



DR. S. C. BHARGAVA

[Brief Resume]

Dr. S. C. Bhargava graduated in 1963 from the University of Jodhpur, Rajasthan, and obtained his Master's degree in Power System Engineering from the University of Roorkee in 1966 (receiving a Gold Medal for topping in the University), and Ph D from the University of Aston in Birmingham, UK, in 1972.

He worked at Malaviya Regional Engineering College, now MNIT, Jaipur, for over 3 years and BITS, Pilani, before joining Corporate R & D of BHEL in 1974 from where he retired in 1999 as Specialist (Electromagnetic Phenomena).

His particular area of specialisation is the application of power-frequency electromagnetic fields formulations to the study and analyses of electrical machines, transformers and turbogenerators , using Finite Element techniques. His major project at R & D was the analyses of large turbogenerators under unbalanced operating conditions for which he has developed a number of computer programs having many unique features.

For the past over 15 years he has also been with a team researching actively in the area of “Biological Effects of Power-frequency Electromagnetic Fields (EMFs)” on which he has published and presented several papers. His other area of current research is development of renewal energy sources.

Dr Bhargava has published over **forty** papers in several Indian and International Journals and presented papers in a number of conferences in India and abroad. He has also published more than a dozen articles of general interest in popular magazines and newspapers.

Dr. Bhargava is a Fellow of IE(I), IEE(UK) and IETE, a Senior Member of CSI and Life Senior of IEEE(USA). He has been very actively associated

with almost all activities of the Hyderabad Section of the IEEE for over 25 years, being the Section Chairman during 1991 and 1992 and has been at the helm of organising various national and international conferences, etc. He is the recipient of several awards from the IEEE for his professional activities. He has a special interest in IEEE student members and branch activities, about which he has been addressing students at a number of engineering institutions, leading to formation of IEEE Student Branches.

*Apart from his fields of specialisation, his keen and continual interest is “EDUCATION”, esp. science education in schools for which he has contributed variously during the past more than 3 decades by visiting various schools and presenting a special participating programme on **electricity, magnetism and electromagnetism**.*

Following his retirement from the Corp. R & D of BHEL, he has also served for about seven years as visiting faculty and full-time professor of electrical engineering at Vasavi College of Engineering, Mahatma Gandhi Institute of Technology and Sreenidhi Institute of Science and Technology, Hyderabad, as also BITS, Pilani, Hyderabad Campus.

At present, he is intensely involved with the design and development of SOLAR ENERGY SYSTEMS : primarily solar electricity and also solar heating.

He is also the author of a unique book on measurements, titled : **Electrical Measuring Instruments and Measurements**” which is just published, both as paper-back, Indian edition, and hard cover, the international edition (by CRC Press – an associate of Taylor and Francis Group).

He is now in the process of writing a reference book titled : **Finite Element Analyses of Eddy-current Effects In Turbogenerators** designed for the benefit of practicing engineers in the field esp. those related to turbogenerator design and manufacture, and graduate students. .

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BIODATA

NAME : BHARGAVA, Suresh Chandra

DATE OF BIRTH : 28 December, 1941

Place of Primary, High School and I. Sc. Education : Kota (Rajasthan), India
(throughout First Class : Honours Grade)

TECHNICAL QUALIFICATIONS

		Year
B. E. (Elect.)	: University of Jodhpur, India First Division with Honours III Rank in the University	1963
M. E. (Power Systems Eng.)	: University of Roorkee, India First Division with Honours First Rank in the University (University Gold Medal)	1966
Ph. D.	: The University of Aston in Birmingham, U. K.	1972

PROFESSIONAL EXPERIENCE (Details enclosed)

(a) Teaching, Planning and Administration : About FIFTEEN years of full-time and part-time experience of teaching at graduate and Postgraduate teaching at universities.

About TEN years of experience of engineering administration, planning and setting up elect. m/c, electronics and meas. and inst. laboratories at various institutions

About FIFTEEN years of experience of planning and setting up the (unique) Electromagnetics Laboratory, and administration at B H E L, Corp R & D

(b) Research and Development : Over 30 years of experience (including three years at the University of Aston for the doctorate) on a number of industrial problems/projects

MEMBERSHIP OF PROFESSIONAL BODIES : F. I. E. E., C. Eng (U. K.);
F. I. E., C. Eng. (India);
F. I. E. T. E. (India);
Life Senior I. E. E. E. (U. S. A.);
Sr. Mem. C. S. I.

