

***Building Bridges...***



## ***IISc AANA Global Conference 2013***

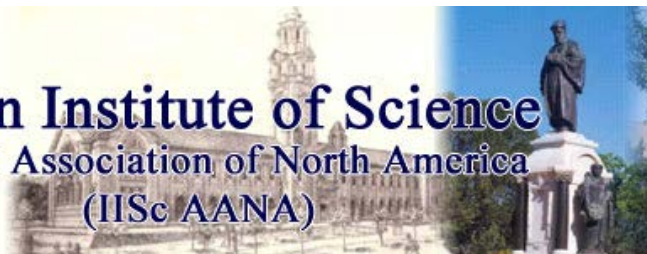
***July 19-21, Chicago, IL, USA***



***Let's reminisce about our time at IISc which was  
heaven on earth for us***



**Indian Institute of Science**  
Alumni Association of North America  
(IISc AANA)



## Foreword

*It is a distinct pleasure to welcome you all to IISc AANA's Second Global Conference in Chicago. The theme of the conference is "building bridges." The eclectic, yet technically deep, program is designed to build bridges between the outstanding faculty of IISc, and researchers and practitioners in academia and industry in North America. We have many outstanding speakers who will enlighten us and broaden our horizons at the conference. But, I also hope that the conference will help build bridges between the nostalgic past that we remember as IISc alumni and the Institute's exciting future.*

*It is particularly appropriate that Chicago is the venue of the conference. In 1893, Swami Vivekananda spoke at the Parliament of the World's Religions at the Art Institute of Chicago, showcasing the best of Indian thought to the world and building an early bridge between North American and Indian scholars. 120 years later, this conference attempts, albeit at a much more modest scale, to showcase India's best scientific and engineering talent to the world. The success of the conference is predicated on who will be there. So I am particularly grateful for your participation.*

*On behalf of all the organizers, volunteers and members of IISc AANA, I bid you a warm welcome to Chicago and wish you a productive, nostalgic and fun conference.*

*Sunil Kumar  
Conference Chair*



Picture from: <http://lorisiisc.wordpress.com/>

*The campus life has been very relaxing and beautiful. The Nature that abounds here induces vibrant enthusiasm and positive mood. I shall always cherish the long walks that I have had many a time covering the length and breadth of the campus ... be it rain or sunshine... be it alone or with friends... while engrossed in a conversation bordering on a heated argument... or ruminating in silence in solitude... there was this one factor... ever inspiring, ever soothing and ever unforgettable... the beauty of our campus... ever whispering to the listening ear.. It's HEAVEN ... on earth! ... It's HEAVEN on earth!!*

*I can only end with ...  
Thank you IISc!!*

*... Excerpt from Acknowledgements in a Thesis of an Alumnus*

**Indian Institute of Science Alumni Association of North America (IISc AANA)  
Global Conference 2013**

**19th July 2013**

**Registration: 3 PM – 7 PM**

- 4:00 - 4:15 PM**      **Welcome**      **Prof. Sunil Kumar**, Chair, IISc AANA Second Global Conference
- 4:15 - 4:30 PM**      **IISc AANA Journey from 2007 to Now**  
**Dr. Arkal Shenoy**, Chair, AANA Board  
**Dr. Satish Nagarajaiah**, Vice-Chair, AANA Board
- 4:30 - 6:00 PM**      **Recommendations on building bridges – Distinguished Alumni**  
**Dr. Channa Reddy**, Chair, Distinguished Professor Emeritus, Penn State University  
Dr. Swaminatha Reddy, SP Systems, Inc, MD  
Dr. Rao Tummala, Georgia Tech.  
Dr. Rakesh Kapania, Virginia Tech  
Dr. Umeshwar Dayal , HP labs  
Dr. Brij Moudgal, Univ. Florida
- 6:30 - 7:15 PM**      **Keynote Speech: Scientific Research in India - building collaborations**  
**Dr. R. Chidambaram**, Principal Scientific Advisor to Government of India
- 7:15 – 8:00 PM**      **Panel discussion - Future Next Gen networking and remote research**  
Moderated by **Dr. R. Chidambaram**  
Dr. Raj Jain, Washington University in St. Louis  
Dr. Joe Mambretti, Northwestern U  
Dr. N. Balakrishnan / Dr. Anurag Kumar, IISc
- 8:00 - 9:30 PM**      **Welcome reception and buffet dinner**

**20th July 2013**

**Registration: 7:30 – 10:00 AM**

- 8:00 – 8:45 AM**      **Breakfast**
- 8:00 – 8:20 AM**      **Breakfast Talk: Healthy Eating**      **Dr. Swaroop Bhojani**, Hut K Chaat House, Ann Arbor
- 9:00 – 9:45 AM**      **Keynote Speech: Energy, Urban Science and the National Laboratories**  
**Dr. Eric Isaacs**, Director, Argonne National Labs
- 9:45 – 10:30 AM**      **Panel Discussion: Advanced Materials**  
Moderated by **Dr. Eric Isaacs**  
Dr. Om Nallamasu, Applied Materials Chair  
Dr. Vikram Jayaram, IISc - Metallurgy  
Dr. N. Ravishankar, IISc - MRC  
Dr. Seetharama Deevi, IISc – Duke University  
Dr. Sanjeev Kaushal, Tokyo Electron
- 10:30 - 12:30 PM**      **Advances in Biomedical Systems**      **Parallel Session**  
Session Chair: **Dr. Channa Reddy**, Distinguished Professor Emeritus, Penn State Univ  
Dr. Ganesh Kishore, Managing Director, Burrill & Company  
Dr. P.B. Seshagiri, IISc  
Dr. Yash Vaishnav, Argonne National Laboratory (ANL)  
Dr. Dipankar Nandi, IISc
- mHealth**      **Parallel Session**  
Session Chair: **Dr. Shyam Vasudev Rao**, Vice President & CEO Forus health Bangalore  
Dr. David Kotz, Dartmouth College  
Dr. Harinath Garudadri, Qualcomm  
Dr. Nambi Nallasamy, Harvard Medical School  
Dr. Ajai Khanna, Univ. California, San Diego



**Sustainable Energy and Materials** *Parallel Session*

Session Chair: **Dr. Jagjit Nanda**, Oak Ridge National Laboratory (ORNL)

Dr. P. M. Ajayan, Rice University

Dr. Pradip Dutta, IISc

Dr. Krishnan Rajeshwar, UT-Arlington

Dr. Vinayak Dravid, Northwestern University

Dr. Ted Miller, Ford Motor Co

Dr. Balu Balachandran, ANL

**12:30 - 1:30 PM** **Buffet lunch**

**1:30 - 2:15 PM** **Keynote Speech: Solar Energy at Grid Parity.. Opportunities for Global Partnerships**

**Dr. Ramamoorthy Ramesh**, Deputy Director, ORNL

**2:15 – 3:00 PM** **Panel Discussion: Advances in Basic Sciences**

Moderated by **Dr. Ramamoorthy Ramesh**

Dr. Biman Bagchi, IISc

Dr. H.R. Krishna Murthy, IISc

Dr. S. Ramakrishnan, IISc

Dr.G. Rangarajan, Mathematics, IISc

**3:00 – 5:00 PM** **Neurosciences and Mental Health** *Parallel Session*

Session Chair: **Dr. Madhavi Ganapathiraju**, University of Pittsburgh

Dr. Vijayalakshmi Ravindranath, IISc

Dr. Mark Rasenick, Univ. Illinois, Chicago

Dr. Susan E. Koester, National Institutes of Health

Dr. M. A. Srinivasan, Massachusetts Institute of Technology

**Nano-engineering** *Parallel Session*

Session Chair: **Dr. Muralidhar K. Ghantasala**, Western Michigan University

Dr. Sanjeev Kaushal, Tokyo Electron Ltd.

Dr. Amanda Petford-Long, ANL

Dr. Rudra Pratap, IISc

Dr. Sohail Murad, Univ. Illinois, Chicago

Dr. P. M. Ajayan, Rice University

**Education outreach to underserved children** *Parallel Session*

Session Chair: **Dr. Gajanana Birur**, Senior Scientist, NASA Jet Propulsion Laboratory

Mr. Neeraj Mehta, ASHA for Education

Ms. Parminder Sawney, Akshaya Patra

Ms. Sunita Shenoy, Intel, Santa Clara

Mr. P. Sridhar, Eaton Corporation, Pune, India

Mr. Pankaj Jain, IISc

**5:00 - 6:00 PM** **Networking and Re-connecting**

**6:00 - 7:30 PM** **Entertainment and Cultural program – Nrutyalaya Group - Dance**

**7:30 - 9:00 PM** **Banquet Dinner**

Special Dinner Speaker: **Prof. N. Balakrishnan**, Associate Director, IISc

**21st July 2013**

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**7:30 - 9:00 AM** **Breakfast**

