

Lectures & Demonstrations at Shaastra 2005

One of the central events at Shaastra, lectures and demonstrations provide unique opportunities for one to witness stalwarts talk about their experiences, as well as giving rare exposure to cutting-edge technology in the form of interactive demonstrations. Lectures and demonstrations are the events where huge, eager audiences get to take sneak peeks at some of the happenings in science and technology up front. Prominent lectures in the past have included rendezvous with Krishna Bharat of Google, Dilip Chhabria, Mahesh Murthy and Anil Gupta among others, while we have had impressive demonstrations on embedded systems, intelligent environments and self-evolving hardware, to wit.

This time around, also watch out for the Shaastra Run-Up Lecture Series - a set of talks by leading researchers/professors, on various emerging technologies and cutting-edge research areas.

Dr. Shrikumar Suryanarayan

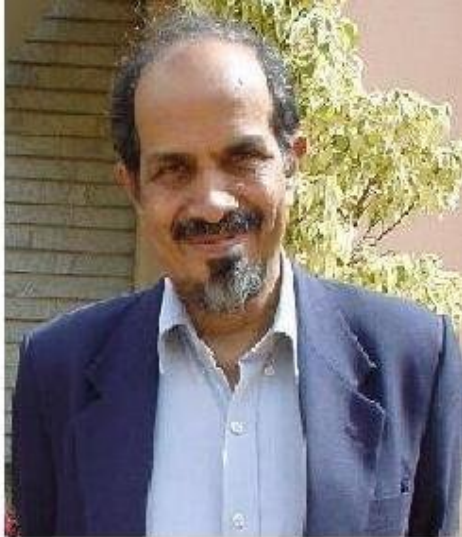


Dr. Shrikumar Suryanarayan graduated in Chemical Engineering from IIT Madras in 1982, and subsequently specialized in Biochemical Engineering from IIT Delhi in 1984. He joined Biocon India in 1984 and has been with them for past 20 years. He started the research and development division at Biocon and is currently the President of Research and Development. He has several publications and patents to his credit. Shrikumar has overseen the development and commercialization of a number of Enzyme and Pharmaceutical process right from the laboratory and into production. He designed the initial Solid State fermentation plants for Biocon and then spearheaded the team that developed the **Plafactor** – a novel bioreactor. The Plafactor was granted a US patent in 2001 and the invention also received an award from the Department of Science and Technology of India in the same year.

His main areas of research interest are fermentation, downstream process development and bioreactor design.

Dr. Suryanarayanan will deliver the inaugural lecture for Shaastra 2005, on **Experiences In Initiating Research at Biocon**, on October 5 at 5:30 PM.

Dr. Roddam Narasimha



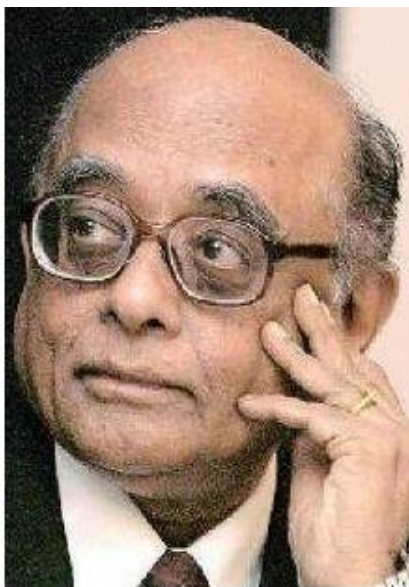
Dr. Roddam Narasimha is presently Chairman of the Engineering Mechanics Unit, JNCASR and Director, National Institute of Advanced Studies, Bangalore. Educated at Bangalore and at the California Institute of Technology (PhD 1961). He has held various positions at the Indian Institute of Science 1962-98, including Chairman, Department of Aerospace Engineering, Chairman, Centre for Atmospheric and Oceanic Sciences. He was Director, National Aerospace Laboratories 1984-93.

Dr. Narasimha has been Clark B Millikan Professor at Caltech several times, Jawaharlal Nehru Professor at Cambridge, INSA Golden Jubilee Professor and ISRO K R Ramanathan Distinguished Professor at Bangalore. He is a Fellow of the Royal Society, Foreign Associate of both the US National Academy of Engineering and the Academy of Sciences, and fellow of all the national academies of science and engineering in India. In addition, he is a Member of the Space Commission, Consultative Group of Eminent Senior Scientists, Government of India, and of the Bureau of the International Union of Theoretical and Applied Mechanics. The Padma Bhushan has been conferred on Dr. Narasimha.