RESEARCH PUBLICATIONS	: See attached list
LAST POSTING AND MAIN RESPONSIBILITIES	: Specialist (Electromagnetic Phenomena). Had been fully engaged in the application of power-frequency electromagnetic fields to the analyses of various electrical machines and equipment, mainly a long-term comprehensive study of negative-sequence-current effects and associated problems in large turbogenerators (Details enclosed)
PERMANENT ADDRESS (For all correspondence communications)	: Dr. S.C. Bhargava 18, Godavari Gardens Yapral SECUNDERABAD 500 087. (A.P.) India
TELEPHONE (Res)	: +91(40) 2786 2742
E-Mail	: bhargava.sc_yapral@ieee.org also bhargavasc_yapral@rediffmail.com and bhargavasc41@gmail.com

TEACHING EXPERIENCE

1. October 1963 to August 1964

Lecturer in Electrical Engineering, Government Polytechnic, Kota, India
Taught various electrical engineering courses to 2nd and final yr. diploma classes.
Was responsible for setting up of electrical machine lab.

2. July 1966 to October 1969 and November 1972 to August 1973

Lecturer in Electrical Engineering, Malaviya Regional Engineering College, Jaipur, India

Taught a number of regular courses to IIIyr & IVyr (Elect. & Mech.) and Final yr (Elect) students.

Also postgraduate courses to teachers.

Subjects taught : Degree level

- electrical engineering
- electrical technology
- electrical machines
- electric circuit analysis
- electrical measurements
- electrical power utilization
- electronics

Postgraduate level

- power system engineering
- high voltage engineering

Was responsible for planning and setting up of Elect. Machines, Elect. Meas. and Electronics Labs. in the college.

3. October 1970 to October 1972

Part-time Teaching Assistant, The University of Aston in Birmingham, U K

4. August 1973 to May 1974

Assistant Professor of Electrical Engineering
Birla Institute of Technology and Science (BITS), Pilani, India

Courses taught : Degree level - Electromechanical Energy Conversion II
Postgraduate level - Advanced Power Systems II

Also supervised a number of undergraduate and postgraduate projects as partial requirement for the award of degrees, esp. under Practice School Programme

5. August 2001 to December 2001

Visiting faculty at Vasavi College of Engineering, Hyderabad
Courses taught : III yr EEE – Power Systems II
II yr EEE – Electromagnet Field Theory

6. July 2003 to August 2006

Professor and Head, Dept. of EEE at MGIT, Gandipet, Hyderabad
[See Annexure I at end for details of experience/activities at MGIT]

7. Sept. 2006 to August 2009

Professor of Elect. Eng. at Sreenidhi Institute of Science and Technology,
Hyderabad

Subjects taught :

A. M. Tech. : HVDC Transmission in I semester
Power Quality in II semester

B. B. Tech : UEE in I semester
ELM in II semester
Switchgear and Protection in II semester

8. January 2012 to May, 2012

Visiting faculty at B I T S, Hyderabad campus

Subjects taught : Power Systems

9. February 2013 to July 2014

Visiting Professor at N M R Engineering College, Hyderabad
For teaching M Tech course in Electrical Power Engineering

BOOKS AND PUBLICATIONS

1. Editing and publication of Ph. D. thesis of (late) Dr R.P.Bharagava, Retired Secretary, Kandla Port Trust, Gandhidham, Gujarat, in the book titled **“The Chamber of Princes”**, acclaimed as a work of historic importance of pre-independence India.
2. Brought out the Proceedings of the first-ever IEEE International Conference on Control and Automation in 1995 as Chairman, Publications Committee.
3. Brought out the Proceedings of the 30th Annual Convention of Computer Society of India in 1995, as Editor and Chairman of Publications Committee.
4. Brought out the Proceedings of the INCEMIC’ 97 in 1997 as Chairman, Publications Committee.
5. Brought out the Proceedings of the IEEE national Convention with the theme “Internet for India” in 1997, as the Convenor of the event and Chair, Publications.

6. Just published, both as paper-back (or Indian edition) and hard-cover, the International edition, a unique book titled **“Electrical Measuring Instruments and Measurements”**, based on decades of teaching and research experience [The book is aimed to be a text book for B.E./B.Tech. students covering their entire syllabus of the course on electrical measurements as also a valuable reference for practicing engineers.]
7. Another (reference) book titled **“Eddy Currents and Finite Element Analyses”**, based on extensive industrial research, is in the process of writing.