**9:00 – 9:45 AM** **IISc Alumni Association (AA) & Alumni Association of North America (AANA) joint program**

IISc-AA Award

AANA awards

AANA Northeast chapter formation

- 9:45 - 10:45 AM Panel Discussion: Entrepreneurship**  
 Session Chair: **Dr. Sampath P. Sarathy**, University of Central Florida  
 Dr. Gunupudi Subbarao, DX-Sys. Inc.  
 Dr. C.S. Murali, IISc  
 3 successful entrepreneurs from IISc and US  
**Dr. Ramesha Chakk**, Mados bio. Inc  
**Dr. Selva Nataraja**, TocopheRx Pharmaceuticals  
**Dr. Sondur Lakshmipathi**, MyMo wireless, Inc.
- 10:45 - 12:45 PM High Performance computing *Parallel Session***  
 Session Chair: **Dr. Rao Kotamarthi**, ANL  
 Dr. Paul C. Massina, ANL  
 Dr. N. Balakrishnan, IISc  
 Dr. Anil Vullikanti, Virginia Tech  
 Dr. Subramanian S, ANL  
 Dr. Ravi Nair, IBM  
 Dr. Jack Wells, ORNL
- Networks *Parallel Session***  
 Session Chair: **Dr. Anurag Kumar**, IISc  
 Dr. R. Sundaresan, IISc  
 Dr. Ram Akella, Univ. California, Irvine  
 Dr. K. Natarajan, CISCO  
 Dr. Ajay Gupta, WMU  
 Dr. K. Gopinath, IISc-CSA
- Emerging Sciences / New Frontiers *Parallel Session***  
 Session Chair: **Dr. Murthy Gudipati**, NASA Jet Propulsion Laboratories  
 Dr. S. Asokan, IISc  
 Dr. G. Mugesh, IISc  
 Dr. Usha Vijayaraghavan, IISc
- 12:45 - 1:45 PM Buffet lunch**
- 1:45 – 3:00 PM Panel Discussion: Building bridges, IISc, Alumni, Govt. Industry**  
 Moderated by **Dr. N. Balakrishnan**  
 Dr. Rao Tummala , Georgia Inst. Tech.  
 Dr. Ravi Anupindi, UofM  
 Dr. Venkat Venkatramanan, Univ. Toronto  
 Dr. Rekha Pillai, ORNL  
 Mr. Pankaj Jain, IISc
- 3:00-3:15 PM Educational programs @ IISc Dr. B.N. Raghunandan, IISc**
- 3:15 - 3:30 PM Topic: Next steps - path forward-IISc AANA and AA**  
 Dr. Arkal Shenoy, Chair, AANA  
 Dr. Satish Nagarajaiah, Vice-Chair, AANA  
 Dr. Babu Sathian, AA
- 3:30 - 3:45 PM Conference Summary - Follow-up Dr. S. Mohan, IISc**
- 3:45 – 4:00 PM Thanks Dr. Swaminathan Ramesh, Chair, Midwest Chapter of IISc AANA**

## Indian Institute of Science Alumni Association of North America IISc-AANA Message

Indian Institute of Science is India's premier institute for research and graduate education in science and engineering

- Leader in research and graduate education for over 100 years
- India's ONLY Nobel Prize in Science
- World class contributions in Mathematics, Natural Sciences, Engineering, and Ecology – covering most of the branches of basic Sciences and Engineering.
- Outstanding graduate programs in Science and Engineering
- Collaborative research with industry

We are the alumni of the [Indian Institute of Science \(IISc\)](#), Bangalore, who live and/or work in North America, which includes the USA, Canada and Mexico. Over 4,000 Alumni in North America are Leaders in academia and industry. Our goal is to bring every alumnus into a single network and connect among them and with the Institute. Our activities are expanding rapidly and this group serves as a common platform for alumni in North America to reach out alumni across various graduating classes, branches, locations, and interests.

### **Our Mission: "To Give Back"**

- To the IISc alumni by helping each other in social and professional networking - job opportunities, entrepreneurship, and business contacts.
- To the community in which we live.
- To rural India towards education and public outreach.
- To our alma mater Indian Institute of Science.

IISc AANA started its operation in Silicon Valley and now is expanding its network throughout North America. A Local Chapter adds special value to our alumni network to connect local alumni and provides many avenues for professional and personal development through educational, social, and community activities. Local Chapters are our strength to expand our network base in North America. We are starting with eight chapters in the US and one in Canada. A chapter can be further re-organized when there is sufficient interest to create a chapter with smaller boundaries. Currently there are eight chapters including Silicon Valley, Southern California, South Central, Midwest, North East, South East, Canada and Mexico. While the first four chapters are active and organizing local Alumni activities on a regular basis we are looking for volunteers in last four areas to help further develop the local chapters.

Join the IISc AANA and become part of an organization of alums dedicated to helping you stay connected with each other and to IISc.

IISc AANA offers valuable programs to foster connections among all alumni, while providing special benefits for members to thank them for their support.

***You are encouraged to become a life member with lot of benefits and no hassle to renew your annual membership. Further details can be obtained at the IIScAANA website or contact given below.***

- **Get valuable benefits** Get exclusive access to alumni network, special rates on Reunion Homecoming, and more. New benefits are always being added to meet the needs of our alumni.
- **Support alumni association's activities**  
Your membership dollars will help IISc AANA to offer popular programs such as IISc AANA magazine, Reunion Homecoming, regional clubs/events, talks from industry experts/domain gurus, job posting, biz networking and free @iiscaana.org email accounts.
- **Stay connected to Indian Institute of Science**  
Connect to a powerful network of IISc alumni who live and work in your community and around the world. Keep in touch with IISc Alumni activities in India through IISc Alumni Association in Bangalore.
- **Stay connected to Indian Institute of Science Student Council**  
Participate and support through IISc AANA many of the Student activities including Note Book Drive, NSNY, Pravega-and Samanway-Annual National Student Conference.
- **Participate in Special Interest Groups**  
Special Interest Groups, aka SIGs, are the group of active volunteers focusing on activities of similar interests. SIG creation is the mechanism to start new activities/initiatives and get new volunteers involved as part of the IISc AANA volunteer program. Some SIGs are active globally whereas others can be chapter-specific.
- **Come up with new Ideas and use IIScAANA as a Platform**  
You have the vision – we have the resources. You have the resources - we have the vision. Utilize the infrastructure of IIScAANA to let your enthusiasm and ideas become actions, particularly keeping “Giving Back” as the mission of the organization.

IISc AANA is a not for profit organization and all donations made to the organization are exempt from US Federal income taxes under 510(c) (3) of the US Internal Revenue Code.

The first Global conference held in Santa Clara in 2007 was extremely well attended and supported. Attendees included:

- From IISc: Nearly 50 senior administrators and faculty
- Alumni: 400 from US, Canada, India, Germany and Japan
- 600 attendees in total

Google, IBM, Boeing, Satyam, Visa, Microsoft (India), Cookson provided support. The first conference provided the impetus for current efforts to have the second conference with lasting impact. As outlined by the Organization Committee, the goal of the this Second Global Conference is to bring together faculty from IISc and its alumni from around the world with academic and business partners

- *To promote the exchange of ideas*
- *To showcase and celebrate the achievements and talent of IISc, and its alumni*
- *To pool the intellectual resources of alumni and to strengthen their network*
- *To foster collaboration between all three groups that lasts well beyond the conference*

The Board of Directors of IISc AANA wishes the Conference all the success.

**Dr. Arkal Shenoy, Chair, AANA Board**  
**Dr. Satish Nagarajaiah, Co-Chair AANA Board**



**Official Mailing Address:**

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Mountain View, CA 94043E-mail: [info@iiscaana.org](mailto:info@iiscaana.org)

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# Indian Institute of Science Alumni Global Conference 2013

## Bios and Abstracts

**Session: IISC AANA Journey from 2007 to Now**  
**4.15-4.30 PM July 19<sup>th</sup> 2013**

### **Dr. Arkal Shenoy**

Chairman, IISc AANA Board

Dr. Shenoy is a Mechanical Engineering graduate from University of Mysore, India and he joined Indian Institute of Science in 1964 and earned his M.E. (Mechanical) in 1966. He joined the Nuclear Engineering program at Georgia Institute of Technology and was awarded Masters and Ph.D in Nuclear Engineering.

Before recent retirement he was the Director of Gas Cooled Nuclear Reactor and other Nuclear Fission Programs at General Atomics, San Diego, USA. He has over forty five years of professional experience in management, design, development, and operation of nuclear power projects.

Currently he is consulting on various energy programs including Nuclear, Solar, wind and Fossil energy programs

He is member of several professional organizations including Sigma XI, American Nuclear Society, and American Society of Mechanical Engineers.

### **Dr. Satish Nagarajaiah**

Co-Chairman, IISC AANA

Dr. Satish Nagarajaiah obtained his B.S. from Bangalore University in 1980, M.E. from Indian Institute of Science in 1982, Ph.D. (1987-1990) from State University of New York at Buffalo, where he was a post-doctoral researcher before he started his academic career in 1993. He currently serves as Professor of Civil and Mechanical Engineering at Rice University, Houston, Texas.

Dr. Nagarajaiah has published extensively and presented keynote lectures at several international conferences. He has graduated 12 Ph.D. and 17 M.S. students, several of whom are in faculty positions at universities worldwide and in senior positions in the industry. His current research group consists of 6 Ph.D. students and several visiting scholars.

Dr. Nagarajaiah currently serves as the managing editor of the journal of structural engineering [ASCE International journal], and editor of the structural control and health monitoring journal [Wiley International Journal]. He is an inaugural fellow of Structural Engineering Institute (SEI) of ASCE since 2012. He is an active member of several professional organizations such as ASCE, ASME, IASCM, and ANCRiSST. He serves as a consultant for national and international projects.

Dr. Nagarajaiah is an active life member of IISc AANA and IISc AA. He was instrumental in founding the south central chapter of IISc AANA in 2007.

**Session: Recommendations on building bridges – Distinguished Alumni**  
**4.30 -6.00 PM July 19<sup>th</sup> 2013**

Session Chair: **Dr. Channa Reddy**, Chair, Distinguished Professor Emeritus, Penn State University

**C. Channa Reddy**

Distinguished Professor Emeritus  
Director Emeritus, the Huck Institutes of the Life Sciences  
Telephone # (814) 777-1625  
India Number: 91-9000638447  
Email: [ccr1@psu.edu](mailto:ccr1@psu.edu)



**Education:**

National College (NCERT) - B.Sc. B. Ed. 1969 Chemistry & Biology  
Mysore University- M.Sc. 1971 Biochemistry  
Indian Institute of Science- Ph.D. 1975 Biochemistry  
Penn State University - Postdoc 1979 Bioorganic chemistry

**Professional experience:**

2007- Present - Director Emeritus, Huck Institutes of Life Sciences  
The Pennsylvania State University  
2002- 2006- Director of the Huck Institutes of the Life Sciences  
The Pennsylvania State University  
99 – 2006- Chairman, Department of Veterinary and Biomedical Sciences  
The Pennsylvania State University

**Major research interests:**

Major thrust of our research during the last 30 years has been in the area of Molecular Aspects of Biological Oxidation Reactions, including Redox-Based Regulation of Gene Expression.

