

**Science and Technology for Human Development**

**102<sup>nd</sup> Indian Science Congress 2015**  
**3 – 7 January 2015**

**Indian Science Congress Association**

**PROGRAMME**

**Public, Plenary, Special Sessions**  
**Sectional Programmes**



**Hosted by**  
**University of Mumbai**



# **PART – I**

## **Public, Plenary, Special Sessions**



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Schedule of Saturday, 3 <sup>rd</sup> January, 2015		
Time	Programme	Venue
09:00 am to 11:30 am	Inaugural Session	Main Pandal (MP)
11:30 am to 12:00 Noon	Exhibition-Inaugural Session	MMRDA Ground
12:00 Noon to 12:45 pm	Plenary Session: Mars Mission ✓ K Radhakrishnan	Main Pandal (MP)
12:50 pm to 01:30 pm	Plenary Session: International Academies Speakers ✓ ChunliBai ✓ Alexander O Gliko	Main Pandal (MP)
01:30 pm to 02:30 pm	LUNCH	
02:30 pm to 04:30 pm	Plenary Session: Mathematics and Computing ✓ S R S Vardhan, Abel Prize (2007) ✓ SubhashKhot, Rolf Nevanlinna Prize (2014) ✓ ManjulBhargava, Fields Medalist (2014) ✓ Madhu Sudan, Rolf Nevanlinna Prize (2002)	Alkesh Dinesh Modi Auditorium (ADMA)
03:00 pm to 05:00 pm	Public Outreach Session: ✓ Chair: Minister of Science & Technology, ✓ Co-chair: Principal Scientific Advisor, Gol, ✓ Panelists : All Secretaries & Chairpersons of Science Departments	Main Pandal (MP)
05:00pm to 06:15pm	✓ Randy Schekman, Nobel Laureate ✓ Sabeeha Merchant, Univ of California, Berkeley, USA	Sports Complex (SPC)
06:15pm to 07:00pm	✓ Muhammad Yunus, Nobel Laureate	Main Pandal (MP)
07:00 pm to 08:00 pm	Cultural Program	
07:30 pm to 09:00 pm	Dinner	

### Schedule of Sunday, 4<sup>th</sup> January, 2015

Parallel Session→	I	II	III	IV	V	VI	VII
S.No./ Timing ↓	Venue: KKBS-001	Venue: ADM	Venue: PMB-9A	Venue: NS-118	Venue: GT-001	Venue: SRC-114	Venue:SPC
	09:15am -10:00 am Ada E Yonath Nobel Laureate	09:15 am to 11:15 am Science and Technology in SAARC Countries	10:15 am to 01:30 pm Recent Progress and Future Prospective for Stress Tolerance in Plants	10:15 am to 01:30 pm Nutrition & Health	09:15 am to 11:15 am Science & Interface	10:15 am to 01:30 pm Environmenta I Health	9:30 am to 01:30 pm Ancient Sciences through Sanskrit
11:15 to 11:30 am	10:15 am to 01:30 pm Emerging Frontiers in Nuclear Magnetic Resonance and its Applications	TEA BREAK		TEA BREAK			
11:30 am to 01:30 pm		Mega Science Projects in Astronomy		11.30 am to 01.30 pm Number Theory Venue: DB-204	Advances in Computation of Electronic Structure ACES-2015		
03:30 pm to 5:15pm	Swachh Bharat: The Role of Science, Technology & Innovation R A Mashelkar Venue: Main Pandal (MP)						
5:30 pm to 6:15 pm	Evening Public Lecture Atsuto Suzuki						
6:15 pm to 7:00 pm	Paul Nurse, Nobel Laureate Venue: Sports Complex (SPC)						

Schedule of Monday, 5 <sup>th</sup> January, 2015							
Parallel Session→  S.No./ Timing ↓	I Venue: ADM	II Venue: CDD-009	III Venue: GT-001	IV Venue: PMB-9A	V Venue: NS-118	VI Venue: SPC	VII Venue: SRC-114
09:15 am to 11:15 am	Biodiversity Conservation -Current Issues and Way Forward	Health & Development	Holistic Approach to Atomic Energy- Present and Future	Space Science and Space Technology	Internet 2025 - its impact on Research and Higher education	Tribal People's Health: Challenges for Science and Technology	GM Crops- the use of Modern Biotechnology in Agriculture
11:15 am to 11:30 am		TEA BREAK					
11:30 am to 01:30 pm		Plenary Talk by Bhatnagar Awardees ✓ Roop Mallik ✓ Pratap Raychaudhuri ✓ Anurag Agrawal	Application of Mathematical Modeling to Societal Issues	Soft Matter			
2:30 pm to 4:30 pm	Science, Technology, Engineering & Mathematics(STEM) Skill Development Chaired by R Chidambaram VENUE: Sports Complex (SPC)						
4:30 pm to 6:45 pm	Evening Public Lectures :  ✓ Bernard Bigot ✓ AbhayAshtekar ✓ Robin Warren, Nobel Laureate (Physiology/Medicine 2005) VENUE: Sports Complex (SPC)						