Dr. Narasimha's research areas are transition, flow control, relaminarization, hydrodynamic stability, fluid dynamics of clouds, atmospheric convection, temperature distribution near ground, aerospace technology, and S&T policy studies.

Watch Dr. Narasimha captivate the audience with his talk on **Flow Love**, at the IC&SR auditorium on October 6 at 11 AM.

Dr. Rajagopala Chidambaram



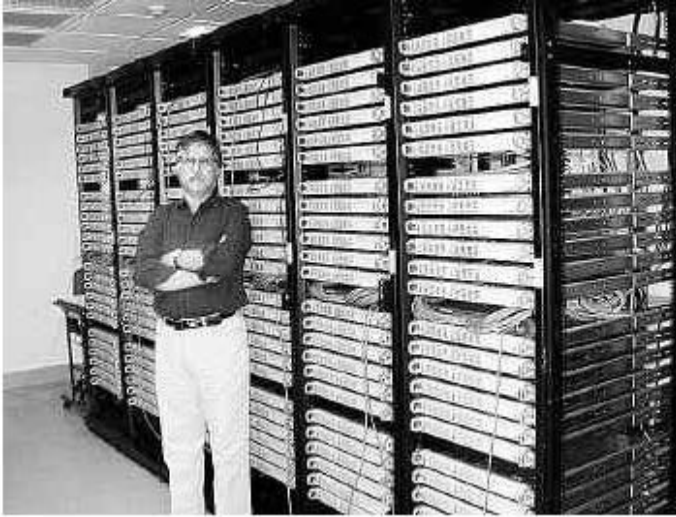
Dr. Rajagopala Chidambaram, after his early education in Meerut and Chennai, completed his PhD in the Indian Institute of Science, Bangalore, from where he also later got his D.Sc Degree. He joined the Bhabha Atomic Research Centre (BARC) in 1962 and became its Director in 1990. He was Chairman, Atomic Energy Commission & Secretary to the Govt. of India in the Department of Atomic Energy from February 1993 to November, 2000. He has D.Sc Degrees (h.c) from several Indian Universities. All his research work has been in India.

Dr. Chidambaram is one of India's distinguished experimental physicists and the research groups established by him in BARC in the fields of High Pressure Physics and Neutron Crystallography are regarded among the best in the world. Dr. Chidambaram played a leading role in the design and execution of the Peaceful Nuclear Explosion experiment at Pokhran in 1974 and also led the DAE team which designed the nuclear devices and carried out the Pokhran tests in May 1998 in cooperation with the DRDO. He has made important contributions to many aspects of our nuclear technology.

Dr. Chidambaram is a Fellow of all the major Science Academies in India and also of the Third World Academy of Sciences, Trieste (Italy). Dr. Chidambaram was Chairman of the Board of Governors of the International Atomic Energy Agency (IAEA) during 1994-95. He was till recently Vice-President of the International Union of Crystallography. He is presently DAE Homi Bhabha Chair Professor at BARC. He is also Honorary Visiting professor in the Department of Physics of Banaras Hindu University. He has taken over the Chairmanship of the Council and the Governing Body of the Technology Information, Forecasting and Assessment Council (TIFAC). He has recently been appointed as the Principal Scientific Adviser to the Govt. of India. He has received many awards including the Padma Shri in 1975 and the Padma Vibhushan in 1999.

Dr. Chidambaram speaks on **The Need for 'Coherent Synergy' - from Nuclear Technology to Rural Development**, on October 7 at 10:30 AM.

Dr. Hari Dass



Dr. Hari Dass is currently a Senior Professor with the High Energy Theory research group at the Institute of Mathematical Sciences (IMSc), Chennai. His interests are in mathematical physics, gravitational physics, neutrino physics, string theory, lattice gauge theory, large-scale numerical simulations, foundations of quantum mechanics, and classical and quantum gravity.

Prior to this, he was at the Niels Bohr Institute, Copenhagen University, Denmark. He has also worked at the Department of Physics at the University of California, Santa Barbara.