RESEARCH EXPERIENCE

1. Three years research for doctorate degree at The University of Aston, U K

Title of the Thesis : “Non-synchronous Operation of a Hysteresis Machine”

The research pertains to explaining the operation of an idealised hysteresis machine (having stationary rotor and d.c. excited, mechanically rotated stator) by the application of Poynting’s Theorem in non-synchronous mode. The approach to the research is heavily based on incorporation of power-frequency electromagnetic fields. The experimental results correlate well with the theoretical predictions.

A number of publications were based on the above analyses.

2. Nearly 25 years research experience at BHEL’s Corporate R & D on projects related to -

- * a long-term comprehensive study of Negative-sequence-current Effects in Turbogenerators
- * design, analysis and operation of A C contactors
- * magnetic field distribution in large induction motors
- * magnetic field studies of salient-pole field systems of large D C machines
- * magnetic suspension bearings for A C energy meters
- * magnetic properties of various permanent magnetic materials (using hysteresisgraph and assorted devices)

The analytical studies were heavily based on the use of Finite Element Techniques, using first-order, linear, triangular elements (whilst also researching with higher-order as well as isoparametric elements) and developing own computer programs with several unique features. The theoretically predicted results match the design values/actual findings from some of the TGs and machines.

This research was at par with the international work in the field.

3. During the years 1983 to 1999, exhaustive analytical and experimental research was carried out on a (scaled down) Model Turbogenerator, especially designed, manufactured and instrumented for the purpose, for a comprehensive study of the negative-sequence-current effects in turbogenerators under different simulated conditions of unbalance and varying slip frequencies.

[See details of some of the important research projects on attached sheets]

MOST IMPORTANT ENGINEERING WORKS/RESEARCH ACTIVITIES

FOR WHICH PERSONALLY RESPONSIBLE

During the over 25 years with the Corporate R & D of Bharat Heavy Electricals Limited,

1. had been personally incharge and responsible for an exhaustive, comprehensive research programme dealing with the analytical and experimental study of

“The Effects of Negative-Sequence Currents in Large Turbogenerators”

and associated problems as part of BHEL’s strategy of indigenous development of turbogenerators of ratings 500 MW and above. The work on this programme was initiated towards the close of 1974.

Summary of the Project

Almost all large (>200 MW rating) turbogenerators undergo some kind of severe steady state and / or transient (short-time) unbalanced operation during their lifetime. The unbalance (of phase currents in the stator of the generator) results in induction of currents of double-the-supply frequency (by virtue of negative sequence currents – as a consequence of unbalance – in the stator and rotation of the rotor at synchronous speed in the original direction) in all parts of the rotor. There are a few critical areas in a typical TG rotor, e.g., cross-slot ends, end retaining rings fitting on the rotor body and joints of wedges in actual slots, where the induced currents can be heavily concentrated, manifesting as intense heat and temperature rise, at times leading to irreparable damage to the rotor and loss of crores of rupees in the event !

The extensive long-term project under reference dealt with a comprehensive study of theoretical analyses, using classical as well as numerical methods such as finite element method, and experimental assessment of the problem that is vital to specify to customers the “negative sequence current capability” of a typical turbogenerator.

Since experimental tests on actual TGs are normally not feasible due to various reasons and limitations, it was planned to design and manufacture (within BHEL plants) a special

scaled-down model of a typical large TG, e.g., a 500 MW TG, to conduct the various extensive experiments and tests. This was essential to compare / verify theoretical results and establish acceptable criteria and methodology applicable to actual TGs. This important programme led to the design and establishment of a unique (first of its kind in Asia) laboratory facility at BHEL, Corporate R&D where all experimental work was carried out.

Major Results Achieved from the Project

A. Analytical

Both classical and numerical methods (using FEM with triangular, first-order elements), accounting for a number of constructional and operational features of an actual, large TG, have yielded very satisfactory results. A number of computer programs have been developed to give a detailed picture of magnetic field, eddy-current (power) loss distribution as well as temperature rise distributions in the rotor of a typical large turbogenerator under specific steady state or transient unbalanced conditions. The method of computation (i.e. the computer programs) has been successfully applied to the study of BHEL's 110 MW, 120 MW (for which data from actual incidents of faults were also available), 235 MW and 500 MW TGs to predetermine their negative sequence current capabilities.

A unique feature of the computer programs is automatic generation of data, given design parameters of the machine under study.