Schedule of Tuesday, 6 <sup>th</sup> January, 2015								
Parallel Session→  S.No./ Timing ↓	I Venue: Nano (NS-118)	II Venue: KKBS-001	III Venue: GT-001	IV Venue: ADM	V Venue: PMB-9A	VI Venue: SRC-114	VII Venue: SPC	VIII KKBS - 101
09:15 am to 11:15 am	The Dynamic Earth and its Near and Far Environment: New Paradigms	Climate Change and Society: Past, Present and Future	Agricultural Statistics	Targeting Translational & Post Translational Modification in Health and Diseases	Clean Energy systems for the future	Urban Development	Future of The Past	Aquaculture and Marine Biotechnology for Human Health
11:15 am to 11:30 am			TEA BREAK		TEA BREAK			
11:30 am to 01:30 pm			Disaster Management		High Energy Physics in 2014			
02:30 pm to 04:30 pm	Challenges for Education in Modern India Venue: Nehru Centre							
03:00 pm to 05:30 pm	Innovate and Make in India Venue: Main Pandal (MP)							
5.30 pm to 7.30 pm	Panel discussion on Focal Theme : Science & Technology for Human Development Chair : S B Nimse (General President) Venue : KaviKusumagrajBhashaSankul (Marathi BhashaBhavan) [KKBS – 001] All Sectional Presidents and Senior Academicians are invited to participate in this panel discussion.							

### Schedule of Wednesday, 7<sup>th</sup> January, 2015

Parallel Session→ S.No./ Timing ↓	I Venue: Fort Campus	II Venue: ADM	III Venue: PMB-9A
09:15am to 11:15 am	9:30 am to 01:30 pm Science and Technology for Inclusive Development	Tissue Banking & Tissue Engineering	Research needs in the field of Environmental Sciences
11:15 am to 11:30 am		TEA	
11:30 am to 01:30 Pm		Recent advances in Cancer Biology	



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**Saturday, January 3, 2015, 09:00 – 11.30 am**  
**Venue : Main Pandal (MP)**

**Inaugural Session**

**Saturday, January 3, 2015, 11:30 – 12.00 noon**  
**Venue : Main Pandal (MP)**

**Inauguration of Exhibition**

**Saturday, January 3, 2015, 12:00 – 12.45 pm**  
**Venue : Main Pandal (MP)**

**Plenary Session**

**Mars Mission**

**Chairperson**     **Pramod Kale**

**Speaker**         **K Radhakrishnan**  
Chairperson, Indian Space Research Organization

***"Mars Mission"***

**Liaison Officer:** S K Ukarande

**Saturday, January 3, 2015, 12:50 – 01.30 pm**  
**Venue : Main Pandal (MP)**

**Plenary Session**

**Role of Science Academies in Advancements of Science**

**Chairperson**     **M Barma**

**Speakers**         **Chunli Bai**  
President, Chinese Academy of Sciences. The World Academy of Sciences TWAS-for the advancement of science in developing countries

***"A General Overview on Nanoscience and Nanotechnology Research in China"***

**Alexander Ogluko**

Academician-Secretary of the Department of Earth Sciences, Russian Academy of Sciences

***"Natural Hazards Study in Russia: From Observations to Understanding"***

**Liaison Officer:** Anuradha Misra



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**Saturday, January 3, 2015, 02:30 pm to 04:30 pm**  
**Venue : Alkesh Dinesh Modi Auditorium (ADM)**

**Plenary Session**

**Mathematics and Computing**

**Convener**      **S R S Varadhan**

**Chairperson: S B Nimse**

**Speakers**      **S R S Varadhan**

Abel Prize (2007), Dept. of Mathematics, New York University, USA

***"Entropy and Probability"***

**Manjul Bhargava**

Fields Medalist (2014), Dept. Mathematics, Princeton University, USA

***"Recent Advances in Number Theory"***

**Subhash Khot**

Rolf Nevanlinna Prize (2014), Dept. of Computer Science, New York University, USA

***"Frontiers in Theoretical Computer Science"***

**Madhu Sudan**

Rolf Nevanlinna Prize (2002), Microsoft Research New England, One Memorial Drive  
Cambridge, MA 02142, USA

***"Reliable Meaningful Communication"***

**Liaison Officer: Sudhir Ghorpade**



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**Saturday, January 3, 2015, 03:00 pm to 05:00 pm**  
**Venue : Main Pandal (MP)**

**Public Outreach Session**

**Chairperson**     **Dr. Harsh Vardhan**  
Minister of Science & Technology, Government of India

**Co-Chairperson**     **R Chidambaram**  
Principal Scientific Advisor to the Government of India

**Speakers**     **All Secretaries of Science Departments**

**K VijayRaghavan**  
Secretary, Department of Biotechnology (DBT), Government of India and  
Secretary, Department of Science & Technology (DST), Government of India

**KRadhakrishnan**  
Chairperson, Indian Space Research Organization (ISRO)

**V M Katoch**  
Director General, Indian Council of Medical Research (ICMR)

**ShaileshNayak**  
Secretary, Ministry of Earth Sciences and Chairperson, Earth Commission

**R K Sinha**  
Secretary, Department of Atomic Energy (DAE), and Chairperson, Atomic Energy Commission

**P S Ahuja**  
Director-General , Council of Scientific and Industrial Research (CSIR)

**S Ayyapan**  
Secretary, Department of Agricultural Research and Education (DARE) and  
Director General, Indian Council of Agricultural Research (ICAR)

**AvinashChander**  
Secretary, Defence Research and Development Organisation (DRDO)

**Coordinator**     **ShaileshNayak**  
Secretary, Ministry of Earth Sciences and Chairperson, Earth Commission

**Liaison Officer: A K Srivastava**



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**Saturday, January 3, 2015, 05:00 pm to 06:15 pm**  
**Venue : Sports complex (SPC)**

