



Institute Lecture

Fakes and Forgeries: The Scientific Detection of Fraud

Paul Craddock
Department of Conservation and Science
The British Museum, London UK

Wednesday, 14th January, 2008 Venue: L-1, Lecture Hall Complex Time: 5:00 PM

Abstract:

Antiquities and works of art attract an ever increasing international interest and consequently enormous prices at auction. As such there is an equally enormous temptation to produce fakes. These range from the fake coins and other trinkets offered for sale to tourists by small boys at ancient monuments around the world for a few pennies to major works of art offered by not-so-small boys at major galleries in New York, London and other centres for millions of dollars. The speaker spent much of his career at the British Museum investigating such suspect antiquities. Authenticity studies are rarely as simple as plain 'is it fake?' or 'is it genuine?', but rather what has happened to an object, when and why. Thus a wide range of approaches are adopted. Are the techniques and materials appropriate for the claimed period of the piece? has it been altered? Is the wear and corrosion such as one would expect? Finally, of course, the piece may be genuine but have been deceptively restored. The talk will include a range of case studies on a variety of artefacts from cultures around the world, from palaeolithic hand axes to the Turin Shroud, all that they have in common is that they are not what they seemed to be at first sight. There is also a large international trade in antiquities that have been clandestinely excavated and then illegally exported from their country of origin, usually for sale in the Far East, or in the West. This trade is now completely illegal just about everywhere, and where suspect pieces have been recognised, and a legal case ensues it is sometimes necessary to prove that they have only recently been dug up, and to try and establish where they had been buried.

Biosketch:

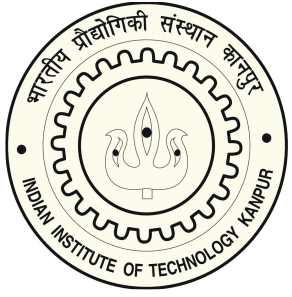
Paul Craddock researches metals in the Department of Conservation, Documentation and Scientific Research and undertook authenticity investigations. After graduating in chemistry at the University of Birmingham in 1966 he joined the British Museum as an analyst. He then studied prehistoric archaeology at the Institute of Archaeology, London, and metallurgy at John Cass College, in East London, and went on to complete a PhD on the bronze metallurgy of the classical period. Dr. Craddock continued to research in the technical study of archaeological and historical artefacts, but has specialised in all aspects of early mining, extractive metallurgy and metalworking. To this end he has worked on or conducted excavations and surveys at early mines and smelters around the world, including Bronze Age copper mines in Israel, King Croesus' gold refinery at Sardis in western Turkey, copper mines in Nigeria, Roman silver mines at Rio Tinto in southern Spain and in Serbia, zinc in India and China and crucible steel production sites in Central Asia and southern India. In addition he has recorded traditional processes such as the bidri wares of the Deccan of central India, and the manufacture of hot-forged high tin bronze vessels and bronze mirror in Kerala as well as the casting of large images at Swamimalai and other centres in Tamil Nadu and statuettes in Nepal. He has recorded zinc distillation in China and blacksmithing in Nigeria. He has also been Secretary of the Early Mines Research Group since its foundation.

Through his career Dr Craddock has produced over 350 papers. Recent books include Early Metal Mining and Production, 2,000 years of Zinc and Brass, King Croesus' Gold and Mining and Metal Production: Through the Ages. He is currently completing books on Indian metallurgy and the scientific detection of fakes and forgeries.

All interested are welcome.

K.Muralidhar

Dean: Research and Development



Institute Lecture

SYSTEMS OF SYSTEMS

Innovations for 21st Century

Mo Jamshidi

Lutcher Brown Endowed Chair

Department of Electrical and Computer Engineering
and Autonomous Control Engineering - ACE Center

The University of Texas San Antonio, Texas, USA

moj@wacong.org, mo.jamshidi@utsa.edu

Tuesday, 16th December, 2008 Venue: L-1, Lecture Hall Complex Time: 5:00 PM

Abstract:

One of the main challenges of any paradigms in systems engineering is being able to handle complex systems under unforeseen uncertainties. A system may be called complex if its dimension (order) is too high and its model (if available) is nonlinear, interconnected, and information on the system is uncertain such that classical techniques cannot easily handle the problem. A system of systems (SoS) is a *super system*, or an integration of complex systems coordinated together in such a way to achieve a wider goal with possible higher significance. Applications of SoS are quite extensive – examples are future combat mission, Global Warming, Mars missions, Air Traffic System, Global Earth Observation System, Electric Power Grid System and Energy systems. Computational intelligence (CI) or Soft Computing, a consortium of fuzzy logic (approximate reasoning), neuro-computing (learning), genetic algorithms and genetic programming has proven to be a powerful set of tools for adding autonomy and semi-autonomy to many complex systems. For such systems the size of autonomous controller architecture will be nearly infinite. In this presentation system of systems are being introduced, challenges are brought up and potential solutions and needs are discussed. Special emphasis on UTSA ACE Center's SoS technology will be demonstrated. Some Animated and experimental implementation as well as media movies and clips will be shown.

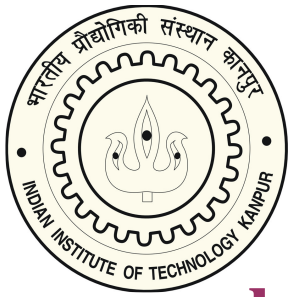
Biosketch:

Mo M. Jamshidi received BS in EE, Oregon State University, Corvallis in 1967, MS and Ph.D. degrees in EE from the University of Illinois at Urbana-Champaign, IL, USA in June 1969 and February 1971, respectively. Currently, he is the Lutcher Brown Endowed Chaired Professor of the University of Texas Systems and working at the University of Texas, San Antonio, TX, USA. He has also been the founding Director of Center for Autonomous Control Engineering at the University of New Mexico in 1995, and has moved the Center to University of Texas, San Antonio in 2006. He was a Senior Research Advisor at US Air Force Research Laboratory, KAFB, NM from 2002-2005 and 1984-1990. He was also an advisor for the NASA Headquarters from 1998-2004 and on NASA JPL's Pathfinder Project mission and Surface Systems Track Review Board. He has over 600 technical publications including 62 books (12 text books), research volumes, and edited volumes. His most recent edited books are on system of systems engineering. Six of his books have been translated into at least one foreign language. He is the Founding Editor or co-founding editor or Editor-in-Chief of 5 journals including IEEE Control Systems Magazine and the IEEE Systems Journal. Dr. Jamshidi is a Fellow or member of 8 societies and academies. He is the recipient of the IEEE Centennial Medal and IEEE Control Systems Society Distinguished Member Award and the IEEE CSS Millennium Award. He is currently on the Board of Governors of the IEEE Society on Systems, Man and Cybernetics and the IEEE Systems Council. He is an Honorary Professor at three Chinese and one Australian Universities. In October 2005 he was awarded the IEEE's Norbert Wiener Research Achievement Award.

All interested are welcome.

K.Muralidhar

Dean: Research and Development



Institute Lecture

Genomic Approaches to understand the biology and clinical management of Glioma

MANCHANAHALLI R SATYANARAYANA RAO

President

Jawaharlal Nehru Centre for Advanced Scientific Research
Jakkur, Bangalore-560064

Monday, 16 September, 2008 Venue: L-16, New Lecture Hall Complex Time: 6:00 PM

Biosketch:

M.R.S. Rao was born on 21st January 1948. in Mysore, Karnataka. He had most of his education in Bangalore and obtained B.Sc and M.Sc degree from Bangalore University. He then joined the Department of Biochemistry, Indian Institute of Science, Bangalore for his Ph.D degree under the supervision of Prof. G. Padmanabhan, working on regulation of heme synthesis in liver. He then subsequently joined the laboratory of Prof.Harris Busch, Baylor College of Medicine, Houston, Texas, USA for his postdoctoral work during 1974-78. He was an Assistant Professor at the Department of Pharmacology, Baylor College of Medicine during 1977-78 before returning to India.