**Dr. B. Swaminatha Reddy**

President & CEO of SP Systems, Inc. (SPS),  
incorporated in Maryland, USA

Born June 1, 1946 in India, Dr. Swami Reddy received his Bachelors and Masters degrees from S.V. University located at the foothills of the famous Hindu Temple of Tirupati. Dr. Reddy his Ph.D. degree from the Physics Department, Indian Institute of Science, an internationally recognized school, located in Bangalore City, India in 1974 for his thesis entitled “X-ray Crystallographic Investigations of Nucleic Acid Constituents” under the guidance of late Professor M. Viswamitra.

Dr. Reddy continued his postdoctoral research at the Max-Planck Institute fur Experimentelle Medizin, Gottingen, Germany during 1975-177. During this period, he authored several publications on bio-molecular structures and developed an automated crytallographic data analysis software that was used to solve complex crystal structures in less than a week, certainly a record then! From Germany Swami migrated in 1977 to the University of Rochester, New York, USA as a research fellow and made important contributions in the crystal and molecular structures to study drug-nucleic acid interactions, conformational studies of DNA superhelical structures and the study of the structure of chromatin.

In 1981, Dr. Reddy decided joined National Aeronautics and Space Administration (NASA) at the Goddard Space Flight Center, Greenbelt, Maryland as a contractor from computer Sciences Corporation and for the next three decades he supported the Science and Engineering Directorates at the GSFC in research, programming and project management areas.

In 1999, Dr. Reddy started a company called SP Systems, Inc. (SPS) to support the NASA and other US Federal Government agencies and wanted to demonstrate how a small company can ideally support vast federal agencies in a mutually beneficial manner. During the next fourteen years, SPS has grown from one employee to more than 130 employees supporting multiple contracts from four different federal agencies. This growth is quite significant as the company created skilled jobs and hired employees of all nationalities including India and offered remunerations that supports their families. One person's leadership has lit the lamps of several households.

Dr. Reddy and SPS received numerous awards from the NASA, Inc magazine, Washington Technology, Deloitte and Touche, Minority Business Enterprise, etc.

Dr. Reddy's successes in both fundamental research and in the competitive industry are indeed quite unique.

Dr. Reddy was awarded the Distinguished Alumni Award by the Indian Institute of Science & the IISc Alumni Association in 2008.

### **Professor Rao Tummala**

Distinguished and Endowed Chair Professor in MSE and ECE, and Founding Director of the 1st NSF ERC at Georgia Tech



**Professor Rao Tummala** is a Distinguished and Endowed Chair Professor in MSE and ECE, and Founding Director of the 1st NSF ERC at Georgia Tech. He is known as an industrial technologist, technology pioneer, and educator. Prior to joining Georgia Tech, he was an IBM Fellow, pioneering such major technologies as the industry's first plasma display and three generations of transistor integration with 100 chip modules when on chip integration failed to meet transistor integration or performance needs. He proposed system scaling with System-On-Package concept for NSF ERC, in contrast SOC being applied by the industry. As an educator, Professor Tummala was instrumental in establishing the largest Academic Center in System Scaling at Georgia Tech involving more than 200 Ph.D. students, 25 faculty from ECE, ME, MSE and CHE, and 100 companies from the US, Europe and Asia, all working together with an integrated approach to research, education and industry collaboration in ultra-miniaturized and mega-functional Smart Systems.

### **Dr. Brij M. Moudgil**

University of Florida

Dr. Brij M. Moudgil is a Distinguished Professor of [Materials Science and Engineering](#) at the [University of Florida](#). His current research interests include particulate and surfactant based systems for enhanced performance in photocatalytic degradation of hazardous microbes, greener reagents and particle technologies, disease diagnosis and treatment, corrosion inhibition, mineral separations, water treatment, crop protection, and nanotoxicity. Dr. Moudgil

received his B.E degree in Metallurgy from the Indian Institute of Science, Bangalore, India and his M.S and Eng.Sc.D degrees from the Columbia University, New York, NY. He has published more than 300 technical papers and has been awarded 14 patents. His research and professional leadership accomplishments are recognized by several major awards including the IISc Distinguished Alumni Award, his election to the National Academy of Engineering (NAE), and his election as a Foreign Fellow of the Indian National Academy of Engineering (INAE).

**Session: Panel Discussion - Future Next Gen networking and remote research  
7.15 -8.00 PM July 19<sup>th</sup> 2013**

**Prof N. Balakrishnan**

Associate Director, Indian Institute of Science



**Prof. N. Balakrishnan** received his Ph.D. from the Indian Institute of Science in 1979. He then joined the Department of Aerospace Engineering as an Assistant Professor. He is currently the Associate Director of the Indian Institute of Science and a Professor at the Department of Aerospace Engineering and at the Supercomputer Education and Research Centre.

His areas of research where he has more than 200 publications in the international journals and international conferences include Numerical Electromagnetics, High Performance Computing and Networks, Polarimetric Radars, Aerospace Electronic Systems, Information Security, Complex Social Networks and Digital Library.

He has received many awards including the **Padmashree** by the President of India, 2002, *Homi J. Bhabha Award for Applied Sciences*, 2004, *JC Bose National Fellowship* in 2007, the *Alumni Award for Excellence in Research for Science & Engineering* by IISc, 2001, *Millennium Medal* of the Indian National Science Congress in 2000, *Ph D (Honoris Causa)* from Punjab Technical University in 2003, the *CDAC-ACS Foundation Lecture Award* in 2008 and the *Academy Excellence Award*, Defence Research and Development Organization in 2009. He was the NRC Senior Resident Research Associate at the National Severe Storms Laboratory, Norman, Oklahoma, U.S.A. from 1987-1989. He was a visiting research scientist at the University of Oklahoma in 1990, Colorado State University in 1991 and is a Visiting Professor at Carnegie Mellon University from 2000 till 2006. He is an Honorary Professor in Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR).

He is a **Fellow** of the Academy of Sciences for the Developing World (TWAS), Indian National Science Academy, Indian Academy of Sciences, Indian National Academy of Engineering, National Academy of Sciences and Institution of Electronics & Telecommunication Engineers.

He is one of the Directors of *Data Security Council of India (Currently its Chairman)*, *Central Bank of India*, *Bharat Sanchar Nigam Limited (BSNL)* and of **CDOT-Alcatel Research Centre at Chennai**, a member of the *Council of CDAC*, Member of the *Joint Advisory Board of Carnegie Mellon University at Qatar* and Member of the Governing Council of IIT Kharagpur. He was one of the editors of the *International Journal on Distributed Sensor Networks*, and Editor-in-Chief, *International Journal of World Digital Libraries*. Till recently he was a member of the Board of Governors of IIT Delhi and of IIT Madras. He was also one of the Directors of the *Bharat Electronics Limited (BEL)*, a Part-Time Member of the *Telecom Regulatory Authority of India*. He is the National Coordinator of Indo-US Million Books to the Web Digital Library



Projects ([www.ulib.org](http://www.ulib.org) and [www.new.dli.ernet.in](http://www.new.dli.ernet.in) ). He, along with his colleagues from India, China and the US created the world's largest Digital Library which proudly hosts more than a million books that are freely accessible by any one anywhere and anytime. More details can be found at <http://swati.dli.ernet.in/balki>

**Keynote Speech: Energy, Urban Science and the National Laboratories**  
**9.00 – 9.45 AM July 20<sup>th</sup> 2013**

**Dr. Eric Isaacs**

Director, Argonne National Labs



**Eric Isaacs**, a prominent University of Chicago physicist, is President of UChicago Argonne, LLC, and Director of Argonne National Laboratory. Previously he was Director of the Center for Nanoscale Materials at Argonne and a professor of physics in the University of Chicago's James Franck Institute. He received his Ph.D. degree from the Massachusetts Institute of Technology (1988) in the field of magnetic semiconductors and was a postdoctoral fellow at Bell Laboratories where he was subsequently tenured for 13 years studying magnetism and correlated electronic systems. He is a Fellow of the American Physical Society.

**Session: Advances in Biomedical Systems**  
**10.30 – 12.30 PM July 20<sup>th</sup> 2013**

Session Chair: **Dr. Channa Reddy**, Chair, Distinguished Professor Emeritus, Penn State University

***Title: Emerging technologies in Biomedicine and VC opportunities for Entrepreneurship***

**Dr. Ganesh M Kishore**

Managing Director, Burrill & Company  
CEO, Malaysian Government Investment in Life Sciences in INDIA.



Dr. Ganesh Kishore has been active in the science and business of biotechnology for more than three decades. Following his PhD in biochemistry from Indian Institute of Science and postdoctoral research fellow at The University of Texas at Austin, he joined Monsanto. During his early years at Monsanto, he developed manufacturing processes for the synthesis of Aspartame, the active ingredient of NutraSweet and Equal. Subsequently, he served as the leader of the plant biotechnology efforts including the discovery and development of ROUNDUP READY technology. This latter technology is the single largest selling Ag bio product and has created (~\$40 billion) nearly 60% of all value created by the Ag bio industry to date. Dr. Kishore

was one of the architects of the transformation of Monsanto from a commodity chemical giant to an innovation driven life sciences business. Dr. Kishore retired from Monsanto as its Distinguished Science Fellow, Chief Biotechnologist and President of Nutrition in late 2000.