**Symposium**  
**Plenary Session**

**Chairperson**     **Manju Sharma**

**Speakers**        **Randy Schekman**

Nobel Prize in Physiology or Medicine 2013

Department of Molecular & Cell Biology, University of California, Berkeley, USA

***"How cells export proteins"***

**Sabeeha Merchant**

Department of Molecular and Cell Biology, University of California, Berkeley, USA

***"Selective sub-cellular visualization of trace metals identifies dynamic sites of Fe and Cu accumulation in Chlamydomonas"***

**Liaison Officer: D C Kothari**

**Saturday, January 3, 2015, 06:15 pm to 07:00 pm**  
**Venue : Main Pandal (MP)**

**Evening Public Lecture**

**Chairperson**     **Anil Kakodkar**

**Speakers**        **Muhammad Yunus**

Nobel Peace Prize (2006)

***"Social Business, Science Technology for Peace"***

**Liaison Officer: Shubhada Joshi**

**Science and Technology for Human Development**

# **102<sup>nd</sup> Indian Science Congress 2015**

**SYMPOSIA PROGRAMME OF 04 JANUARY 2015**



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Sunday, January 4, 2015, 9:15 am – 11.15am  
Venue : Green Technology Auditorium (GT-001)

Symposium

Session: Science & Interface

Convener Haiwon Lee

Chairperson RajpalS Hande

Speakers

**Haiwon Lee**

President of Korea Nanotechnology Research Society, Seoul, South Korea

*"Talent mobility and global research networking in science and technology"*

**Kyung-Ho Shin**

Director General of Technology Policy Research Institute/Korea Institute of Science and Technology, Seoul

*"Bridge program for the crystallization of science and technology"*

**Paul Jeong**

Director General, Institute of Science & Technology Management, Christ University, Bangalore

*"Science business showcase in Korea : PE-IGCC"*

**MichielKolman**

Senior Vice President, Global Academic Relations

*"India's Research Performance compared to peers with specific focus on the Rankings of the Indian Institutions"*

**A S Kolaskar**

Consultant internet2, USA and Mentor The Neotia University

*"Science for development and development for science"*

Coordinator H Muthurajan



Sunday, January 4, 2015, 10:15 am – 01.30 pm  
Venue : Phirozshah Mehta Bhawan (PMB-9A)

Symposium

Session: Recent Progress and Future Prospective for Stress Tolerance in Plant

Convener C S Nautiyal

Chairperson C R Bhatia

Speakers

**AsisDatta**

Emeritus Professor, National Centre for Plant Genome Research, New Delhi

*“Genetic Engineering for Stress Tolerance and Nutritional Enrichment of Crops”*

**ASRaghvendra**

Coordinator, School of Life Sciences, University of Hyderabad

*“Photorespiration is a Part of Plant Response to Abiotic Stress”*

**J P Khurana**

Coordinator & Head, Dept. of Plant Molecular Biology, University of Delhi

*“Functional Genomics for Identifying Genes Associated with Abiotic Stress Response in Rice”*

**L C Rai**

Coordinator & Head, Dept. of Botany, Banaras Hindu University, Varanasi

*“Unveiling Arsenic Toxicity in Anabaena PCC7120 through Proteomics, Genomics and Bioinformatics”*

**M V Rajam**

Head and Coordinator, Department of Genetics, Delhi University, New Delhi

*“Engineering Biotic Stress Tolerance in Tomato by RNA Interference”*

**P S Ahuja**

Director General, Council of Scientific & Industrial Research, New Delhi

*“Role of Anti-Oxidant Genes in Imparting Stress Tolerance in Plants”*

Coordinator SasikumarMenon



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**Sunday, January 4, 2015, 09:15 am – 11.15 am**

**Venue : Alkesh Dinesh Modi Institute (ADM)**

**Symposium**

**Session: Science and Technology in SAARC Countries**

**Convener**     **Rajiv K Saxena**

**Chairperson**     **R Gadagkar**

**Speakers**     **A M Mubarak** (Sri Lanka)

Vice President, National Academy of Sciences, Sri Lanka

***“Technology Capacity-Building, Promotion and Management of Innovation”***

**V M Katoch**(India)

Director General, Indian Council of Medical Research (ICMR)

**Sameer M Dixit** (Nepal)

Country Director & Public Health Biomedical Scientist, Center for Molecular Dynamics, Nepal

***“Science and Technology in SAARC Region for the future: Lessons from Nepal”***

**R K Saxena**

Vice President, South Asian University, New Delhi

***“Need for a forum for biologist and biotechnologists in South Asia”***

**Coordinator**     **Sanjay Deshmukh**



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Sunday, January 4, 2015, 10:15 am – 1.30am  
Venue : National Centre for Nanoscience and Nanotechnology (NS-118)

Symposium

Session: Nutrition & Health

Convener PrabhakarRanjekar

Chairperson R. Ramamurthy

Speakers Gabriel Fernandes

Health Science Center, Department of Medicine, San Antonio, TX, USA

*"Protective Role of N-3 Fatty Acids during Health and Disease"*

Anil D Kulkarni

Professor of Surgery, University of Texas Medical School, Houston, TX, USA

*"Immunonutrition, Functional Foods, and Global Health projects in resource limited settings"*

UmeshKapil

Department of Human Nutrition, All India Institute of Medical Sciences, New Delhi