Academic and Research Contribution:

On returning to India, he was associated with Prof. J. Ganguly for a brief period, at Department of Biochemistry, Indian Institute of Science, to work on role of Vitamin A in cellular differentiation before he joined the Faculty of the Department, where he built up an active school of Chromatin biology using mammalian spermatogenesis as a model system. He has made very original and insightful contributions on the role of histone and their variants in modulating chromatin structure to facilitate various important biological phenomena. He was the Chairman of the Department of Biochemistry during 1998-2003. He also initiated various Genomics program at the Institute including a NMITLI Program on Cancer Genomics. In the year 2003, he was invited to take up the position of President of Jawaharlal Nehru Centre for Advanced Scientific Research, a premier research institution under the Department of Science & Technology, which is also a Deemed University. He has authored over 120 publications and has mentored 30 Ph.D students and several postdoctoral fellows.

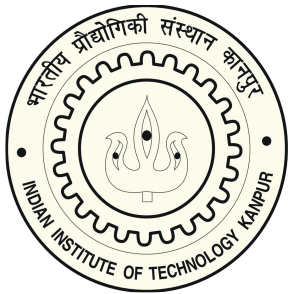
Other Contributions: Prof. Rao has been a Member/Chairman of several national and international committees. He was chairman of the Research Council of CCMB, Hyderabad and IICB, Kolkatta. He has been a member of Indo-French, Indo-JSPS and Indo-Brazil Science Councils. He was also the Chairman of the DBT Task Force on Human Genetics and Genomic Analysis. He was appointed by Ministry of Human Resources Development as the first Chairman of the Board of Governors of Indian Institute of Science Education & Research, Trivandrum. He was the President of the Society of the Biological Chemists for two terms.

Awards: Prof. Rao was elected to the Fellowship of INSA in 1992 and served as its Council Member during 1999-2001. He received the J.C. Bose Medal (2001) and Jawaharlal Nehru Birth Centenary Fellowship (2000) of INSA. He is a Fellow of Indian Academy of Sciences, Bangalore, National Academy of Sciences, Allahabad and Third World Academy of Sciences, Trieste (Italy). Among the several awards and honours he has received are S.S.Bhatnagar Prize (1988), Ranbaxy Science Foundation Award (1999), O.P. Bhasin Award (2002), FICCI Award (2004), J C Bose National Fellowship (2006), Sir M. Visveswaraya Award (2004), Dr. B.R. Ambedkar Centenary Award (2005), TWAS Medal Lecture (2008).

All interested are welcome.

K.Muralidhar

Dean: Research and Development



Institute Lecture

Fueling future Cars

A.K.Shukla, Director
Central Electrochemical Research Institute
Karaikudi 630006 TN

Monday, 04 August, 2008 Venue: L-1, Lecture Hall Complex Time: 6:00 PM

Abstract

Road transportation, as an important requirement of modern society, is presently hindered by restrictions in emission legislations as well as the availability of petroleum fuels, and as a consequence, the fuel cost. For nearly 275 years, we have burnt our fossil cache and have come to within a generation of exhausting the liquid part of it. Besides, to reduce the greenhouse gases, and to obey the environmental laws of most countries, it would be necessary to replace a significant number of the petroleum-fueled internal-combustion-engine vehicles with electric cars in the near future. This lecture will highlight the power and energy requirements of a modern car and will provide an appraisal of various proposed electrochemical systems for future electric cars.

Biosketch

Ashok Kumar Shukla was born on February 3, 1947, in Kanpur, Uttar Pradesh. He earned his M.Sc. degree from Kanpur University, Kanpur in 1968 and Ph.D. degree from the Indian Institute of Technology, Kanpur in 1974.

After Ph.D., he was a Research Associate at the Indian Institute of Technology, Kanpur from May 1974 to June 1976. He was an Alexander von Humboldt Foundation Fellow at the Technical University, Hannover, West Germany from September 1976 to February 1978. After his return from Germany, he joined the Indian Institute of Science (IISc) Bangalore in 1978. From then onwards, he has been with the IISc till October 2003 in various capacities.