B. Experimental

1. Elaborate and exhaustive tests have been carried out on a Model Turbogenerator designed (at BHEL, Bhopal), manufactured (at BHEL, Hyderabad) and commissioned in the Electromagnetic Phenomena (EMP) laboratory at BHEL, Corporate R&D Hyderabad. Using two special rotors, extensively instrumented to monitor the various physical parameters, tests were conducted under different simulated conditions of unbalance accounting for induced currents of 50-100 Hz frequency in the rotor. The results obtained from the experiments match with the theoretical values within the limits of comparisons.

A very successful and satisfying achievement from the experimental studies is the design, incorporation and performance of dozens of transducers (search coils, "J-probes" and thermocouples) on the model TG rotor (used for the first time in this kind of study) to measure magnetic flux density, induced currents and temperature rises in *three-dimensional* regions of the rotor under steadystate and transient conditions of the experimental work. The transducers were terminated to a specially designed and manufactured Transient Data Collection System, having 125 channels and a throughput of 100 kHz, for simultaneous *digital* recording of signals on a 9-track digital tape drive.

2. Had been responsible for planning, supervision of construction, equipping and setting up of a unique Electromagnetic Phenomena Laboratory in the R & D complex for research and experimental study of special low-frequency

electromagnetic field effects in electrical machinery, equipment and devices. The lab was established to have some of the most modern test and recording devices and facilities.

Current Project on Biological Effects of ELF (Extremely Low Frequency) EMFs (Electromagnetic Fields) on Living Beings

[Jointly with Prof. Y.R. Ahuja, Research Director, Vasavi Medical and Research Centre, Hyderabad]

Project outline

Electricity is a common household world today throughout the world. The generation of electricity is based on the fundamental laws of electromagnetic induction, invented more than 150 years ago, by the famous British Scientist Michael Faraday, universally known as the ‘Father of Electricity’.

Indeed, this genie called electricity is virtually the life line of mankind in more sense than one and it is impossible to imagine the life on the planet without it.

However, all is not entirely well with electricity. Most gadgets, working on electricity, be it in factories, offices or workplaces and houses, or even the wires carrying electricity (or more accurately electric current) produce time-varying electromagnetic fields of the ‘supply’ frequency (50 Hz in the UK and India ; 60 Hz in the USA), commonly identified as electro-pollution owing to the possible hazardous effects of these fields, including cancer. Much research has taken place pertaining to ill effects of electromagnetic fields (EMFs) of different frequencies and hundreds of papers have appeared in multitude of journals over the past 30 years or so.

The project at hand pertains to the study of ELF EMFs on human beings, the research studies being conducted based on *in-vitro* experimental work using a drop of blood as a sample and analyzing a cell using **comet assay** technique. The experimental rig(s) have been specially developed and fabricated to serve the unique requirements of the studies. The results have been quite revealing, leading to publication of a number of papers variously. [See attached list of publications].

PROFESSIONAL ACTIVITIES

1. IEE (Institution of Electrical Engineers, U K)

1988–1994 : Member of the Executive Committee of the Madras International Centre

2. IEEE (Institute of Electrical and Electronics Engineers, Inc., U S A)

1985-1989 : Member, IEEE Hyderabad Section Executive Committee

1990 : Vice-chairman, IEEE Hyderabad Ex. Com.

1991 and
1992 : Chairman, IEEE Hyderabad Ex. Com.

September,
September,
programmes,
twin
of

Responsible for initiating and organising a number of technical and professional activities (some of them for the first time, notably the annual Faraday Memorial Lecture, initiated in 1991 to mark the 200th birthday of Michael Faraday on 22nd 1991 [this was a 3-day event with various professional programmes, including a Sc. Exhibition by students of various schools in the cities]) for members and non-members as well as science students of various high schools and junior colleges in the twin cities.

Also, represented the Section in the IEEE Region 10 Meetings held at Penang (1991) and Seoul (1992), making a strong case for Section's achievements and problems and pointing out general shortcomings of the IEEE HQ vis-à-vis the sections.

1993 : Convener, IEEE Annual Convention and Exhibition, ACE'93 with the focal theme : "Engineering Education and Relevant Technologies for India", ***first-ever in the country***. Brought out a comprehensive set of Recommendations based on the extensive deliberations during Convention. Was the key organiser of this activity jointly sponsored by the IEEE India Council, held for the first time in India.

Was also personally responsible for initiating the novel scheme "Engineers for Schools" (in 1993) for students of high schools and junior colleges for developing proper aptitude and perception among the students about engineering profession.

Under this scheme, IEEE members would volunteer to visit various schools and interact with students to inculcate the right aptitude and interest among the students regarding what engineering is all about.