In 2002, Dr. Kishore joined DuPont as the Chief Technology Officer for its Agriculture and Nutrition Platform and subsequently took over the role of Chief Biotechnology Officer for DuPont. During his tenure at DuPont, he forged several strategic relationships and developed a biotechnology strategy within the company. He left DuPont in 2007 to join Burrill & Company as a Managing Director. Dr. Kishore currently serves as the CEO of Malaysian Life Sciences Capital Fund that makes global investments in life sciences. The Fund has made investments twelve direct investments in US and Malaysian companies and eighteen indirect investments through the Burrill Life Sciences Fund. These investments include health care, Ag and industrial biotech companies. Dr. Kishore has authored sixty technical publications and a named inventor on seventy issued patents.

He is the recipient of Queeny Award, a prize awarded by Monsanto Company for outstanding contributions to science and technology that are translated to useful societal products. He is a Fellow of the St. Louis Science Academy, an Emeritus Member of Board of Overseers of Tufts University, and R & D Advisory Committee and McDonnell Foundation of Washington University at St. Louis and other nonprofit institutions. He serves on the Board of Gevo, GloriEnergy, Evolva, Akermin, Sentinext, Kaiima, and a board observer of Light Sciences Oncology. He is an Advisor to the Board, Advanta and an entrepreneur who has founded three biotechnology companies, two in USA (Abunda and Mogene LC) and one (Metahelix Life Sciences Pvt. Ltd.) in India. He and his family reside in St. Louis, USA.

***Title: Reproductive Health Research: IISc India Perspectives***

**Dr. Polani B. Seshagiri**

Professor, Department of Molecular Reproduction, Development and Genetics,  
Indian Institute of Science.

***Title: Biosimilars: opportunities and challenges***

**Dr. Yash Vaishnav**

Business Development Executive  
Argonne National Laboratory

Dr. Yash Vaishnav has more than 12 years of comprehensive experience in technology transfer and business development. Prior to joining Argonne in 2008, he spent seven years in the University of California system, initially at the systemwide Office of Technology Transfer (OTT) in the UC Office of President in Oakland, and subsequently at the Office of Intellectual Property & Industry Sponsored Research at UCLA. Yash has extensive experience in the area of identification and assessment of licensing opportunities and in conducting licensing negotiations with pharmaceutical, biotechnology, and medical device companies. Much of his licensing work was focused on fields such as oncology, immunology, metabolic disorders, and infectious diseases. He has also developed commercial knowledge including drug discovery, drug development, and regulatory aspects.

Yash acquired hands-on experience in drafting and prosecution of patents and in conducting IP due diligence at Knobbe, Martens, Olson, and Bear, LLP, in San Francisco. He continues to use that experience in building and managing strategic patent portfolio in his career in technology transfer.

After Ph.D. Yash spent about 11 years conducting research in frontier disciplines of life sciences such as Molecular Biology, Virology, Cell Biology, and Immunology. He spent much of this research career as a faculty at the UC San Diego School of Medicine, and the International Center for Genetic Engineering and Biotechnology (ICGEB), New Delhi. As a result, he has acquired insight and in-depth knowledge in a wide spectrum of biotechnology disciplines and

therapeutic areas. He has published research articles in peer-reviewed journals, authored a chapter in a monograph, and presented his findings at a number of scientific conferences. His research activities ranged from the regulation of HIV gene expression to the study of mammalian transcription factors and their role in the activity of tumor suppressor proteins. He received a prestigious and competitive scholar award from the American Foundation for AIDS Research (AmFAR) for 1991-1994. He has also taught advanced courses in Molecular & Cell Biology and Virology to graduate students for eight years at UC San Diego, ICGEB, and Jawaharlal Nehru University (JNU), New Delhi.

Yash currently manages technologies at Argonne in a variety of areas including life sciences, nanotechnology, bioprocessing, catalysis, and energy sciences. He also leads business development activities to build long-term and strategic relationship with industry. Yash also mentors Argonne based start-up companies and supports various internal research funding programs. He has also been a reviewer for SBIR and STTR grant applications on behalf of the Department of Energy (DOE). He is active with local VC community, and Chicago Innovation Mentors (CIM).

Yash earned a Ph.D. in Molecular Biology from the Indian Institute of Science (IISc), Bangalore. He earned M.Sc. in Biochemistry from the M.S. University, Baroda, B.Sc. in Microbiology from Gujarat University, Ahmedabad, and MBA in finance from California State University, Hayward. Yash is a member of the Licensing Executive Society (LES) and Association of University Technology Managers (AUTM).

***Title: Aspects of translational research in the Biological Sciences Division, IISc***

**Dr. Depankar Nandi**

Professor, Department of Biochemistry. Indian Institute of Science.

**Session: Sustainable Energy and Materials**  
**10.30 -12.30 PM July 20<sup>th</sup> 2013**

Session Chair: **Dr. Jagjit Nanda**, Oak Ridge National Laboratory (ORNL)

***Title: Materials and Energy***

**Prof. Vinayak P. Dravid**

NU President Abraham Harris Chaired Professor  
Materials Science & Engineering,  
McCormick School of Engineering and Applied  
Science

Director, NUANCE Center

Director, Global McCormick (GM)

[www.global.mccormick.northwestern.edu](http://www.global.mccormick.northwestern.edu)

Founding Member, International Institute for  
Nanotechnology

Northwestern University, Evanston, IL 60208

<http://www.nuance.northwestern.edu>

<http://www.northwestern.edu/vpdgroup>



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Vinayak P. Dravid is Professor of Materials Science & Engineering and founding Director of Northwestern University's NUANCE Center (NU Atomic and Nanoscale Characterization Experimental) Center. He received his B.Tech. from IIT Bombay in 1984, and PhD from Lehigh University in 1990.

Professor Dravid's scholarly interests are at the heart of materials science and engineering, with implications to emerging opportunities in nano-bio-technology and energy. He has a diverse research portfolio covering advanced microscopy, nanotechnology, technology strategy, energy policy and emerging educational paradigms. He has authored over 300 archival journal publications and book chapters and holds more than two dozen issued/pending patents. Many of his patents are licensed to start-up companies in nanotechnology and sensor/diagnostic systems. He is a co-founder of and closely affiliated with several high-tech stage start-ups related to his IP portfolio in nano-metrology, nanopatterning and bio-chem sensing. Professor Dravid's awards/honors include Fellowships to numerous societies: American Physical Society (APS), American Association for Advancement of Science (AAAS), Materials Research Society (MRS), the Microscopy Society of America (MSA, inception class), and the American Ceramic Society (ACerS). He is the recipient of several awards; the American Ceramic Society's Robert L. Coble Award and Richard M. Fulrath Award, MSA's Burton Medal, IBM's Faculty Development Award, NSF's Young Investigator Award. He is an honorary life-time member of MRS India (MRSI), and Hsuen Lee fellow of the Chinese Academy of Science. Professor Dravid has been continuously elected to Northwestern's Faculty Honor Roll for excellence in teaching by UG students for several years.

As the director of Global McCormick, Professor Dravid has helped launch many global research and educational initiatives across Asia (e.g., India, Singapore), Europe (e.g., France, Germany), Africa (e.g., Egypt), S. America (e.g., Brazil, Argentina), among others. Professor Dravid has served as consultant and advisor to metrology, bio-chem companies, IP firms, the Art Institute of Chicago, Chicago Museum of Science and Industry, among others. He advises NGOs, professional society outreach programs, international organizations and private sector about science, technology and policy. One of his passions is to enhance societal and global appreciation for science and technology, especially of microscopy, materials science, nanotechnology, and energy/sustainability.

***Title: Materials in energy storage and energy efficient technologies***

**Abstract:** This talk will be about the exciting opportunities that nanomaterials present including several intrinsic challenges presented by the inability to scalably create larger scale structures via self-assembly and bottom-up approaches. Some of the challenges associated with nanomanufacturing will be discussed.

**Prof. Pulckel M. Ajayan**

Benjamin M. and Mary Greenwood Anderson  
Professor of Engineering  
Professor, Mechanical Engineering and Materials  
Science Department  
Professor, Department of Chemistry  
Professor, Department of Chemical and Biomolecular  
Engineering  
Rice University, Houston, Texas 77005, USA



**Bio:** Professor Ajayan earned his B. Tech in metallurgical engineering from Banaras Hindu University in 1985 and Ph.D. in materials science and engineering from Northwestern University in 1989. After three years of post-doctoral experience at NEC Corporation in Japan, he spent two years as a research scientist at the Laboratoire de Physique des Solides, Orsay in France and nearly a year and a half as an Alexander von Humboldt fellow at the Max-Planck-Institut für Metallforschung, Stuttgart in Germany. In 1997, he joined the materials science and engineering faculty at Rensselaer as an Assistant Professor and was the Henri Burlage chair Professor in

Engineering until 2007. He joined the mechanical engineering and materials science department of Rice university, as the Benjamin M. and Mary Greenwood Anderson Professor in Engineering from July 2007. Professor Ajayan's research interests include synthesis and structure-property relations of nanostructures and materials science and applications of nanomaterials. He is one of the pioneers in nanotechnology and specifically in the field of carbon nanotubes he was involved in the early work on the topic along with the NEC group. He has published one book and 500 journal papers, many in high impact journals, with more than ~35,000 citations and an h-index of 92. He has several patents and inventions to his credit. He has given about 350 invited talks including several keynote and plenary lectures. He is a world leader in the field of nanomaterials and their applications. Ajayan has received several awards including the Distinguished Career Award for Alumni of the Department of Materials Science at Northwestern University (alma mater - graduate), Distinguished Alumni Award from Banaras Hindu University (alma mater – undergraduate), Senior Humboldt Prize, 2006 MRS medal, AAAS fellow, Scientific American 50 recognition in 2006, RPI senior research award (2003), the Burton award from the microscopic society of America (1997) and the Hadfield medal for the outstanding metallurgist in India (1985). He also holds two Guinness book of world records, one for creating the smallest brush and the other for creating the darkest material. He is on the advisory editorial board of several materials science and nanotechnology journals and on the boards of several nanotech companies.