During the period 1983-1992, he visited various countries in different capacities, some of them as follows:

INSA–Royal Society Visiting Fellow at the University of Oxford (UK) , EEC Senior Visiting Scientist at the University of Oxford (UK), R.A. Welch Foundation Visiting Fellow at the University of Texas, Austin (USA), Royal Society Visiting Fellow at University of Newcastle (UK), Guest Researcher at ONRI (Japan), Visiting Professor at the University of Turku and Helsinki (Finland), Visiting Professor at CNR/TAE, Messina (Italy), Visiting Fellow at University of Newcastle (UK), Visiting Professor at Monash University (Australia).

He has been the Director of Central Electrochemical Research Institute (CSIR), Karaikudi, Tamil Nadu since October 13, 2003. His research interests are in materials electrochemistry with emphasis on batteries, fuel cells, electrochemical supercapacitors and solid ionics. He has published 230 research papers in peer-reviewed journals and has 12 patents to his credit.

Professor Shukla has been associated with the following journals.

Associate Editor – Journal of the Electrochemical Society
Member, Editorial Advisory Board – Journal of Applied Electrochemistry
Member, Editorial Board – Bulletin of Materials Science
Member, Advisory Board - Electrochimica Acta

Professor Shukla won the MRSI-Medal in 1993 and MRSI-ICSC Superconductivity and Materials Science Annual Prize in 2006 from the Materials Research Society of India. He was elected a Fellow of the National Academy of Sciences in 2005 and Fellow, Indian National Science Academy in 2007.

All interested are welcome.

K. Muralidhar
Dean: Research and Development



Institute Lecture

Interaction between Mathematics and Physics

M. S. NARASIMHAN
TIFR/IISc Bangalore

Monday, 19th May, 2008 Venue: L-1, Lecture Hall Complex Time: 5:00 PM

Abstract:

"In this lecture I propose to speak about the long standing interaction between Mathematics and Physics, mainly between Geometry and Physics. I will give examples on the one hand of ideas and techniques from mathematics contributing to developments in physics and on the other hand of insights coming from physics helping to solve problems in pure mathematics."

Biosketch:

Professor M.S. Narasimhan has been one of the major figures in Mathematics over the last five decades, having made fundamental contributions to diverse areas such as Algebraic Geometry, Differential Geometry, Representation Theory and Analysis. He is one of the principal architects of the School of Mathematics at the Tata Institute of Fundamental Research. He has also played an important role in the progress that India has made in Mathematics in these years. He also held the post of the Head of Mathematics Group of the Abdus Salam International Center for Theoretical Physics (ICTP), Italy. Presently Professor Narasimhan is an Honorary Professor of TIFR, Bangalore. Even as he approaches the age of 76, Professor Narasimhan continues to be active as a researcher, as an organiser and as a mentor for young researchers.

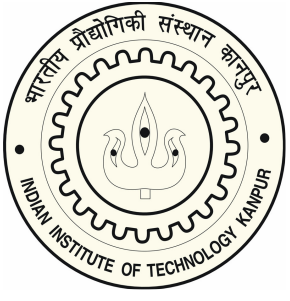
In his illustrious career Professor Narasimhan has received many awards which includes

- (1) Padma Bhushan
- (2) Chevalier de'Ordre National du merite
- (3) Third world Academy award
- (4) Fellow of the Royal Society, London
- (5) King Faizal International Prize
- (6) Fellow Indian Academy of Science
- (7) Bhatnagar Award
- (8) Executive Committee Member IMU

All interested are welcome.

K.Muralidhar

Dean: Research and Development



Institute Lecture

Deployment of technology at Shinsei Bank.

Dhananjaya Dvivedi
Chief Information Officer
Shinsei Bank

Wednesday, 09th April, 2008 Venue: L-2, Lecture Hall Complex Time: 6:00 PM

Biograph:

Jay Dvivedi has spent almost his entire career managing technology and operations in the banking industry. Prior to his joining the key senior team at Shinsei Bank, Jay spent over twenty five years with the Citigroup.

Jay has an extremely varied experience, having worked in Asia, the Middle East, Europe, Japan and North America. The variety of assignment he has handled matches the variety of countries he has worked in. A constant theme that Jay has dealt with throughout his career is the restructuring of technology and operations and to get them ready for seminal changes in the industry. He was in the middle of the “Big Bang” in Europe and was instrumental in getting Citigroup readied for it. In the twenty five years he spent with Citibank Jay worked on the design of processes and the design of IT systems for all of Citibank’s key lines of business. This included the Retail bank, Institutional and Wholesale bank.