*"Current Evidence of Successful Food Fortification Program in India"*

A Laxmaiah

Sr. Deputy Director, National Institute of Nutrition, Indian Council of Medical Research, Hyderabad

*"Dietary Risk Factors for Non Communicable Diseases"*

Sadhana Joshi

Head, Dept of Nutritional Medicine, BharatiVidyapeeth Deemed University, Pune

*"Maternal Nutrition and its effect on health in the next generation"*

Harish Pant

Distinguished Senior Scientist, National Institute of Neurological Disorders and Stroke, National Institutes of Health, Bethesda, Maryland, USA

*"Novel peptides ameliorate neurodegenerative disease and prolong life in Alzheimer's and motor neuron disease in model mice"*

Arvind Kumar Shukla

Indian Institute of Soil Science, Bhopal, Madhya Pradesh

*"Micronutrients and human/animal health: A way out through soil-plant system"*

Coordinator LaxmiMenon

Sunday, January 4, 2015, 09:15 am – 10.00 am  
Venue : KaviKusumagrajBhashaSankul (KKBS-001)

Plenary Session

Chairperson Geetha Bali

Speakers Ada E Yonath

Nobel Laureate (Chemistry 2009)

The Martin S. and Helen Kimmel Professor of Structural Biology, Weizmann Institute of Science  
Rehovot, Israel

*"Ribosomes, Resistance to Antibiotics and Origin of Life"*

Liaison Officer: A V Karnik



Sunday, January 4, 2015, 10:15 am – 01.30 pm  
Venue : KaviKusumagrajBhashaSankul (KKBS-001)

Symposium

Session: Emerging Frontiers in Nuclear Magnetic Resonance and its Applications

Convener&Chairperson:R V Hosur

Speakers

**P K Madhu**

Tata Institute of Fundamental Research (TIFR), Mumbai

*"Probing Amyloid- $\beta$  fibrils and transient oligomers with solid-state NMR"*

**AshishArora**

Central Drug Research Institute (CDRI), Lucknow

*"Solution structures and dynamics of Actin Depolymerization Factors/Cofilins and homologous proteins"*

**Hanudatta S Atreya**

NMR Research Centre, Indian Institute of Science (IISc), Bengaluru

*"Fast NMR spectroscopy for probing structure and dynamics of biomolecules"*

**T S Mahesh**

Indian Institute of Science Education and Research (IISER), Pune

*"Nuclear Spins as Quantum Testbeds: Progress and Prospects"*

**SubhashKhushu**

Institute of Nuclear Medicine & Allied Sciences (INMAS), New Delhi

*"New Frontiers in NMR Imaging: Application to Cognitive Neuroscience"*

**Pushpa Mishra**

Department of Chemical sciences, Tata Institute of Fundamental Research (TIFR), Mumbai

*"Structure and Dynamics of Plasmodium falciparum P2 homo-tetramer"*

**Himanshu Singh**

Departments of Chemical Sciences, Tata Institute of Fundamental Research (TIFR), Mumbai

*"Visualization of green micro-alga Chlamydomonas reinhardtii by Nuclear Magnetic Resonance"*

**R V Hosur**

*"Concluding remarks"*

Coordinator **NeerajAgarwal**



Sunday, January 4, 2015, 9:30 am – 01.30 pm  
Venue : Sports Complex (SPC)

Symposium

Session: Ancient Sciences through Sanskrit

Convener & Chairperson: Uma Vaidya

Speakers

**Uma Vaidya**

Vice Chancellor, Kavikulaguru Kalidasa Sanskrit University

**Prakash Javadekar**

Union Minister of State, Information and Broadcasting (Independent Charge), Environment, Forest and Climate Change (Independent Charge) and Parliamentary Affairs

**Vijay Bhatkar**

Founder Chancellor, Multiversity and National President, Vijnana Bharati

**Gauri Mahulikar**

Associate Professor and Head, Department of Sanskrit, University of Mumbai

*"Ancient Indian Sciences"*

**Ashok S Nene**

Professor of Civil Engineering (Retd), VNIT Nagpur

*"Engineering Applications of Ancient Indian Botany"*

**Veena Londhe**

Ex. S.A. Dange Professor, Department of Sanskrit, University of Mumbai

*"Neuro Science of Yoga: Understanding the Process – Part A"*

**Leena Phadke**

Associate Professor, Smt Kashibai Navale Medical College, Pune

*"Neuro Science of Yoga: Understanding the Process – Part B"*

**Captain Bodas<sup>1</sup> and Ameya Jadhav<sup>2</sup>**

<sup>1</sup>Retired Principal, Pilot Training Centre

<sup>2</sup>Lecturer, Swami Vivekanand International School and Junior College

*"Ancient Indian Aviation Technology"*

**Ashwin Sawant**

*"Advances in surgery in ancient India"*

**Asawari Bapat**

Visiting Faculty, Department of Sanskrit, University of Mumbai

*"Scientific Principles of Ancient Indian Architecture and Civil Engineering"*

**Rahul V Altekar**

Consultant

*"Scientific Principles of Ancient Indian Architecture and Civil Engineering"*

**Binny Sareen**

Spiritual Counseling & PR & Media at Global Hospital

*"Science and Spirituality"*

Coordinator **Gauri Mahulikar**



Sunday, January 4, 2015, 11:30 am – 01.30 pm  
Venue : Green Technology Auditorium (GT-001)