***Title: Vehicle Electrification and Energy Storage Technology***

**Mr. Ted J Miller**  
Ford Motor Company



Ted Miller is Ford's Senior Manager of Energy Storage and Materials Strategy and Research. His team is responsible for energy storage strategy, research, development and implementation for all Ford hybrid, plug-in hybrid and battery electric vehicles. Mr. Miller's team supports prototype and production vehicle development programs worldwide. They are involved in every aspect of energy storage design and use from raw materials to end-of-life recycling. His team also sponsors collaborative research programs at a number of major universities. Mr. Miller is Chairman of the United States Advanced Battery Consortium (USABC) Management Committee. He holds a number of energy storage technology patents and is the author of many published papers in the field.

***Title: Solar Fuels: Only Viable Option for Photovoltaics?***

**Dr. Krishnan Rajeshwar,**  
Distinguished University Professor, University of  
Texas at Arlington





**Dr. Rajeshwar** is a Distinguished University Professor at the University of Texas at Arlington. He is also the founding director of the Center for Renewable Energy Science & Technology (CREST) on campus. Very recently he was elected Vice President of the Electrochemical Society. He serves as the Editor of the Electrochemical Society *Interface* and on the editorial boards of electrochemical journals. After post-doctoral training at Colorado State University, he joined UT Arlington in 1983. His research interests span a wide spectrum and include photoelectrochemistry; solar energy conversion; renewable energy; materials chemistry; semiconductor electrochemistry; and environmental chemistry. Dr. Rajeshwar is a Fellow of the Electrochemical Society and received the Energy Technology Division Research Award of the Electrochemical Society in 2009. He has authored monographs and edited books, special issues of journals, and conference proceedings on energy conversion. He is the author of over 350 refereed and well-cited publications. He can be reached at [rajeshwar@uta.edu](mailto:rajeshwar@uta.edu)

***Title: Solar Thermal and PV: Indian Perspective***

**Prof. Pradip Dutta**

Mechanical Engineering Dept.,  
Indian Institute of Science  
Bangalore



Prof. Dutta received his bachelor's degree in Mechanical Engineering from IIT Kharagpur, his master's degree from IIT Madras and Ph.D. from Columbia University. After his PhD, he worked as a National Research Council (NRC) Fellow at the Naval Postgraduate School, California. He held faculty positions at Columbia University and at the Tennessee Tech. University, before joining the Indian Institute of Science as a faculty member in 1996. Prof. Dutta's research group focuses on development of advanced energy technologies related to solar energy, cooling of electronics, spacecraft thermal management, and on thermal technologies related to solidification and advanced casting processes for light weighting. Prof. Dutta has published three web-based books for Mechanical Engineering undergraduates and post-graduates, co-authored several book chapters and published over 250 papers in international journals and peer-reviewed conferences. He is a Fellow of the American Society of Mechanical Engineers (ASME), Fellow of the Indian National Academy of Engineering, and Fellow of the Indian Academy of Sciences. He is currently a Vice President of the Indian Society of Heat and Mass Transfer. Prof. Dutta is serving as Associate Editors of IEEE Transactions on Components and Packaging Technology, and ASME Journal of Electronic Packaging. At IISc, he has been a co-founder of the National Facility for Semisolid Forming, co-Director of the General-Motors-IISc Collaborative Research Lab, and Convener of the Solar Energy Programme under the Energy Initiative of IISc. He is also co-leading the recently formed Solar Energy Research Institute for India and the United States (SERIUS), under the Indo-US Joint Clean Energy Research and Development Center (JCERDC) programme. Currently, he is INAE Chair Professor at IISc.

***Title: Hydrogen Energy Technology - Current status & Challenges***

**Dr. Balu Balachandran**  
Argonne National Laboratory



Dr. (Balu) Balachandran (Ph.D. in Materials Science & Engineering, 1980) has been doing research in the area of electronic materials for nearly 35 years. His current interests include ceramic membranes for gas separation, natural gas conversion, oxygen and hydrogen production, carbon capture, fuel cells, capacitors for power electronics in hybrid vehicles, and high-temperature superconductors. He is a Fellow of The American Ceramic Society (1999), Fellow of the Institute of Physics (2006) and currently Senior Scientist and Manager of the Ceramics Section within the Energy Systems Division at Argonne National Laboratory. He has authored/coauthored 266 papers in peer reviewed international scientific journals, 162 papers in conference proceedings, edited 20 books (conference proceedings/transactions), and holds 33 issued patents.

**Session: Neurosciences and Mental Health**  
**3.00 – 5.00 PM July 20<sup>th</sup> 2013**

Session Chair: **Dr. Madhavi Ganapathiraju,**

**Dr. Madhavi Ganapathiraju**  
Assistant Professor,  
Department of Biomedical Informatics,  
and Intelligent Systems Program,  
University of Pittsburgh



Dr. Madhavi Ganapathiraju is an Assistant Professor at the Department of Biomedical Informatics, University of Pittsburgh. She holds secondary appointments at Intelligent Systems Program, University of Pittsburgh Cancer Institute and Carnegie Mellon University's Language Technologies Institute. She is also Faculty of Language Technologies Institute and Advisory Board member of Biotechnology Innovation and Computing Program at Carnegie Mellon University. Dr. Ganapathiraju has M. Engg degree from Indian Institute of Science Department of Electrical Communications Engineering, and Ph.D. from Carnegie Mellon University School of Computer Science. She received the Biobehavioral Research Award for Innovative New Scientists (BRAINS) award from National Institute of Mental Health in 2011. Her group's research focus is on computational systems biology; more specifically on predicting protein-protein interactions, and more broadly on applying computer science to accelerate molecular biology research.

***Title: Future Prospects for NIMH-Supported Research***

**Dr. Susan Koester**

Deputy Director, Division of Basic and Behavioral Neuroscience, National Institute of Mental Health

Dr. Susan Koester currently serves as the Deputy Director of the Division of Neuroscience and Basic Behavioral Science (DNBBS) at the National Institute of Mental Health (NIMH) in Bethesda, MD. As Deputy Director, Dr. Koester helps manage the largest Division portfolio in the Institute, with an annual budget of \$350 Million. Prior to joining NIMH, Dr. Koester received her Ph.D. in Neural Sciences from Washington University, completed a postdoctoral fellowship at the Salk Institute, and served as Senior Editor at Neuron. She has worked for NIMH since 1997 in both intramural and extramural management positions.

***Title: Neuroscience at IISc***

**Dr. Vijayalakshmi Ravindranath**

Professor & Chair, Centre for Neuroscience, IISc



Dr. Vijayalakshmi Ravindranath is Professor and Chair of the newly created Centre for Neuroscience at IISc, Bangalore. She was the founder Director of the National Brain Research Centre (NBRC) from 2000-2009 an autonomous institution of the Ministry of Science and Technology, Government of India and helped establish NBRC as an institute of excellence and apex coordination centre for brain research that co-ordinates and networks neuroscience research groups in the country. She has actively promoted neuroscience research and training in the country and helped establish several pan-Indian efforts in brain research.

The unifying goal of her laboratory is to understand pathogenic mechanisms underlying neurodegenerative disorders, such as Parkinson's and Alzheimer's disease with a goal to discover disease-modifying therapies from traditional knowledge base. She is an elected Fellow of all the 3 science academies in India, namely Indian National Science Academy, Indian Academy of Sciences, National Academy of Sciences, India. She is also a Fellow of the National Academy of Medical Sciences, India, Indian Academy of Neurosciences and Third World Academy of Sciences. She is a recipient of the prestigious S.S. Bhatnagar award (1996), Omprakash Bhasin Award (2001), the J.C. Bose National Fellowship (2006) and Padma Shri (2010).

***Title: "Biosignatures for depression and therapeutic response"***

**Dr. Mark M. Rasenick**, Distinguished University  
Professor of Physiology & Biophysics and Psychiatry,  
University of Illinois Chicago, College of Medicine



**Abstract:** Despite several decades of research, no clear consensus has emerged concerning the cellular and molecular substrates of depression or commonality of action among diverse

compounds classified as antidepressants. This talk will demonstrate that some aspects of GPCR signaling are altered in depression and that these may serve as a biomarker for depression as well as a molecular gauge for antidepressant therapeutic response.

**Bio:** Dr. Rasenick's work has focused on G protein signaling in the nervous system and the relationship of neurotransmitter activation to rapid modification of the cytoskeleton. He has been particularly interested in how G proteins and the cytoskeleton work in concert to modify synaptic shape and to form a molecular basis for depression and the action of antidepressant drugs. The most recent work from his group suggests the possibility of a blood test indicating depression and therapeutic response to antidepressant therapy. This has led to the creation of Pax Neuroscience. Dr. Rasenick's research was, and continues to be funded by the NIH as well as by other government, philanthropic and industry sources. He is principal investigator of an NIMH training grant, "Training in the Neuroscience of Mental Health, which supports graduate students and postdoctoral fellows in the neurosciences. He has served on many scientific review panels (NIH, NSF, DOD), and editorial boards and is the author of numerous publications. Dr. Rasenick has received honors both for teaching and research, including the Searle Young Faculty Award from the Chicago Community Trust, the University Scholar Award and Distinguished Faculty Award from the University of Illinois, a Research Scientist Award from the NIMH, and a Robert Wood Johnson Health Policy Fellowship from the Institute of Medicine/National Academy of Sciences. He is an elected fellow of the American College of Neuropsychopharmacology and the American Association for the Advancement of Science and an elected member of the Dana Alliance for Brain Research.