Jay as a point person for the technology and operations was part of the team that established Citibank as the No.1 retail bank in Japan. Jay was thus well prepared for one of his biggest challenges in the transformation of the failed Long Term Credit Bank (LTCB) of Japan.

At Shinsei, Jay used an approach which focused on the use of standard off-the-shelf components and rapid deployment. The unique methodology helped utilize leading edge IT capability at a very low cost and short time frame.

Jay graduated from Madhav Engineering College, Gwalior, India in 1969 and received his Master of Business Administration from Indian Institute of Management, Ahmedabad, India in 1974.

All interested are welcome.

K.Muralidhar
Dean: Research and Development



Institute Lecture

Nanotechnology and Molecular Self Assembly and its interface with Microsystems: Fundamentals and applications

Shubhra Gangopadhyay

La Pierre Chair Professor, Department of Electrical and Computer Engineering, University of Missouri-Columbia

Tuesday, 01 April, 2008 Venue: L-1, Lecture Hall Complex Time: 6:00 PM

Abstract:

Nanotechnology is the science and technology of objects and features of sizes in the range of a few nanometers. Molecular self-assembly is a strategy for nanofabrication that involves designing molecules and supra-molecular entities so that shape-complementarity causes them to aggregate into desired structures. Self-assembly has a number of advantages as a strategy: First, it carries out many of the most difficult steps in nanofabrication--those involving atomic-level modifications of structure--using the very highly developed techniques of synthetic chemistry. Second, it draws from the enormous wealth of examples in biology for inspiration: self-assembly is one of the most important strategies used in biology for the development of complex, functional structures. Third, because it requires that the target structures be the thermodynamically most stable ones open to the system, it tends to produce structures that are defect-free and self-healing. Our group is currently working on the integration of top down semiconductor and MEMS processes with bottom up self assembly based chemical synthesis processes. We target these molecular self-assembly approaches and interface the materials created by this intelligent molecular rearrangement with microelectronics for development of biosensors, nanoengineered energetic materials, bulk and thin films with ordered and random pores or voids. The voids change intrinsic properties such as refractive index and the dielectric constant of the base material and help us to custom make high/ low dielectric constant films used in CMOS devices and for generating differential charge storage capacity.

One application for low refractive index films is in the formulation of films and coating with refractive indices lower than the refractive index of water and its applications to the realization of liquid core wave-guide for detection of HIV virus by utilizing FRET techniques. We are also using MEMS for realizing an electrochemical-sensing device based on using a micro fluidic trap to realize automatic single cell positioning over microelectrodes. Another application of molecular self-assembly is in engineered nano-scale composites which demonstrate potential in developing energetic materials. A substantial part of research is directed at introducing gold and silver nanoparticles in amorphous hafnium dioxide and aluminum oxide thin films for dielectric constant enhancement. In addition, I would give an overview and description on the semiconductor fabrication and characterization facility that we have developed in Missouri for this work.

Biosketc :

Dr. Shubhra Gangopadhyay is the LaPierre Chair at the University of Missouri-Columbia's Electrical and Computer Engineering Department and heads the research group. She attained her PhD from the Indian Institute of Technology Kharagpur. Earlier she was a visiting scientist at the Universitat Kaiserslautern, Germany and also a Professor at the department of earlier, Physics at Texas Tech University, Lubbock. Dr Gangopadhyay is an acclaimed researcher in the fields of BioMEMS, nanoenergetics, PECVD, evaporation, and sputtering deposition of thin-film dielectrics, amorphous silicon, carbon, and silicon carbide films as well as ellipsometry, UV-vis, FT-IR, and current-voltage/capacitance voltage device characterization. She is a fellow of the American Physical Society and a senior member of IEEE. She is the founder of Amorphous Carbon Solutions. She has over 100 publications in International journals.

All interested are welcome.