1994-1995 : Chairman, Publications Committee of the (first-ever held in India) IEEE/IAS International Conference on Industrial Automation and Control, IA & C '95, held during January, 5 – 7, 1995.
Was also one of the key organisers of the Conference.

1997 : Conference Coordinator of the 'National' Conference "Internet for India", organised for the first time in India in co-operation with the IEEE India Council.
Played the key role in the organisation of the Conference.

2007-08 On the Steering Committee of Region 10 Technical Conference, TENCON 08, held in November '08

Have been Chairman of the Section's Membership Development Committee, almost continually since 1993.

Have also been the advisor of the Section's newsletter editorial board to bring out regular issues of the newsletter, acclaimed as one of the best Section publications.

Have had special interest in IEEE Student members and branch activities, having been invited to several branches to inaugurate the branch and deliver numerous talks and lectures, particularly for formation of student branches under the title "Why I Join the IEEE?"

Have been the Chairman of the Standing Committee on organizing of Faraday Memorial Lecture (to identify the speaker and make all arrangements for his visit, etc)

Was awarded the IEEE Millennium Award in 2001 for the continual support to a number of IEEE activities of the Section.

Have been awarded "Outstanding Volunteer Award" of the IEEE Region 10, for The year 2002.

3. CSI (Computer Society of India)

1995 : Chairman, Publications Subcommittee of the CSI's 30th Annual Convention held at Hyderabad.

4. Acted as External Member, Board of Studies, JNTU, during 1994-97.

RESEARCH PUBLICATIONS/PRESENTATIONS

1. *On Stability of One Machine System*
S. C. Bhargava and P. Mukhopadhyay
Research Publications, University of Roorkee, 1966-67. pp 69-82
2. *Logic Circuits for Static Relays in Power System Protection*
S. C. Bhargava and B. Ravindranath
9th Annual Number, Inst. of Engrs.(India), [Rajasthan Centre], 1969, pp 32-43
3. *The Salient-Pole Hysteresis Coupling*
S. C. Bhargava and M. J. Jevons
Presented at the International Magnetism Conference [INTERMAG], 1975, held in London during April 14-17, 1975
Published : IEEE Trans. on Magnetism, Vol. MAG-11, Sept. 1975, pp 1461-63
4. *The Hysteresis Motor*
S. C. Bhargava
J. Inst. of Engrs.(India), Elect. Eng. Divn., Vol. 57, Pt EL 2, Oct 1976, pp 94-98
5. *A Computer Program for the Solution of Diffusion Equations Using Isoparametric Finite Elements*
S. C. Bhargava and K. Eswaran
Presented at the International Conference on Computer Applications, held at Bangkok, Thailand, during Aug 22-25, 1977
6. *Organisation and Management of an Industry-Based Research and Development Unit*
S. C. Bhargava and A. Pramanik
Presented at the Inst. of Engrs.(India), Hyderabad, on Engineers' Day (15 Sept.), 1977
7. *Effects of Negative-Sequence Currents in Turbogenerators*
S. C. Bhargava
J. Inst. Engrs.(India), Vol. 58, Oct 1977, pp 87-93
8. *The Effect of Interpretation of i_2 in the Calculation of I_{2eq} t Capability of Large Turbogenerators*
S. C. Bhargava
J. Inst. Engrs.(India), Vol. 59, Oct 1978, pp 69-74
9. *The Finite Element Solution of Negative-Sequence-Current Problems of Turbogenerators*
S. C. Bhargava
J. Inst. Engrs.(India), Vol. 59, Oct 1978, pp 75-79
10. *Magnetic Fields and Eddy Current Heating of Turbogenerator Rotors During Unbalanced Operation*
S. C. Bhargava
Presented as invited lecture in the Quality Improvement Programme (QIP) at I I T, Madras, in June 1979
11. *Theory of Hysteresis Coupling Torque*
S. C. Bhargava
Electric Machines and Electromechanics, Vol. 5, No. 5, 1980, pp 391-405
12. *Case Studies in Failure Analysis of Electrical Equipment*
S. C. Bhargava, S. K. Bhaway, et al