**Symposium**

**Session: Advances in Computation of Electronic Structure ACES-2015**

**Convener & Chairperson : S R Gadre**

**Speakers**

**Kimihiko Hirao**

RIKEN, Advanced Institute for Computational Science, Minatojima-minami, Chuo, Kobe, Japan  
*"The K Computer and Computational Chemistry"*

**Stefan Grimme**

Chair of Theoretical Chemistry, Mulliken Center for Theoretical Chemistry, University of Bonn, Germany  
*"Quantum Chemistry for Supramolecular Complexes"*

**Walter Thiel**

Max Planck Institute for Coal Research, Mülheim an der Ruhr, Germany  
*"Chemistry with the Computer"*

**H Bernhard Schlegel**

Professor of Chemistry, Wayne State University, Detroit, Michigan, USA  
*"Computational simulation of molecules interacting with intense laser fields: A new frontier in chemistry and physics"*

**Coordinator : Sanjeev Chacko**



Sunday, January 4, 2015, 11:30 am – 01.30 pm  
Venue : Alkesh Dinesh Modi Institute (ADM)

Symposium

Session: Mega Science Projects in Astronomy

Convener&Chairperson: AjitKembhavi

Speakers

**AbhayAshtekar**

Director, Institute for Gravitation and the Cosmos, Pennsylvania State University Park, PA, USA

*"The Very Early Universe Origin of Space, Time and the Large Scale Structure"*

**Yashwant Gupta**

Dean, GMRT Observatory & Senior Professor, National Centre for Radio Astrophysics (NCRA), Tata Institute of Fundamental Research, Ganeshkhind, Pune

*"Square Kilometre Array : The Radio Telescope Mega-Project"*

**S Seetha**

Space Science Office, ISRO Headquarters, AntarikshBhavan, Bengaluru

*"ASTROSAT: the large Multiwavelength Indian Satellite Mission"*

**TarunSouradeep**

Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune

*"LIGO-India: An Indian adventure in Gravitational wave astronomy"*

**Eswar Reddy**

Indian Institute of Astrophysics (IIA), Koramangala, Bangalore

*"India's Participation in the Thirty Meter Telescope International Observatory"*

Coordinator **Gargi Shaw**



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Sunday, January 4, 2015, 10:15 am – 01.30 pm  
Venue : Shankar RaoChavan Auditorium (SRC-114)

Symposium

Session: Environmental Health

Convener P K Seth

Chairperson V M Katoch

Speakers V M Katoch

Secretary, Department of Health & Director General, Indian Council of Medical Research, New Delhi

**Habibullah Saiyed**

Former Director, National Institute of Occupational Health (ICMR), Ahmedabad

*“Male Reproductive Development Effects of Endosulfan and Lead in School Children”*

**ATK Rau**

Consultant – Pediatrics, M S Ramaiah Memorial Hospital, MSRIT Post, Bangalore

*“Environmental Toxins and Child Health – Where are we today?”*

**D N GuhaMazumder**

Prof. & Head, Dept. of Medicine & Gastroenterology, (Retd.), Institute of Post Graduate Medical Education & Research (IPGME&R), Kolkata

*“Effect of Drinking Arsenic-Contaminated Water in Children”*

**Kannan Krishnamurthi**

Principal Scientist, National Environmental Engineering Research Institute, Nehru Marg, Nagpur

*“Evaluation of endocrine disruptors (pesticides), their influence on environmental health using exposure and effect biomarkers”*

Coordinator Jayaraj Nair



Sunday, January 4, 2015, 11:30 am – 01.30 pm  
Venue : Dept. of Mathematics, DynaneshwarBhawan, 2<sup>nd</sup> Floor Seminar Hall (DB-204)

Symposium

Session: Number Theory

**Convener** J K Verma **Chairperson** Ravi Rao

**Speakers** **M Ram Murty**  
Queens Research Chair, Head, Dept of Mathematics & Statistics, Ontario, Queen's University, Canada  
*"Mathematics and Technology"*

**Dinesh Thakur**  
Department of Mathematics, University of Rochester, USA  
*"Automata and Number theory"*

**Mahesh Kakade**  
Department of Mathematics, Kings College, London

**Holowsinsky Roman**  
Department of Mathematics, Ohio State University, USA  
*"Advancements in applications of the delta-method in Number Theory"*

**Coordinator** Rajendra P Deore

Sunday, January 4, 2015, 03:30 – 05.15 pm  
Venue : Main Pandal (MP)

Session

Swachh Bharat: The Role of Science, Technology & Innovation

**Convener & Chairperson** : R A Mashelkar

**Speakers** **Sudheendra Kulkarni**  
Chairperson, Observer Research Foundation, Mumbai  
*"Mahatma Gandhi as the Pioneer and Inspirator of Swachh Bharat"*

**Rajeev Kher**  
CEO, 3S & Sara Plast Pvt Ltd, Pune  
*"Sustainable sanitation solutions for Rurban and transient India"*

**Pradeep Lokhande**  
Founder, Rural Relations, Pune

**Swapnil Chaturvedi**  
CEO, Samgra, Pune  
*"Psychology and Technology for Clean(er) India"*

**Uday Salunkhe**  
Group Director, S.P. Mandali's Prin. L.N. Welingkar Institute of Management Development & Research

**Coordinator** Gautam Gawali



**102<sup>nd</sup> Indian Science Congress**  
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**Sunday, January 4, 2015, 05:30 – 6:15 pm**  
**Venue : Sports Complex (SPC)**