In addition to research and teaching, Dr. Rasenick is active in public policy. He served as a member of the Commission on Social Action of Reform Judaism and the Chapters committee and Government and Public Affairs Committee (co-chair) and International Affairs Committee of the Society for Neuroscience. He serves on the Public Affairs/Outreach committees of the American Society for Biochemistry and Molecular Biology, the Society for Neuroscience and the American College of Neuropsychopharmacology. He was a member of the Basic and Clinical Neuroscience Links Committee for the International Brain Research Organization (IBRO). While a Robert Wood Johnson Fellow (1999-2000), he was a staff member of the Senate Committee on Health, Education, Labor, and Pensions with the late Senator Edward M. Kennedy, (D Mass.). During this time, he worked on legislation concerning Cancer screening, Medicare Prescription Drugs, Organ Transplantation Policy and Mental Health Policy. He is also involved in international outreach for neuroscience and has organized programs designed to foster international cooperation in the basic and clinical neurosciences in Vietnam, Cuba and throughout Latin America. He was asked to testify before the Senate Committee on Foreign Relations concerning outreach to Cuban biomedical scientists. In 2009, he was appointed an Global Health Research Ambassador by the Paul Rogers Society.

***Title: Haptics: Science, Technology and Applications***

**Dr. Mandayam A. Srinivasan**

Director, The Touch Lab, MIT

(<http://touchlab.mit.edu>)

Professor, Department of Computer Science,  
University College London (UCL)



**Abstract:** The human haptic system with its tactile, kinesthetic, and motor capabilities together with the associated cognitive processes, presents a uniquely bi-directional information channel

between our hands and brains, but is underutilized. Recent development of haptic technologies that enable a user to touch, feel, and manipulate virtual or remote objects, show promise in myriad applications such as education, entertainment, training, communication, healthcare, hazardous operations, design, manufacturing and marketing. In this talk, I will describe the scientific and technological underpinnings of the emerging field of Haptics. I will give a brief overview of our recent advances in skin biomechanics, tactile neuroscience, human haptic perception, robotic hardware and real-time simulation software, all of which have helped establish Haptics as an exciting area of research. I will also cover our contributions to its applications such as virtual reality based simulators for training surgeons, real-time touch interactions between people across the internet and direct control of machines from brain neural signals.

**Bio:** Dr. Mandayam Srinivasan is Director of the MIT Touch Lab and Senior Scientist in the Department of Mechanical Engineering and the Research Laboratory of Electronics at MIT. He is also Professor of Haptics at the Department of Computer Science, University College London (UCL). After receiving Bachelors degree in Civil Engineering from Bangalore University, Masters in Aeronautical Engineering from Indian Institute of Science, and a Ph.D in Applied Mechanics from the Department of Mechanical Engineering, Yale University, he became a member of research faculty in the Department of Anesthesiology, Yale University School of Medicine, where he conducted research on tactile neuroscience in primates. He moved to MIT in 1987 and founded the Laboratory for Human and Machine Haptics. Dr. Srinivasan's research over the past 30 years on the science and technology underlying information acquisition and object manipulation through touch has played a pivotal role in starting and establishing the multidisciplinary field of modern Haptics. He has been recognized worldwide as an authority on haptic computation, cognition, and communication in humans and modern machines such as computers and robots. Dr. Srinivasan's work has been featured in international print, radio, TV, and computer media focused on cutting edge research in interactive technology and its future prospects.

**Session: Nano-engineering**  
**3.00 -5.00 PM July 20<sup>th</sup> 2013**

Session Chair: **Dr. Muralidhar K. Ghantasala**, Western Michigan University

**Title: A thermal transistor based on fluid-solid interfaces**



Prof. Ghantasala

**Abstract:** A key requirement for a thermal transistor is thermal rectification. Thermal rectification requires that thermal conductivity not be a separable function of position and temperature. Investigators have considered inhomogeneous solids to design thermal rectifiers but manipulations of solid lattices are energy intensive. We propose a thermal transistor based on solid-fluid resistances that couple either two or a single fluid reservoirs separated by solid-fluid interfaces. It is the thermal analog of a three terminal transistor, the hot reservoir being the emitter, the cold reservoir the output, and smaller input reservoirs as the base. Changing the input temperature alters the transport factor and the flux gain as does the base current in a transistor.

**Dr. Sohail Murad**, University of Illinois at Chicago





**Bio:** Murad is Professor and Department Head of Chemical Engineering at University of Illinois at Chicago, where he joined the faculty in 1979 after receiving a PhD from Cornell University, Ithaca, NY. He spent 1981-82 at Exxon Research and Engineering Company at Florham Park, New Jersey, while on a leave of absence from the university. He was an ARO Research Fellow at the Ballistics Research Laboratory in 1985.

**Prof. Pulckel M. Ajayan**

Benjamin M. and Mary Greenwood Anderson  
Professor of Engineering  
Professor, Mechanical Engineering and Materials  
Science Department  
Professor, Department of Chemistry  
Professor, Department of Chemical and Biomolecular  
Engineering  
Rice University, Houston, Texas 77005, USA



**Bio:** Professor Ajayan earned his B. Tech in metallurgical engineering from Banaras Hindu University in 1985 and Ph.D. in materials science and engineering from Northwestern University in 1989. After three years of post-doctoral experience at NEC Corporation in Japan, he spent two years as a research scientist at the Laboratoire de Physique des Solides, Orsay in France and nearly a year and a half as an Alexander von Humboldt fellow at the Max-Planck-Institut für Metallforschung, Stuttgart in Germany. In 1997, he joined the materials science and engineering faculty at Rensselaer as an Assistant Professor and was the Henri Burlage chair Professor in Engineering until 2007. He joined the mechanical engineering and materials science department of Rice university, as the Benjamin M. and Mary Greenwood Anderson Professor in Engineering from July 2007. Professor Ajayan's research interests include synthesis and structure-property relations of nanostructures and materials science and applications of nanomaterials. He is one of the pioneers in nanotechnology and specifically in the field of carbon nanotubes he was involved in the early work on the topic along with the NEC group. He has published one book and 500 journal papers, many in high impact journals, with more than ~35,000 citations and an h-index of 92. He has several patents and inventions to his credit. He has given about 350 invited talks including several keynote and plenary lectures. He is a world leader in the field of nanomaterials and their applications. Ajayan has received several awards including the Distinguished Career Award for Alumni of the Department of Materials Science at Northwestern University (alma mater - graduate), Distinguished Alumni Award from Banaras Hindu University (alma mater – undergraduate), Senior Humboldt Prize, 2006 MRS medal, AAAS fellow, Scientific American 50 recognition in 2006, RPI senior research award (2003), the Burton award from the microscopic society of America (1997) and the Hadfield medal for the outstanding metallurgist in India (1985). He also holds two Guinness book of world records, one for creating the smallest brush and the other for creating the darkest material. He is on the advisory editorial board of several materials science and nanotechnology journals and on the boards of several nanotech companies.

**Panel Discussion: Entrepreneurship**  
**9.45 -10.45 AM July 21<sup>st</sup> 2013**

## **Dr. Sampath Parthasarathy**

Ph.D., MBA, F.A.H.A.

Dr. Sampath Parthasarathy obtained his Ph.D. degree in Biochemistry from the Indian Institute of Science, Bangalore, India in 1974. After postdoctoral positions at Kyoto-Japan, Duke University, and the University of Minnesota, he joined the faculty and reached the rank of professor at the University of California, San Diego in 1983, where he developed the concept of oxidized LDL, a key factor in cardiovascular disease development. From 1993-2003, he directed research in Department of Gynecology and Obstetrics at the Emory University as the McCord Cross Professor. In 2004, He joined the Louisiana State University in New Orleans as Frank Lowe Professor to setup an Institute on oxidative stress. After Katrina, he joined the Ohio State University as the Klassen Chair and Professor of Cardiothoracic Surgery and directed research related to cardiovascular sciences where he developed a new model for heart failure. Currently he is the Florida Hospital Chair in Cardiovascular Sciences and professor of Medicine.

Dr. Parthasarathy has published over 250 original articles and has written a book "Modified Lipoproteins in the Pathogenesis of atherosclerosis." He has participated as an invited speaker in over 500 national and international conferences on heart failure, atherosclerosis, endometriosis, and antioxidant nutrition. He has been on the editorial board of many journals and has served in innumerable committees and was a member of National Heart, Lung, and Blood Institute of NIH Program Project Committee. He is also the Joint Secretary of the South Asian Society for Atherosclerosis and Thrombosis and serves in the executive council of the International Society of Nutraceuticals. He has received numerous awards including the Scientific Achievement Award by the American Heart Association, Van Deenen Memorial award, Markowitz award, Achievement award by the American Association of Cardiologists of Indian Origin, Special recognition award from SASAT International, and the Ranbaxy award for contribution to medical sciences. He has over 20 patents on cardiovascular pharmaceuticals and his patents played a key role in the development of AtheroGenics and InVasc Therapeutics.

Married to Kalyani (1975-2011). Two sons (Dr. Raghu Parthasarathy-Associate Professor of Physics, Univ. of Oregon- Married to Dr. Julie Mueller. Bharath Parthasarathy, JD- Associate General Counsel-Georgia State University-Married to Michelle Stock, JD) and Four Grand children (Kiran, Suryan, Devon and Lila Kay).

### **Session: Networks**

**10.45 -12.45 PM July 21<sup>st</sup> 2013**

Session Chair: **Dr. Anurag Kumar**, IISc

***Title: 25 Years of Networking@IISc***

**Dr. Anurag Kumar**, IISc



Anurag Kumar obtained his B.Tech. degree from the Indian Institute of Technology at Kanpur and the PhD from Cornell University, both in Electrical Engineering. He was with Bell Laboratories, Holmdel, N.J., for over 6 years. Since 1988 he has been with the Indian Institute of Science (IISc), Bangalore, in the Dept. of Electrical Communication Engineering, where he is now a Professor, and is also the Chair of the Electrical Sciences Division. From 1988 to 2003

he was the Coordinator at IISc of the Education and Research Network Project (ERNET), India's first wide-area packet switching network. His area of research is communication networking, specifically, modeling, analysis, control and optimisation problems arising in communication networks and distributed systems. Recently his research has focused primarily on wireless networking. He has been elected Fellow of the IEEE, the Indian National Science Academy (INSA), the Indian National Academy of Engineering (INAE), and the Indian Academy of Sciences (IASc). He received the IISc Alumni Award for Excellence in Engineering Research for 2008.

