segal algebras	V. V. Kapoor
One application of Functional Analysis to Partial Differential Equation	T. Mazumdar Wright State Univ. Dayton Ohio, U. S. A.
The greatest semilattice decomposition of a semi group	M. Putcha Univ. of California, Santa Barbara, U. S. A.

On Henselian Rings	N. Shankaran, Centre for Adv. Studies in Math. Punjab Univ., Chandigarh
Ergodic Theory	G. V. Ramanathan, Univ. of Illinois at Chicago Circle, U. S. A.
Non linear integral enquation several kernels	V. Raghavendra
Intrinsic properties of gas flows	E. R. Suryanarayan, Univ. of Rhode Island, Kingston, R. I., U. S. A.
Limit Structures	P. R. Misra
On smallest compactification for convergence spaces	C. J. M. Rao
Diffusion in heterogenous solids	J. Crank, Inst. of Math. Stud. Brunel Univ., U. K.
Frepresentation continuity and fixed point theorem	O. H. Alisbah, Rutgers Univ., Camden, N. J., U. S. A.
Polya's theorem in combinatorial Mathematics	V. Krishnamurty, B. I. T.'s, Pilani (Raj.)
The role of permutohedrons in Operations Resarch	S. K. Gupta
Euclidean rings in general	Raj Markanda, T. I. F. R., Bombay
Euclidean rings of Algebraic numbers and functions	Raj Markanda, T. I. F. R., Bombay
Stable positive definite functions on groups	K. R. Parthasarthy, IIT, New Delhi
Conferences	
Multipliers of convolution algebras and their Isomorphisms	U. B. Tewari Matscience, VIth Seminar in Analysis Bangalore
On Multipliers of Ap. Algebras	A. K. Gupta
Winter Schools	
Adv. School on Systems Approach to Design and Analysis of Chemical Processes, IIT Kanpur (Mechanical Engg. Deptt.) —gave 6 lectures on 'Numerical Analysis'	B. L. Bhatia

Manufacturing Systems, Dec. 1973, IIT Kanpur (Mechanical Engg. Deptt.)—gave 11 lectures on 'Linear Programming and 4 lectures on 'Application of Dyanmic programming'

S. K. Gupta
P. Gaiha

Summer School

Adv. Level U. G. C. Summer Institute in Statistical Inference & Multivariate Analysis. Punjab Univ., Chandigarh, May 1974.—gave 6 lectures on 'Order Statistics'

P. C. Joshi

DEPARTMENT OF MECHANICAL ENGINEERING

Mechanical Behaviour of Metals and Composites— Winter School Under Quality Improvement Programme.

S. N.
Bandyopadhyaya

Plant Lay-out and Material Handling—A Systems Approach—Advanced Summer School

J. L. Batra

Entrepreneurial Cell—Informal Lecture and Tutorial Series of all Fifth Year Engineering Students

B. L. Dhoopar

Dynamics of Turbomachines—Short term Summer Course Under Quality Improvement Programme

A. K. Mallick and
A. Ghosh

Quantitative Management—Winter School Under Quality Improvement Programme

S. C. Nayak

Laboratory Techniques and Experimental Method in Mechanical Engineering—Advanced Summer School

G. Srikantiah

2nd National Conference on Heat and Mass Transfer Held at IIT/Kanpur

G. Srikantiah,
Chairman
V. Kadambi,
Organising
Secretary
P. N. Kaul,
Organising
Secretary

DEPARTMENT OF METALLURGICAL ENGINEERING

Conference on Thermodynamic Measurements in Metallurgy, at IIT/K.

T. R. Ramachandran

Golden Jubilee Celabrations of the Department of Metallurgical Engineering, Benaras Hindu University

T. R. Ramachandran

Quality Improvement Programme on Foundations of Metallurgical Kinetics	T. R. Ramachandran.
Richardson Conference on Physical Chemistry of Extracive Metallurgy—held at London.	A. Ghosh
Oxygen probe for gases based on solid electrolyte cell—at the conference on Thermodynamic Measurements in Metallurgy held at IIT/K.	A. Ghosh
Analysis and Compilation of Thermodynamic Data—in Intensive Autumn School held at Metallurgy Dept. B. H. U.	A. Ghosh
Technological Applications of the Solid Electrolyte cell—in the Conference on—Solid Electrolytes and their Applications—held at B. H. U.	A. Ghosh
Industry Oriented short course on Processing of Ceramic Materials	D. Chakravorty
(QIP) short courses :	M. L. Vaidya
1. Mechanical Behaviour of Metals and Composites	
2. Corrosion and Corrosion Control	
3. Fundamentals of Phase Transformations	
Conference on Thermodynamic Measurements in Metallurgy at IIT/Kanpur	H. S. Ray
CIDA-NRC Research Associate for the University of Toronto, Canada.	H. S. Ray
Conference on Solid Electrolytes and Thin Application, at IIT/K.	E. C. Subbarao
Organised an Industry oriented short course on Processing of Ceramic Materials, at IIT/K.	E. C. Subbarao

DEPARTMENT OF PHYSICS

Nuclear Physics with Low Energy Accelerators—DAE Symposium.	G. K. Mehta
UGC Symposium on Low Energy Nuclear Accelerators, BHU Varanasi, entitled—Van de Graaff and its Applications to various Disciplines—Gamma Decay of Analogue Resonances—in the International Conference on Gamma Transitions in Delhi.	G. K. Mehta

- 'Electron Interaction and Instabilities in One Dimensional Metals' at a German Physical Society Conference on One Dimensional Metals at Saarbrucken, West Germany T. V. Ramakrishnan
- Conference on 'Renormalization Group and Statistical Mechanics', Trieste, Italy. T. V. Ramakrishnan
- Conference organised on—Positron Annihilation Studies in Matter, at IIT/K. R. M. Singh