**Evening Public Lecture - I**

**Chairperson S Kailas**

**Speakers Atsuto Suzuki**

Director General, The High Energy Accelerator Research Organization (KEK), Japan

**Coordinator AnuradhaMisra**

**Sunday, January 4, 2015, 06:15 – 07.00 pm**  
**Venue : Sports Complex (SPC)**

**Evening Public Lecture - II**

**Chairperson Naresh Chandra**

**Speakers Paul Nurse**

Nobel Laureate (Physiology/ Medicine 2001)  
London Research Institute, London

*“Trust in Science”*

**Liaison Officer: PuneetMisra**



**Science and Technology for Human Development**

# **102<sup>nd</sup> Indian Science Congress 2015**

**SYMPOSIA PROGRAMME OF 05 JANUARY 2015**



Monday, January 5, 2015, 09:15 – 01.30 pm  
Venue : Alkesh Dinesh Modi Auditorium (ADM)

Symposium

Session: Biodiversity Conservation-Current Issues and Way Forward

Convener	R Rammurthi	Chairperson	R C Sobti
Speakers	<b>Hem Pande</b> Chairperson, NBA, Chennai <i>"Overview of Biodiversity Governance in India"</i>		
	<b>R Ramamurthi</b> ISCA EC Member, INSA Scientist, S. V. University, Tirupati <i>"Aichi targets and Education for Sustainable Development"</i>		
	<b>J K Mishra</b> Department of Ocean Studies and Marine Biology, Pondicherry University <i>"Marine Biodiversity: Its Promises and Strategies for their Conservation"</i>		
	<b>W S Lakra</b> Central Institute of fisheries Education, Mumbai <i>"Aquatic Biodiversity Conservation : Issues And Strategies"</i>		
	<b>S Subramaniyan</b> Member, NBA, Chennai <i>"Traditional Knowledge and SHG"</i>		
	<b>Krishna Dronamraju</b> Michele Wambaugh, Foundation for Genetic Research, Houston, TX, USA <i>"Conservation of Biodiversity "hot spots" with special reference to Remote Sensing"</i>		
	<b>Pudur Jagadeeswaran</b> Department of Biological Sciences, University of North Texas, Denton TX76203, USA <i>"Unity in Biodiversity: Genome-Wide Knockdowns in Zebrafish to Study Thrombocyte Function"</i>		
	<b>Paramjit Singh</b> Director, BSI, Kolkata <i>"Plant Scape Issues in India And Conservation Strategies"</i>		
Coordinator	S S Barve		



**102<sup>nd</sup> Indian Science Congress**  
**3 – 7 January 2015**



**Monday, January 5, 2015, 09:15 – 11.15am**  
**Venue : Sports Complex (SPC)**

**Symposium**

**Session: Tribal People's Health: Challenges for Science and Technology**

<b>Convener</b>	<b>Abhay Bang</b>	<b>Chairperson</b>	<b>SnehlataDeshmukh</b>
<b>Speakers</b>	<b>Neeru Singh</b> Director, National Institute of Research in Tribal Health (NIRTH), Jabalpur <i>"High priority diseases in ST population awaiting solutions"</i>		
	<b>ChanderShekhar</b> International Institute for Population Sciences, Mumbai <i>"Population and Health Situation of India's Scheduled Tribe Population: Opportunities and Challenges in 21st Century"</i>		
	<b>A Laxmaiah</b> Scientist –F & Head, Division of Community Studies, National Institute of Nutrition, ICMR Hyderabad <i>"Nutritional problems in tribal population in India and awaiting solutions"</i>		
	<b>Abhay Bang</b> Director, SEARCH, Gadchiroli, Maharashtra <i>"Tribal Friendly Health Care : Taking health sciences to the tribal people"</i>		
	<b>VivekSawant</b> Managing Director, Maharashtra Knowledge Corporation Limited, Pune <i>"How to bridge the educational gap in ST population using IT ?"</i>		
	<b>V M Katoch</b> Secretary, Dept of Health Research, Govt. of India and Director General ICMR, New Delhi <i>"A Research Agenda for the Scientists"</i>		
<b>Coordinator</b>	<b>JyotosanaDongerdiva</b>		