K.Muralidhar

Dean: Research and Development



Institute Lecture

Ethical Values in Science and Technology

Professor K L Chopra
President, Society for Scientific Values
(Former Director, IIT Kharagpur)

Thursday, 27 March, 2008 Venue: L-1, Lecture Hall Complex Time: 6:00 PM

Abstract:

Ethical values are fundamental to a civilized society and are central to knowledge creation. Indeed, quoting Swami Bodhinanda, the history of the world civilizations shows that societies have risen to a higher level not through mechanical or technological efficiencies but by practicing sound moral and ethical values. In the emerging knowledge driven globalised economies, industries and markets, and more specifically, in the evolving era of internationalised science and technology, and globally competitive and IPR protected knowledge, the demand for a globally acceptable and enforceable ethical values and code of conduct are presently at the centre stage of debate among planners and designers of knowledge policy. The scientific academies, societies and institutions world over have now embarked on both defining culture and country specific professional codes of conduct, as also processes of sensitisation of the knowledge workers.

Biosketc :

Professor, Chopra pursued studies in Physics at Delhi University to obtain BSc (Hons) and MSc, and thereafter at University of British Columbia, Canada under World University Fellowship to get a PhD degree. He served in several senior R&D positions for about 14 years at Royal Military College, Canada, as Max Planck Fellow at Fritz Haber Institute, Germany, as Staff Scientist at Philco-Ford Scientific Lab and Ledgemont Lab, Kenecott Corp, USA. Invited to the position of Professor, Solid State Physics at IIT Delhi in 1971, Prof Chopra also served as the Head, Physics Department, Thin Film & Solid State Technology Cell and Centre for Energy Studies. He was Dean, PG studies for two terms and Founder Dean of Industrial R&D. He has also been a Visiting Professor at Cornell and Northeastern Universities, USA. In 1987, he was offered the position of Director, IIT Kharagpur, which, he served for ten years.

After retirement from Kharagpur, Prof Chopra occupied the newly created IREDA Chair at IIT Delhi. Presently, he is advisor/ consultant to several academic, government, and industrial organizations besides being the President, Society for Scientific Values and Area Editor of International Journal of Solar Energy Materials and Solar Cells.

Thin Film Laboratory at IIT Delhi and Microscience Laboratory at IIT Kharagpur founded by Prof Chopra and his colleagues are unique research centers and are known worldwide for their pioneering contributions in the field. Professor Chopra has supervised 60 PhD theses, published about 430 research papers, authored/edited 8 books, including the popular treatise *Thin Film Phenomena*. He holds 5 US patents and has transferred 8 know-hows to the industry. Professor Chopra has lectured extensively in various international institutions and has also consulted various industries in the areas of Thin Films, Vacuum Science, Nanomaterials, Solar Energy, and Surface Engineering.

Professor Chopra is a Fellow of all the four science and engineering Academies of India and Honorary Fellow, Punjab Science Academy. He has received many national awards which include S S Bhatnagar Prize, Krishnan Medal of INSA, Bhabha Award of UGC, Mahalanobis Medal of INSA, Aryabhata Gold Medal of INSA, MRSI Distinguished Materials Scientist award, and Solar Energy Society Photovoltaic award. Recognized as one of the seven most highly cited scientists of India for a period of over two decades, the Institute of Scientific Information (ISI) of USA has conferred *Citation Laureate* award on him. UP Technical university has conferred an Honorary D Sc, and the Government of India has conferred Padmashri on Professor Chopra for his distinguished contributions to science and engineering.

All interested are welcome.



CNR Rao Lecture Series

The $P \neq NP$ Problem

Dr. Manindra Agrawal

N Rama Rao Chair Professor

Department of Computer Science and Engineering

Indian Institute of Technology Kanpur

Thursday, 28th February 2008 Venue: L-1, Lecture Hall Complex Time: 6:00 PM

Abstract:

In this talk, I will describe the $P \neq NP$ problem, the attempts made to prove it, and its current status. The $P \neq NP$ problem is one of the most fundamental problems in computer science and mathematics (it was identified as one of the seven most important mathematical problems for this century). The problem, in essence, is to quantify the difference between "discovery" and "verification": if P is not equal to NP , it would imply that, in a formal sense, discovering something new is much more difficult than verifying the correctness of the discovery. Over the last 30+ years, several attempts have been made to solve the problem, but none have succeeded. Worst, it has been proved that several possible approaches to solving the problem can never succeed! So we are, at the moment, very far off from a solution.