- A joint paper presented at the All India Seminar on “Reliability of Heavy Electrical Equipment” organised by the Inst. of Engrs. (India) at Bangalore in Dec 1980
13. *A High-speed, Multi-channel, Microprocessor-based Data Collection System for Transient Measurement in a Large Electrical Machine*
S. C. Bhargava and Manoj Kumar
Presented at the All India Seminar on “Electrical Measurements – Standardisation and Calibration” held at Calcutta, Nov 18-22, 1981
 14. *The Use of Search Coils for Magnetic Measurements*
S. C. Bhargava
Int. J. Elec. Eng. Edn., Vol. 19, No. 1, 1982, pp 45-52
 15. *Influence of Unbalanced Currents in Turbogenerators and the Analysis of the Associated Problems by the Finite Element Method*
S. C. Bhargava
BHEL Journal, Vol. 4, No. 1, 1983, pp 1-14
 16. *Negative-Sequence Currents, Losses and Temperature Rise in the Rotor of a Turbogenerator During Transient Unbalanced Operation*
S. C. Bhargava
Electric Machines and Power Systems (formerly Electric Machines and Electromechanics)
Vol. 8, No. 3, 1983, pp 155-68
 17. *Energy Flow in a 2-Pole Hysteresis Coupling by Poynting Theorem*
S. C. Bhargava
Accepted for INTERMAG 81, Grenoble, France, 1981.
Published : IEE Proc., Vol. 130, Pt A, No. 6, Sept 1983, pp 301-305
 18. *Measurement of Residual Flux in Permanent Magnets*
S. C. Bhargava
Int. J. Elec. Eng. Edn., Vol. 20, No. 4, 1983, pp 39-43
 19. *Some Critical Aspects of Designing Transverse Slots in the Rotors of Large Turbogenerators*
S. C. Bhargava
Presented at the International Seminar on Electrical Rotating Machines, held at Bangalore, 7-8 December, 1983
 20. *Mapping of Magnetic Field due to DC-excited Unsaturated Salient-Pole Field System*
S. C. Bhargava
J. Inst. Engrs.(India), Elec. Eng. Div., Vol. 64, Pt. EL 4, Feb 1984, pp 181-185
 21. *Magnetic Bearings for Energy Meters*
S. C. Bhargava and Har Prashad
Presented at the All India Workshop on Electricity Meters, organised by the Inst. of Engrs. (India) and held at Bombay, 27-29 Feb, 1984
 22. *An Investigation of Thermo-Mechanical Stresses in a TG Rotor Caused by Unbalanced Operation and Assessment of its Structural Integrity*
S. C. Bhargava, G. Venkata Rao, et al. Accepted for oral presentation at CIGRE, France, 1984
 23. *A Multi-channel Data Acquisition System for Special Transient Tests on a Model*

Turbogenerator

S. C. Bhargava and Manoj Kumar

Presented at the International Conference on Computers, Systems and Signal Processing,
held at Bangalore, December 1984

24. *Magnetic Suspension Bearings for AC Energy Meters*
S. C. Bhargava and Har Prashad
BHEL Journal, Vol. 6, No. 2, 1985, pp 12-21
25. *A New Technique for Measurement of B/H Characteristics of Annular Permanent Magnets*
S. C. Bhargava
Int. J. Elec. Eng. Edn., Vol. 22, 1985, pp 221-227
26. *A New Method for Fourier Analysis of Peak Waveforms*
S. C. Bhargava
Int. J. Math. Educ. Sci. Technol., Vol. 17, No. 6, 1986, pp 683-692
27. *The Use of Magnetic Vector Potential in the Solution of 3-Dimensional Electromagnetic Eddy-Current Problems by Finite Element Formulation Using a Lagrangian Multiplier*
S. C. Bhargava, A. Pramanik, K. Eswaran and K. Parthasarathy
Presented at The International Symposium on High Voltage
(Organised by CIGRE, France), West Germany, 1987
28. *Comet Assay to Evaluate DNA Damage Caused by Magnetic Fields*
Y. R. Ahuja, S. C. Bhargava, et al
Proc. Int. Conf. on Electromagnetic Interference and Compatibility [INCEMIC '97],
Dec 3-5, 1997, Hyderabad, India, pp 273-276
29. *In-Vitro Effects of Low-level, Low-frequency Electromagnetic Fields on DNA Damage in Human Leucocytes by Comet Assay*
Y. R. Ahuja, S. C. Bhargava et al
Presented at the National Seminar on Low-level EMFs Phenomena in Biological Systems
(BIOSYS '99), held at New Delhi, India, Feb 3-4, 1999
30. *Environmental Electromagnetic Fields and Their Influences*
S. C. Bhargava
Presented at the National Seminar on Low-level EMFs Phenomena in Biological Systems
(BIOSYS '99), held at New Delhi, India, Feb 3-4, 1999
31. *Electropollution and its Health Hazards on Humans*
Y. R. Ahuja and S. C. Bhargava
JPAS, Vol.1, 1999, pp 163-165
32. *Epidemiological and Laboratory Studies on the Cancer Risk from Electromagnetic Fields : an Overview*
Y R Ahuja, P Jahan and S C Bhargava
Proc. Int. Conf. 'Electromagnetic Interference & Compatibility', New Delhi, 1999,
Pp 459-464
33. *Health Hazards of Electro-pollution*
Y R Ahuja, S C Bhargava et al