**102<sup>nd</sup> Indian Science Congress**  
**3 – 7 January 2015**



**Monday, January 5, 2015, 09:15 – 11.15 am**  
**Venue : Green Technology Auditorium (GT-001)**

**Symposium**

**Session: Holistic Approach to Atomic Energy- Present and Future**

**Convener & Chairperson: Anil Kakodkar**

**Speakers**

**S P Sukhatme**

Professor Emeritus, Indian Institute of Technology, Powai

***“India's Future Needs of Electricity”***

**Shekhar Basu**

Bhabha Atomic Research Centre, Mumbai

***“Applications of Atomic Energy in Service of the Nation”***

**Dhiraj Bora**

Director, Institute for Plasma Research, Bhat, Gandhinagar, Gujarat

***“Fusion – An alternate source of energy”***

**R K Sinha**

Department of Atomic Energy, Mumbai

***“Multi-dimensional aspects of atomic energy for human development”***

**Bernard Bigot**

Chairperson, French Alternative Energies and Atomic Energy Commission

***“Atomic Energy for Holistic Human Development: Present & Future”***

**Arunabha Ghosh**

Council on Energy, Environment and Water

**Coordinator**

**Nainesh Patel**

**Monday, January 5, 2015, 09:15 – 11.15 am**  
**Venue : Phirozshah Mehta Bhawan (PMB-9A)**

**Symposium**

**Session: Space Science and Space Technology**

**Convener**

**K Sivan**

**Chairperson**

**D Narayan Rao**

**Speakers**

**S Arunan**

Project director, Mars orbiter mission, Project director, ISAC

***“Mars orbiter mission”***

**M Nageswara Rao**

Project director, IRNSS Space Segment & GSAT 14 Spacecraft, ISAC

***“IRNSS - Indian regional navigation satellite system”***

**S Somanath**

Project Director, GSLV MkIII & Deputy Director, VSSC

***“Beyond GSLV – Future Space Transportation Systems & Capabilities”***

**P G Diwakar**

Dy. Director, NRSC, Hyderabad

***“Space based inputs for management of natural resources: present scenario and future requirement”***

**T Srinivas Kumar**

Scientist, ESSO-INCOIS, Hyderabad

***“Space applications of Oceans”***

**Coordinator**

**Anil Raghav**



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3 – 7 January 2015



Monday, January 5, 2015, 09:15 am – 01.30pm  
Venue : National Centre for Nanoscience and Nanotechnology (NS-118)

Symposium

Session: Internet 2025 - its impact on Research and Higher education

Convener & Chairperson : Ashok Kolaskar

Speakers

**Kevin L Thompson**

Division of Advanced Cyber infrastructure, National Science Foundation, USA

*"International Research and Education Networking at the U.S. National Science Foundation"*

**Bijendra Nath Jain**

Vice-Chancellor, Birla Institute of Technology and Science, Pilani

*"The role of ICT in improving quality of instruction and in expanding opportunities for higher education in India"*

**Stephen Wolff**

Washington, DC 20036, USA

*"The Internet, Reloaded"*

**Shefali S Dash**

Deputy Director General, National Informatics Centre, Dept. of Electronics & Information Technology

*"Internet Revolution 2025: Are we ready yet?"*

**A S Kolaskar**

Consultant internet2, USA and Mentor The Neotia University

*"Case Studies of Internet Impact on Research and Education"*

**Bharat Bhasker**

Professor, IT & Systems, Indian Institute of Management, Lucknow

*"Impact of Digital Technology on Society"*

Coordinator **R Srivaramangai**

Monday, January 5, 2015, 11:30 – 01.30 pm  
Venue : Phirozshah Mehta Bhawan (PMB-9A)

Symposium

Session: Soft Matter

Convener & Chairperson: DevangKhakhar

Speakers

**Shankar Ghosh**

Tata Institute of Fundamental Research (TIFR), Mumbai

*"Driven granular matter self organizes by auto tuning of friction through switching between rolling and sliding"*

**Rajesh Ganapathy**

International Centre for Materials Science, JNCASR, Bangalore

*"Grain Boundary Dynamics in Colloidal Crystals"*

**P B Sunil Kumar**

Department of Physics, Indian Institute of Technology Madras, Chennai

*"Membrane conformational changes induced by proteins"*

**DevangKhakhar**

Director, Indian Institute of Technology, Bombay

Coordinator **ShubhaPandit**



**102<sup>nd</sup> Indian Science Congress**  
**3 – 7 January 2015**



**Monday, January 5, 2015, 9:15 – 01.30 pm**  
**Venue : Shankar RaoChavan Auditorium (SRC-114)**

**Symposium**

**Session: GM Crops - the use of Modern Biotechnology in Agriculture**

<b>Convener</b>	<b>AsisDatta</b>	<b>Chairperson</b>	<b>R S Paroda</b>
<b>Speakers</b>	<b>Bryan Delaney</b> Global Industry Affairs and Regulatory, USA <i>"Safety Assessment of Intractable Proteins from Genetically Modified Crops"</i> <b>Miguel Ángel Gómez Lim</b> Cinvestav, Unidad, Irapuato, Mexico <b>Dilip Kumar</b> Chief Technical Adviser for FAO <b>Deepak Pental</b> Department of Genetics, University of Delhi <b>Swapan Kumar Datta</b> Deputy Director General (Crop Science), Division of Crop Science, Indian Council of Agricultural Research (ICAR), New Delhi <b>AnupamVerma</b> INSA Sr. Scientist, Indian Agriculture Research Institute, New Delhi <b>JL Karihaloo</b> Coordinator of the Asia Pacific Consortium on Agricultural Biotechnology (APCoAB), New Delhi <i>"Current regional status on GM crops and biosafety regulations"</i>		
<b>Coordinator</b>	<b>Bina Punjabi</b>		

**Monday, January 5, 2015, 11:30 – 01.30 pm**  
**Venue : Green Technology (GT-001)**

**Symposium**

**Session: Application of Mathematical Modeling to Societal Issues**

<b>Convener</b>	<b>Karmeshu</b>	<b>Chairperson</b>	<b>Aparajita Ojha</b>
<b>Speakers</b>	<b>Y Narahari</b> Department of Computer Science and Automation, Indian Institute of Science, Bangalore <i>"Can we realize social goals in a modern society consisting of self-interested agents?"</i> <b>Anirban Chakraborti</b> School of Computational and Integrative Sciences, Jawaharlal Nehru University, New Delhi <i>"Opinion formation in the society using the kinetic exchange models"</i> <b>Shalabh Bhatnagar</b> Department of Computer Science and Automation, Indian Institute of Science, Bangalore <i>"Multi-Agent Reinforcement Learning Algorithms for Traffic Signal Control"</i> <b>Aparna Mehra</b> Associate Professor, Department of Mathematics, Indian Institute of Technology, New Delhi <i>"Multicriteria decision making methods in sustainability of building projects"</i>		
<b>Coordinator</b>	<b>Ancy Jose</b>		