***Title: Advertising Networks: Attribution Modeling for Real Time Bidding***

**Dr. Ram Akella**, University of California (Berkeley and Santa Cruz)



Ram Akella is Professor of Information Systems and Technology Management, and Director of the Center for Large Scale Analytics and Smart Services (CLASS) at the University of California, including KISMT; his appointment at Stanford has been in Management Science and Engineering, and in Informatics and Medicine. His current interests span Big Data Analytics, Social Networks and Dynamic Bayesian Recommender Systems and Personalization (Google), Computational Advertising (with Yahoo), Online Marketing (AOL Faculty Award), Query Intent Detection in Sponsored Search (Microsoft Faculty Award), Social Media & Web Marketing Analytics (Crowd Science, Serendio), Social Game Analytics (Claritics), Machine Learning, Interactive Information Retrieval (SAP), Information Extraction and Service Analytics (Cisco), Data, Text, Image and Video Mining (NASA), Healthcare Analytics (IBM Faculty Award, CITRIS), Energy Analytics (CITRIS), Roamware-IBM (Telecom Analytics), Flextronics (Knowledge and Supply Chain Analytics), Splunk (Operational Analytics). His broader interests span Financial Engineering, Supply Chain, Innovation, Product-Service Analytics, Pricing and Costing. He has worked with over 200 firms in domains ranging from semiconductors, PCs, and software, to automotive and food. He followed up his BS and PhD in EECS at IIT Madras and IISc, Bangalore, with postdoctoral appointments at Harvard and MIT.

***Title: Opportunistic Resource Utilization Networks***

**Dr. Ajay Gupta**  
Western Michigan University



Dr. Ajay Gupta is a Professor of Computer Science at Western Michigan University and the TCPP-Chair of IEEE-CS. From 1998 to 2002, he was the Chairman of the Computer Science Department at Western Michigan University. Dr. Gupta received his Ph.D. in Computer Science from the Purdue University in 1989, his M.S. in Mathematics and Statistics from the University of Cincinnati in 1984, and his B.E. (Honors) in Electrical and Electronics Engineering from the Birla Institute of Technology and Sciences, Pilani, India in 1982. Dr. Gupta's research interests include sensor networks and systems, cloud computing, evolutionary computation, scientific computing, and design and analysis of parallel and distributed algorithms. He has published numerous technical papers and book chapters in refereed conferences and journals in these

areas. He is a senior member of the IEEE and member of the IEEE Computer Society, the IEEE Communications Society, the ASEE and the ACM.

***Title: Mobile Networks - Evolution and Future Trends***

**Dr. K. Natarajan, CISCO**

Nat Natarajan is currently a senior Network Consulting Engineer with Cisco Systems. He has over 25 years of industry experience in R&D, standardization and commercial deployment of communication networks and wireless systems for mobile operators. Prior to Cisco, Nat has worked as a Fellow of the Technical Staff in Motorola and was recognized as a Motorola Distinguished Innovator. He began his career at IBM's Thomas J. Watson Research Center and made significant contributions to IBM's WLAN development and the IEEE 802.11 standardization. Nat holds 36 US patents, and authored over 35 refereed publications. Nat was awarded the B.Tech. EE degree from the Indian Institute of Technology (Madras), M.E. from the School of Automation, Indian Institute of Science (Bangalore) and the M.S. and Ph.D. degrees in Computer and Information Science from the Ohio State University.

***Title: Networks for Storage***

**Dr. K. Gopinath**  
IISc

Dr. K. Gopinath is a professor at Indian Institute of Science in the Computer Science and Automation Department. His education has been at IIT-Madras (B.Tech'77), University of Wisconsin, Madison (MS'80) and Stanford University (PhD'88). He has also worked at AMD (Sunnyvale) ('80-'82), and as a PostDoc ('88-'89) at Stanford and also at Sun Microsystems Labs ('90). His research interests are primarily in the computer systems area (Operating Systems, Storage Systems, Systems Security and Systems Verification).

***Title: Statistical Physics of Networks***

**Dr. Rajesh Sundaresan, IISc**



Rajesh Sundaresan is an associate professor at the ECE department of the Indian Institute of Science, Bangalore. He is currently a visiting scholar at the Coordinated Science Laboratory, University of Illinois at Urbana-Champaign, visiting on an Indo-US Science and Technology Forum Fellowship. He received his Ph.D. in Electrical Engineering from Princeton University in 1999, designed wireless modems at Qualcomm Incorporated from 1999 to 2005, and joined the faculty of the Indian Institute of Science in 2005. His research interests are in the areas of information theory and networks.

**Session: Emerging Sciences / New Frontiers**  
**10.45 -12.45 PM July 21<sup>st</sup> 2013**

Session Chair: **Dr. Murthy Gudipati**, NASA Jet Propulsion Laboratories

**Dr. Murthy S. Gudipati**  
NASA Jet Propulsion Laboratories

Dr. Murthy Gudipati went to several schools in rural villages and urban colleges in Andhra Pradesh before receiving M.Sc. (1981, Chemistry) at the University of Hyderabad, India and Ph.D. (1987, Organic Chemistry) at the Indian Institute of Science, Bangalore, India. After a 3 year post-doctoral collaboration with Prof. Josef Michl (at Austin, Texas, USA), he joined University of Cologne, Germany in 1990, where he was awarded Habilitation in Physical Chemistry (tenure) in late 1998. Since then he held several positions at University of Cologne, University of Maryland, SRI International, NASA Ames Research Center. Since 2007, Dr. Gudipati is a principal scientist at the NASA's Jet Propulsion Laboratory, California Institute of Technology where he studies the evolution of "ices, organics, and life" in the universe, and a part-time senior research scientist at the University of Maryland at College Park.

Murthy transformed a "*yearly food and fun gatherings*" of IISc Alumnae/Alumni in the Silicon Valley into an organized association in 2004-2005, when he was asked to be the founding president of this unincorporated IISc Alumnae/Alumni Association. With the help of highly dedicated Alumnae/Alumni such as Dinesh Thirumurthy and Mohan Raj Goyal, Murthy was successful in giving the association its first structure, including the goals of the organization and the formation of SIGs. He inspired and attracted several Alumnae/Alumni to take active part in the association. Within a year the membership rose to several hundreds and Murthy left for Maryland towards end of 2005. Subsequently, exceptionally dedicated Alumni like Subba Rao Gunupudi gave life to this organization and made it a non-profit organization. Until recently, Murthy was a member of the Board of Directors of IISc AAnA. At present Murthy enjoys the friendships built over the past years through the IIScAANA and he is an active member of IIScAANA SoCal Chapter, focusing on "bringing education and resources to enable and empower children at every corner of the society"

Giving back to the society where we live and where we were nurtured and educated - is the driving force behind Murthy's dedication to IIScAANA.

**Dr. Govindasamy Mugesh, IISc**



Dr. Govindasamy Mugesh (b. 1970) received his B.Sc. (1990) and M.Sc. (1993) degrees from the University of Madras and Bharathidasan University, respectively. He obtained his Ph.D. (1998) at the Indian Institute of Technology, Bombay, under the supervision of Prof. Harkesh B. Singh. In 2000, he joined the group of Prof. Wolf-Walther du Mont at the Technical University, Braunschweig, Germany as an Alexander von Humboldt fellow. In 2001, he moved to USA to work with Prof. K. C. Nicolaou at the Scripps Research Institute, San Diego, as a Skaggs postdoctoral fellow. Currently he is working as Professor at the Indian Institute of Science, Bangalore. He is an author of ~100 publications in international peer reviewed journals. He received several awards and recognitions, which include: Fellow, Royal Society of Chemistry (FRSC, 2013), Shanti Swarup Bhatnagar Prize (2012), Fellow, The National Academy of Sciences, India (2012), AstraZeneca Excellence in Chemistry Award (2012); Fellow, Indian Academy of Sciences (2012); International Advisory Board Member, ChemPlusChem, Wiley-



VCH (2012-); Editorial Board Member, Archives of Biochemistry & Biophysics, Elsevier (2012); Editorial Board Member, Journal of Chemical Sciences (2012); Chemical Research Society of India Bronze Medal (2011); IIT Bombay Research Paper Award (2011); CDRI Award for Excellence in Drug Research (2010); RSC-West India Young Scientist Award (2010); Editorial Advisory Board Member of the Open Catalysis Journal (2009-); UK-India Education and Research Initiative (UKIERI) Award (2008); TWAS Young Affiliate (2008); Swarnajayanti Fellowship, Government of India (2006-07); Editorial Board Member of the Open Enzyme Inhibition Journal (2008-); Ramanna Fellowship, Government of India (2006); Associate Editor, Bioinorganic Chemistry and Applications (2006-); IUPAC Young Chemist Award (2005).

**Panel Discussion: Building bridges, IISc, Alumni, Govt. Industry**  
**1.45 -3 PM July 21<sup>st</sup> 2013**

Moderated by **Dr. N. Balakrishnan**

**Professor Rao Tummala**

Distinguished and Endowed Chair Professor in MSE and ECE, and Founding Director of the 1st NSF ERC at Georgia Tech



**Professor Rao Tummala** is a Distinguished and Endowed Chair Professor in MSE and ECE, and Founding Director of the 1st NSF ERC at Georgia Tech. He is known as an industrial technologist, technology pioneer, and educator. Prior to joining Georgia Tech, he was an IBM Fellow, pioneering such major technologies as the industry's first plasma display and three generations of transistor integration with 100 chip modules when on chip integration failed to meet transistor integration or performance needs. He proposed system scaling with System-On-Package concept for NSF ERC, in contrast SOC being applied by the industry. As an educator, Professor Tummala was instrumental in establishing the largest Academic Center in System Scaling at Georgia Tech involving more than 200 Ph.D. students, 25 faculty from ECE, ME, MSE and CHE, and 100 companies from the US, Europe and Asia, all working together with an integrated approach to research, education and industry collaboration in ultra-miniaturized and mega-functional Smart Systems.