In this talk, I will formally define the problem and describe three possible approaches to solve it. Of these, two have been proved to be unworkable. The third one is a new approach and it appears that it may well lead to a solution to the problem.

About the Speaker:

Manindra Agrawal is N Rama Rao Professor in the Department of Computer Science and Engineering at IIT Kanpur. He did his BTech (86) and PhD (91) from IIT Kanpur as well. His research interests are in complexity theory and computational number theory. He is a recipient of SS Bhatnagar Award, Distinguished Alumnus Award of IITK, Clay Research Award, ICTP Prize, Godel Prize, and Fulkerson Prize.

All interested are welcome.

K.Muralidhar

Dean: Research and Development



Institute Lecture

ENERGY OPTIONS FOR THE FUTURE

Dr.-Ing. -habil. Manfred Groll

Visiting Faculty Member

Department of Mechanical Engineering, IIT Kanpur

(Formerly at University of Stuttgart, Germany)

Friday, February 22, 2008 Venue: L-1, Lecture Hall Complex Time: 6:00 PM

Abstract:

Energy is crucial for the survival of individual human life and human societies. Presently our energy economy is dominated by fossil fuels and we are using up resources, which have been accumulated by nature in some hundred million years. The fossil energy sources are becoming scarcer and more expensive to exploit. Moreover, energy use affects the environment with a negative impact on the quality of life, in both a regional and global respect. The warnings about potential catastrophic results of the man-made climate change (mainly caused by energy use) are well known. A controversial world-wide discussion is going on how we can cope with these evident problems in the future. Do we need more nuclear energy? Do we have to concentrate our efforts on renewable energies?

The lecture summarizes facts about fossil, nuclear and renewable energy sources including the present situation and scenarios for the future. It shows to which extent these energy sources can meet our energy needs. In this context the role of hydrogen as an ideal secondary energy carrier in a future hydrogen energy economy will be briefly discussed. Finally, some remarks will be made on the inter-relation between energy and other important aspects of human societies, like population growth, mal-distribution of regional and global wealth, social and economic inequalities, and others.

About the Speaker:

Prof. Dr.-Ing. habil. Manfred Groll is presently visiting the Department of Mechanical Engineering at IIT Kanpur for a period of three months (January 10-April 09, 2008)

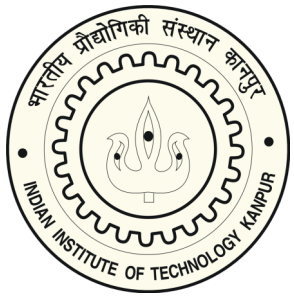
He was formerly a professor at University Stuttgart, Germany since 1985. He chaired the Department of Energy Conversion and Heat Transfer since 1970 at the Institute of Nuclear Technology and Energy Systems (IKE). During 1975/76 he worked at NASA Ames Research Center on heat pipe technology development for satellite applications. Since late 1976, besides teaching activities, he was responsible at IKE for R&D projects on heat pipes and thermosyphons, including micro and pulsating heat pipes, enhanced two-phase heat transfer, micro heat transfer in pool and flow boiling, hydrogen storage, metal hydrides and nuclear safety.

He was the chairman of the committee on International Heat Pipe Conferences till 2004. He is on the editorial board of many international journals on thermal sciences and guest/advisory professor at various Chinese universities. He has studied mechanical and nuclear engineering at University Stuttgart, receiving doctoral degree in 1969 and habilitation in 1978. He has supervised 35 doctoral dissertations and has contributed over 350 papers in the area of thermal engineering.

All interested are welcome.

K.Muralidhar

Dean: Research and Development



Institute Lecture

Urban Infrastructure – a perspective

Mahesh. N. Buch
Chairman, Board of Governors
ABV IITM Gwalior

Friday, February 15, 2008 Venue: L-1, Lecture Hall Complex Time: 6:00 PM

Biosketch

Mahesh N Buch was born on 5th October 1934. He graduated In Economics from the St. Stephen's College of Delhi University in 1954 and obtained his Masters Degree in Economics from Pembroke College, Cambridge University in 1956. He also spent a year at the Woodrow Wilson school as Parvin Fellow in 1967-68. Mr.Buch has a Post Graduate Diploma from Princeton University. In April 2002 he was awarded the degree of Doctor of Science (*Honoris causa*) by the Rajiv Gandhi Technical University, Bhopal (MP).