Persp Cytol Genet, 2001, pp 47-54

34. *Health Hazards of Electropollution*
Y R Ahuja and S C Bhargava
Everyman's Science, Vol XXXV, No 4, January-March 2001, pp 183-86
35. *Microwaves and Their Genetic Effects*
Y R Ahuja, K R Tiwari and S C Bhargava
Proc. Workshop cum Symposium on 'Microwave Measurement Techniques & Applications, 2002, New Delhi
36. *DNA Integrity Study of Human Peripheral Blood Leukocytes Exposed to Extremely Low Frequency Fields Using Comet Assay*
R K Tiwari, S C Bhargava, Y R Ahuja et al
Proc. 7th International Conference on 'Electromagnetic Interference & Compatibility', Bangalore, 2002, pp 311-14
37. *Study of DNA Damage In Workers Occupationally Exposed to Video Display Units*
Y.R.Ahuja, E. Lalitha Jayshree and S.C.Bhargava
National Conference On Radio Science [INCURSI – 2003]
National Physical Laboratory, New Delhi, November 27-29, 2003
Best Poster Award
38. *Electric and Magnetic Fields in Stem Cell Research*
Y. R. Ahuja, S. C. Bhargava, and K. S. Ratnakar
Electromagnetic Biology and Medicine, Vol. 24, 2005, pp 121-134
39. *Modulation of Stem Cell Differentiation by Electrical and Magnetic Fields*
Y. R. Ahuja, S. C. Bhargava, and K. S. Ratnakar
Proc. A.P.Academi of Sciences, Hyderabad, Vol. 10, No.1, 2006, pp 19-23
40. *Epidemiological Study to Assess the Risk of RF-EMFs from Mobile Technology*
Ravindra Tiwari, Y.R.Ahuja, S.C.Bhargava and N.K.Lakshmi
Presented at 4th International Workshop on 'Biological Effects in EMF', at Crete, Greece, 16th-20th Oct., 2006
41. *Epidemiological Study on Genomic Instability in Occupational Exposure to 132 kV Substation Workers*
N. K. Lakshmi, Ravindra Tiwari, Y. R. Ahuja and S. C. Bhargava
Paper presented at International EMF Conference 2007, Kuala Lumpur, 4th – 8th June, 2007
42. *Melatonin, Electromagnetic Fields and Cancer*
Ravindra Tiwari, Y. R. Ahuja, S. C. Bhargava and N. K. Lakshmi
Paper presented at AACR Centennial Conference on Transnational Cancer Medicine, Singapore, 4th – 6th November, 2007
43. *Electromagnetic Pollution – An Environmental Threat*
Ravindra Tiwari, S. C. Bhargava et al
Paper presented at 3-day National Conference on Environmental Issues and Challenges – 21st Century, O U, Hyderabad, 28th – 29th March, 2008
44. *Combinative Exposure Effect of Radio Frequency Signals from CDMA Mobile Phones and Aphidicolin on DNA Integrity*

MISCELLANEOUS PUBLICATIONS/WRITE-UPS

1. “Engineers Open Windows”
IEEE Hyderabad Section Newsletter, Vol. 4, No. 1, May 1990
[Adapted from an article in IEE Review, March 1990]
2. “Institute or Institution?”
IEEE Hyderabad Section Newsletter, Vol. 4, No. 2, Dec 1990
3. “Public Nuisance – Indian Style”
Sunday Chronicle, March 3, 1991
4. “Neighbourhood Engineers – for Schools”
IEEE Hyderabad Section Newsletter, Vol. 5, No.1, April 1991
5. “On Engineering Profession” [Chairman’s Column]
IEEE Hyderabad Section Newsletter, Vol. 5, No. 1, April 1991
6. “A Distant Dream”
Sunday Chronicle”, September 8, 1991
7. “The Value of Dissent” [Chairman’s Column]
IEEE Hyderabad Section Newsletter, Vol. 5, No.2, Dec 1991
8. “Engineers for Education – A Classic Approach”
IEEE Hyderabad Section Newsletter, Vol. 6, No. 1, April 1992
9. “Engineers Education in India” [Chairman’s Column]
IEEE Hyderabad Section Newsletter, Vol. 6, No. 1, April 1992
10. “An Engineer from the U K Visits India : How Good Are We Professionally?”
IEEE Hyderabad Section Newsletter, Vol. 6, No. 2, November 1992
11. “For a Change, Let Us Talk of Things Outside This Country”
[Chairman’s Column]
IEEE Hyderabad Section Newsletter, Vol. 6, No. 2, November 1992
12. “Philosophy of Mass Communication in India”
Invited Talk at the IEEE ACE ’92, held at Calcutta in November 1992