**Prof. Ravi Anupindi**

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Ph.D Carnegie Mellon University, Pittsburgh, PA

M.E. Indian Institute of Science (India)

B.E. (Hons) BITS, Pilani (India)



Ravi Anupindi is the David B. Hermelin Professor of Business Administration, Professor of Operations Management and Academic Director for the Master of Supply Chain Management Program at the Stephen M. Ross School of Business at the University of Michigan Ann Arbor. Prior to joining the University of Michigan in 2002, he taught at the Stern School of Business, New York University (2000-2002) and the Kellogg Graduate School of Management, Northwestern University (1993-2000). He was a visiting scholar at the Graduate School of

Business, Stanford University (Fall 2010) and at the Indian School of Business, Hyderabad, India (Winter 2011).

Ravi's main research areas include supply chain management, strategic sourcing, supply chain risk management, lean operations, supply chain sustainability, value chains for economic development and global health care delivery. His current projects include decision models for commodity operations, supply chain risk management maturity framework, voluntary producer responsibility for sustainability, and health care delivery issues in TB, Malaria, and vaccines. His work has appeared in several leading academic journals including *Management Science*, *Operations Research*, *Journal of MSOM*, *Marketing Science*, and *Proceedings of the National Academy of Sciences*. He serves on the editorial boards of a *Operations Research*, *Journal of MSOM*, and *Journal of POMS*.

He is the co-author of a textbook, *Managing Business Process Flows* (3rd Edition), Prentice Hall, 2011; the book is used as text for core operations management classes in several leading business schools.

At the Ross school he has taught MBA level classes in operations management (core), strategic sourcing, global supply chain management, innovations in global healthcare delivery, and doctoral seminar classes in supply chain sustainability and global health supply chains. He teaches in several open and custom executive education programs. He was the director of the *Leadership in Plant Operations* program for executives. He has worked with several companies on various issues in operations and supply chain, sourcing, supply chain visibility and traceability and new product launch processes. Under a USAID grant, he has assisted University of Johannesburg in South Africa develop a graduate degree program in Supply Chain Management.

Ravi is a member of Institute for Operations Research and Management Science (INFORMS), Production and Operations Management Society (POMS), Council for Supply Chain Management Professionals (CSCMP), Institute for Supply Management (ISM), Supply Chain Thought Leaders (SCTL) group, Supply Chain Risk Leadership Council (SCRLC), and the Global Health Supply Chain Consortium (GHSCC). He is a member of the advisory board for the *People That Deliver Initiative* for Global Health, and President-elect of the POMS College of Supply Chain Management. At the University of Michigan, he serves as Chair of the President's Advisory Committee on Labor Standards and Human Rights. He also served on the Executive Committee of the Ross School of Business.

**Prof. S.K. SATHEESH**

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(Residence)

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Centre for Atmospheric & Oceanic Sciences, Indian  
Institute of Science



Prof. Satheesh has made original contributions to the science of atmospheric aerosols and their radiative impact. The importance of aerosols and their impact on both regional and global climate through different mechanisms is well recognized by the international community. However, climate impact of aerosols is still uncertain. It is imperative that relevant aerosol quantities are to be measured from ground, aircraft and space and used to carefully to answer crucial questions related to the impact of aerosols on climate change. With an objective to characterize aerosols and assessing their radiative impacts, Prof. Satheesh has established an aerosol-climate observatory at the Indian Institute of Science, Bangalore with a number of sophisticated instruments for the measurements of climate sensitive parameters of aerosols, along with surface radiation. This lab has now grown to a well reputed lab for aerosol research

and is currently involved in conducting large scale field campaigns over the Indian region, as well as in designing and developing satellite sensors [jointly with Indian Space Research Organization (ISRO)]. Prof. Satheesh is also involved in the development of laboratory-based instruments to study the optical and radiative properties of aerosols. Similar observatories are also being maintained and operational at Minicoy, part of Lakshadweep group of islands and Port Blair, part of Andaman Nicobar islands using a sub set of the above instruments. In addition, field experiments are being conducted by his research group onboard research ships (onboard R/V Sagar Kanya of Department of Earth Sciences) and research aircrafts.

Prof. Satheesh was an integral part of several recent national and international field experiments. Most recent one was the ISRO sponsored ICARB (integrated Campaign for Aerosols, gases and Radiation Budget). The national aircraft campaigns as part of ICARB, carried out in 2006 and 2008, in which Prof. Satheesh was the Chief Mission Scientist was considered a benchmark in scientific planning, meticulous execution and creative data analysis and interpretation. As part of the national aircraft campaign, Prof. Satheesh has made exhaustive measurements of the vertical distribution of composite aerosols (microphysical and optical properties) and aerosol black carbon in the atmosphere using a suite of instruments. This includes a down-looking micro pulse lidar (MPL), in a research aircraft. This has led to the discovery of the prevalence of elevated absorbing aerosol layers over the Indian mainland and a strong northward gradient in its position and its absorption characteristics during summer and pre-monsoon seasons.

It is known that when the amount of absorbing aerosols such as BC are significant, aerosol optical depth and chemical composition are not the only determinants of aerosol radiative effects, but the altitude of the aerosol layer and its altitude relative to clouds (if present) are also important. This is particularly important when elevated absorbing aerosols are present in a partly cloudy/cloudy atmosphere. To study this aspect, we have used a multi-satellite approach to quantify the direct, top-of-atmosphere radiative effect of aerosol layers advected over the partly cloudy boundary layer of the southeastern Atlantic Ocean. We have shown that the warming effect of aerosols increases with underlying cloud coverage. This relationship was found nearly linear, making it possible to define a critical cloud fraction at which the aerosols switch from exerting a net cooling to a net warming effect. He also found that the critical cloud fraction is sensitive to the amount of solar radiation the aerosols absorb and the albedo of the underlying clouds. Even though direct measurements as part of field campaigns can provide aerosol absorption on a localized manner, satellite remote sensing stands a better option (even with the inherent limitations) in a regional or global scenario.

Based on measurements made at several surface observatories, Prof. Satheesh reported large discrepancies exists between the measured and modeled aerosol-induced surface changes in irradiance over Indian region even though model employed measured aerosol microphysical properties. This raised an important question. How representative are the modeled (even if used measured aerosol microphysical and optical properties as input) aerosol radiative impact assessments over India made in the past? Prof. Satheesh intelligently synthesized laboratory measurements with and model simulations as well as field experiments and provided a new hypothesis to resolve the issue of this 'anomalous' absorption paradox. He demonstrated that describing state of mixing of aerosol in models is important over Indian region (where natural and anthropogenic aerosols coexist) in order to make accurate assessment of their radiative impact.

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# Indian Institute of Science Alumni Global Conference 2013

## Participants' List

### Keynote speakers

Dr. R. Chidambaram, Principal Sci. Advisor to Govt. of India  
Dr. P. Balaram, Director of Indian Institute of Science  
Dr. N. Balakrishnan, Associate Director of Indian Institute of Science  
Dr. Eric Isaacs, Director of Argonne National Laboratory, Chicago, IL  
Mr. S. Ram Dorai, Adviser to the Prime Minister of India in the National Council on Skill Development  
Dr. Ramamoorthy Ramesh-Deputy Director, Oak Ridge National Laboratory

### List of IISc faculty who will be attending the conference

In addition to the Director (Prof. P. Balaram) and Associate Director (Prof. N. Balakrishnan), following faculty from IISc will be attending the conference

Prof. Usha Vijayaraghavan, Molecular and Cell Biology  
Prof. Dipankar Nandi, Biochemistry  
Prof. Vijayalakshmi Ravindranath, Centre for Neuroscience  
Prof. P.B. Seshagiri, Molecular Reproduction Development and Genetics  
Prof. G. Mugesh, Inorganic and Physical Chemistry  
Prof. Biman Bagchi, Solid State and Structural Chemistry Unit  
Prof. N Ravishankar, Materials Research Centre  
Prof. S Ramakrishnan, Inorganic and Physical Chemistry  
Prof. Anurag Kumar, Electrical Communication Engineering (Chairman, Division of Electrical Sciences)  
Prof. R Sundaresan, Electrical Communication Engineering  
Prof. Vikram Jayaram, Materials Engineering  
Prof. Pradip Dutta, Mechanical Engineering  
Prof. Rudra Pratap, Centre for Nanoscience and Engineering  
Prof. H R Krishnamurthy, Physics  
Prof. G Rangarajan, Mathematics  
Prof. S Asokan, Instrumentation and Applied Physics and the Robert Bosch Centre for Cyber Physical Systems  
Prof. S. Gopalakrishnan, Aerospace Engineering  
Prof. B. N. Raghunandan, Aerospace Engineering  
Prof. K. Gopinath, CSA

### Distinguished Alumni

Dr. R. Chidambaram, Principal Scientific Advisor to Govt. of India  
Dr. Swaminatha Reddy, SP Systems, Inc.  
Dr. Rao Tummala, Georgia Tech.  
Dr. Rakesh Kapania, Virginia Tech  
Dr. Umeshwar Dayal, Hitachi  
Dr. Brij Moudgil, Univ. of Florida

## Attendees

Suresh Munagala  
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Muthu Sivarajan  
Vasuki Arumugam  
Muralidhar Ghantasala  
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