Mr. Buch joined the Indian Administrative Science (IAS) in 1957 through a competitive examination. Thereafter he has held a number of senior posts in the State of Madhya Pradesh and in the federal government. These include the posts of Collector and District Magistrate, Director Tribal Welfare, Secretary and Commissioner of departments including Town Country Planning, Housing and Forests, Head: Delhi Development Authority, Director General of National Institute of Urban Affairs and Vice-Chairman of National Commission on Urbanization. He voluntarily retired from service in October 1984.

Mr. Buch is Chairman of the National Centre for Human Settlements and Environment at Bhopal, an applied research institution, working in the field of settlements planning, afforestation, environmental protection, watershed management, consumer protection and skill development. He won the UNDP award for implementation of desertification control programme in 1994-95, the Aga Khan award for Architecture in 1998 and the Man of Vision award instituted by the Hindustan Times in 2003. His main areas of interest are Town and Country Planning, Housing, Afforestation and Environmental Protection.

At present he is also the Chairman of the Board of Governors of the Atal Behari Vajpayee Indian Institute of Information Technology and Management, Gwalior.

All interested are welcome.

K.Muralidhar
Dean: Research and Development



Institute Lecture

ENERGY IN INDIA OPPORTUNITIES AND ANXIETIES

Subir Raha

Distinguished Honorary Professor, IIT Kanpur
Executive Vice Chairman, Hinduja Group India
Former Chairman, ONGC

Monday, February 04, 2008 Venue: L-1, Lecture Hall Complex Time: 6:00 PM

About the speaker:

Mr Subir Raha is well-known as the past Chairman of ONGC, the largest public sector undertaking of India and listed as a Fortune 500 company.

Mr Raha excelled in academics, winning National Scholarships and Prizes in pre-university. He graduated from Jadavpur University in Electronics and Telecommunications Engineering with several prizes and Rector's medal for being the Best All-round graduate of the university in 1969. He did his MBA with distinction in Strategic Marketing from the University of Leeds in 1985. He is an Alumnus of the Administrative Staff College, Henley (1995)

After graduation, Mr Raha joined the Indian Oil Corporation in 1970 and rose to become Director (HR) 1998-2001 and Director in-Charge of Business Development. Several of his innovations have become Industry Standards. Earlier, on deputation to the Ministry of Petroleum and Natural gas, He had served as the Head of the Oil Coordination Committee. He managed, amongst others, country-wide logistics, canalized imports/ exports, administered pricing and reform strategy.

During his stint as Chairman of ONGC, the company's market capitalization increased more than ten-fold to over Rs 200,000 crores, making it the most valuable company in India. Its net profit trebled to over \$ 3.5 billion. ONGC created more wealth than any other enterprise in India. ONGC paid the highest ever dividend in the Indian history.

Mr Raha also served concurrently as the Chairman of ONGC Videsh and expanded its foreign footprint to 14 countries. He also turned around the sick MRPL within one year to a profit making company.

Mr Raha received the recognition of Global Energy Executive from the Petroleum Economist, London and many other awards and recognitions. He has been a featured speaker in conferences worldwide.

Mr Raha is on the Board of the Transparency International India, IIM Ahmedabad, Centre for Development Hyderabad and IMI, New Delhi.

He is the Chairman of Hinduja National Power Company, Executive Vice Chairman of Hinduja Group India Ltd, on several Boards as Independent Director. He has promoted Team Raha Ideation for advisory service in Business management. He is also the Chairman of Tridea Training and Technology Pvt. Ltd, promoted to boost professional expertise in the Energy Industry.

It is a pleasure to have Mr Raha amidst us. We invite him to deliver his Institute Lecture on 'Energy in India – Opportunities and Anxieties'.

All interested are welcome.

K.Muralidhar
Dean: Research and Development