[Published : Journal of the CTMS (Centre for Telecommunication Management and Studies), Vol. V, No. 9, October 1996, pp 6-11]

13. "Avoidable Miseries"
Sunday Chronicle, February 7, 1993
14. "Save Mankind by Saving Electricity" : Letters to the Editor
IEE News, No. 81, 3 June 1993
15. "The EAMCET Farce" : Letters to the Editor
NEWSTIME, Monday, 6 September, 1993
16. "Making Education Meaningful"
Sunday Chronicle, July 23, 1995
17. EDUCATION
Presented at the one-day workshop of The Centre for Policy Research,
New Delhi, on June 21, 1996
18. Memorandum to Dr. R. Natarajan, Chairman, AICTE , in response to AICTE Ad. in
The Hindu, dt. 8th September, 2002, regarding state of engineering education in the
country
19. Write-up "Industry – Institute Interaction"
presented at the Round Table Conference on "Engineering Education - Present
Status and Future", organized by IE(I), AP State Centre on Thursday, 18 March,
2004
20. Write-up "QUALITY" OF ENGINEERING EDUCATION IN INDIA - Maladies
and Remedies
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2004
20. Write-up "QUALITY" OF ENGINEERING EDUCATION IN INDIA - Maladies
and Remedies

communicated to Dr. Krishna Vedula, Professor, University of Massachusetts, Lowell, USA, co-ordinator, Indo-US Collaboration for Engineering Education, January, 2007

Also communicated to Chairman, AICTE, through Member Secretary, and Prof D N Reddy, VC, JNTU, by Reg Post – typically no response!

21. Article “Honestly, none seems to care”, in connection with Biodiversity Summit held at Hyderabad in October 2012, published in The Hindu, dt. October 21, 2012.

Annexure I

Activities at MGIT as Prof and Head, Dept of EEE

[July 2003 – August 2006]

1. Teaching

- a) EM & UEE to III yr EEE
- b) EM-I to II yr EEE
- c) NT to I yr EEE

2. IEEE Student Branch

Formed the branch in 2003

- arranged a no. of invited talks
 - arranged various events of professional nature
 - two-day annual event : SURGE 2005
 - organized visits and tours and members’ participation at other institute all-over
- Was actively involved as usual with the Section’s Faraday Memorial Lecture

3. Took lead and started

- a) Electrical Engineers Technical Association, EETA
- b) Energy Savers Club (an activity propagated by IE(I))
- c) Renewable Energy Club (under support from the NCES Ministry and NEDCAP)

4. Helped in

- a) improving working of Central Library/Information Centre
 - b) Central purchasing activities
 - c) preparation of draft paper for PG courses
 - d) revision of JNTU syllabi for 2005 batches
 - e) preparation of a unique theme paper for a realistic industry-institute interaction
- (Also actively participated in this context at a round table conference organized by Institution of Engineers(India))
- f) HT and LT distribution work in the campus

5. Delivered a no. of talks/seminars on various aspects of engineering and profession at MGIT and other colleges, esp. on Electromagnetism involving working models

6. Streamlining of general administration of the Dept. in the most systematic manner and setting up of various labs. and Departmental Library, including an electrical workshop to bring out and help develop the creative talent of students
7. Planning and preparation for accreditation of the Dept. by the NBA at the earliest possible
8. Selection of faculty and staff for the Dept.
9. Co-authoring papers on effects of EMFs on living beings
- !0. Ground work for an R & D project jointly with Mechatronics Dept. on Electromagnetic Braking for Vehicles in Distress
11. Initiated preparatory work for a 5-days special course jointly with the ECE Dept., “Finite Element Techniques in Electromagnetic Field Problems”