Dr. Hari Dass has been instrumental in setting up **Kabru** - a Linux supercomputer assembled at IMSc. Kabru made it to the world's `Top 500' supercomputer club in 2004, a rare example of a non-commercial machine vying with industry heavyweights. This do-it-yourself cluster Linux supercomputer has been ranked no. 257 with a maximum computational speed of 959 Giga FLOPS (or billion floating point operations per second) and a peak speed of 1382.4 GFLOPS. The peak speed is achieved when the machine is fully stretched, but this may not be sustainable for long. The peak speed makes this machine, a **teraflop** (trillions of operations per second) supercomputer. The machine is now being regularly used to perform large-scale simulations in Lattice Gauge Theory. Dr. Dass will be addressing us on October 8 at 9:30 AM at the IC&SR auditorium, IIT Madras.

Pentamedia Graphics



Pentamedia Graphics, which was formerly called Pentafour Software and Exports, is the largest multimedia company based in India. The company, till very recently, had a very large division providing customized software services and computer training courses. Pentamedia has recently been ranked as the third best multimedia company in the world, according to the latest Robi Roncarelli report which is considered the best certification in the world of multimedia.

Pentamedia has done quite large projects with very prestigious clients most of whom are present in the overseas markets. Some of the showcase projects are Sindbad - Beyond the Veil of Mists, Alibaba and the 40 Thieves, Sandman, Mr. Right, King and I – all of these for overseas clients. The legend of Buddha, the 2D film produced Pentamedia Graphics Limited has been nominated for the Oscar Awards 2005 in the best animation film category, which included only 11 films.

Ranked third in the \$25 billion global animation business, Pentamedia is growing at a scorching pace of 35 per cent per annum. It is engaged in three main spheres of activity viz. 2D and 3D animation, special effects (big, small and personal screen) and multimedia activities that includes New Millennium TV (Num TV)-the web casting division-and CD-ROM duplication.

Witness a spectacular demonstration on the art of graphic animation by Pentamedia on October 7 at 3:30 PM in the IC&SR auditorium.

Prof. Balasubramanian



Prof. Balasubramanian is currently the Director of Research, Hyderabad Eye Research Foundation, Hyderabad, India. He has also been the Deputy Director and later Director at Centre for Cellular and Molecular Biology (CCMB), Hyderabad; Lecturer and Assistant Professor of chemistry, at IIT Kanpur, India and Professor and Dean at University of Hyderabad, India. His professional expertise and specialization lies in the field of Biophysical chemistry, Ocular biochemistry and Protein structure. He has published over 130 research papers in international professional journals and written over 200 popular science articles in Indian newspapers. He received his Ph.D in chemistry from Columbia University, USA.

Prof. Balasubramanian is the recipient of several professional honors, the most noteworthy of them being UNESCO Award for science popularization and Third World Academy of Sciences Award for Basic Medical Research. The Government of India conferred upon him the Padma Shri in 2002. The same year, he received the prestigious Chevalier de l'Ordre National du Merite from the President of France.

He is a Fellow of TWAS, the American Association for the Advancement of Science, USA and all the Science Academies in India.

Prof. Balasubramanian will address us on October 3 at the Central Lecture Theatre, IIT Madras at 3:30 PM.

Dr. Subir Kumar Bhaumik

Dr. Subir Kumar Bhaumik obtained his BE (Metallurgical Engineering) in 1984 from Calcutta University, and M.Tech (1986) and Ph.D (1992) degrees from the Indian Institute of Technology, Kanpur. He joined the Materials Science Division of National Aerospace Laboratories (NAL) in 1992.

Dr. Bhaumik is currently the Head - Failure Analysis & Accident Investigation at NAL. He has about 50 publications in National & International Journals, and has written a book on **Failure Analysis of Engineering Structures: Methodology and Case Histories**, to be published by ASM International in December, 2005.

Dr. Bhaumik's research interests lie in the areas of failure analysis & accident investigation, processing & development of smart metallic materials and powder metallurgy.

Dr. Bhaumik speaks on **Smart Metallic Alloys: Engineering & Biomedical Applications** on October 4 at 3:30 PM, at the Central Lecture Theater, IIT Madras.