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**3 – 7 January 2015**



**Monday, January 5, 2015, 9:15 – 11.15am**  
**Venue : C.D. Deshmukh Bhavan (Psychology Dept.,) (CDD-009)**

**Symposium**

**Session: Health & Development**

<b>Convener</b>	<b>Sandeep Kumar</b>	<b>Chairperson</b>	<b>K Shrinath Reddy</b>
<b>Speakers</b>	<b>Sandeep Kumar</b> Director, All India Institute of Medical Sciences (AIIMS), Bhopal <i>“Health and Development – Executive Summary”</i> <b>Vijayshil Gautam</b> Professor and Head, Trauma and Emergency Care, All India Institute of Medical Sciences AIIMS, Patna <i>“Road Safety &amp; Trauma Prevention”</i> <b>K Srinath Reddy</b> President, Public Health Foundation of India <i>“Non Communicable Diseases - A Threat to Health and Sustainable Development”</i> <b>Narendra Kumar Arora</b> Executive Director - International Clinical Epidemiology Network, India <i>“Economic Development And Child Health – Executive Summary”</i>		
<b>Coordinator</b>	<b>Padma Deshmukh</b>		

**Monday, January 5, 2015, 11:30 am – 1.30pm**  
**Venue : C.D. Deshmukh Bhavan (Psychology Dept.,) (CDD-009)**

**Symposium**

**Plenary talks by Bhatnagar Awardees**

<b>Convener</b>	<b>D C Kothari</b>	<b>Chairperson</b>	<b>S B Nimse</b>
<b>Speakers</b>	<b>Anurag Agrawal</b> CSIR-Institute of Genomics and Integrative Biology, Mall Road, Delhi <b>Roop Mallik</b> Department of Biological Sciences, Tata Institute of Fundamental Research, Mumbai <b>Pratap Raychaudhuri</b> Department of Condensed Matter Physics and Materials Science, TIFR, Mumbai		
<b>Coordinator</b>	<b>Puneet Misra</b>		

**Monday, January 5, 2015, 04:30 pm to 05:15 pm**  
**Venue : Sports Complex (SPC)**

**Symposium**

**Session: Evening Public Lecture - I**

<b>Chairperson</b>	<b>R K Sinha</b>
<b>Speakers</b>	<b>Bernard Bigot</b> Chairperson of the French Alternative Energies and Atomic Energy Commission (CEA)
<b>Liaison Officer:</b>	<b>Ameeya Bhagwat</b>



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**Monday, January 5, 2015, 2:30 pm – 04.30 pm**  
**Venue : Sports Complex (SPC)**

**Symposium**

**Session: Science, Technology, Engineering & Mathematics (STEM) Skill Development**

**Convener**      **MilindPimprikar**      **Chairperson**      **R Chidambaram**

**Speakers**      **R Chidambaram**  
Principal Scientific Adviser to the Government of India  
**“Integrating STEM Innovation with emerging industry needs”**

**MilindPimprikar**  
Chairperson, CANEUS (Canada-Europe-US-Asia-Africa) Organization on Micro-Nano Technologies for Aerospace & Energy Applications, and Centre for Large Space Structures & Systems, Canada

**Kristian Breton**  
Director Education and Public Programs, New York Academy of Sciences  
**“International perspective: the Global STEM Alliance and lessons learned”**

**S P Kochhar**  
Chief Executive Officer (CEO), TSSC, Skill Development Agency

**Jamshyd N Godrej**  
Chairperson and Managing Director of Godrej & Boyce

**RS Mani**  
Senior Technical Director – National Knowledge Network  
**“Indian Innovation perspective on building quality institutions and creating a pool of highly trained professionals”**

**Anil Sahasrabudhe**  
Director, College of Engineering, Pune

**Wayne Grant**  
Director, Education, Intel Corporation, California, USA

**Drew Rosen**  
Sr. Director, Cisco System, California, USA

**Deepak Thombre**  
Executive Coach, Dalmia Bharat Group

**Coordinator**      **Vijay Thombre**



102<sup>nd</sup> Indian Science Congress  
3 – 7 January 2015



Monday, January 5, 2015, 11:30 – 01.30 pm  
Venue : Phirozshah Mehta Bhawan (PMB-9A)

Symposium

Session: Soft Matter

Convener & Chairperson: DevangKhakhar

Speakers

**Shankar Ghosh**

Tata Institute of Fundamental Research (TIFR), Mumbai

*“Driven granular matter self organizes by auto tuning of friction through switching between rolling and sliding”*

**Rajesh Ganapathy**

International Centre for Materials Science, JNCASR, Bangalore

*“Grain Boundary Dynamics in Colloidal Crystals”*

**P B Sunil Kumar**

Department of Physics, Indian Institute of Technology Madras, Chennai

*“Membrane conformational changes induced by proteins”*

**DevangKhakhar**

Director, Indian Institute of Technology, Bombay

Coordinator

**ShubhaPandit**

Monday, January 5, 2015, 05:15 pm to 06:00 pm  
Venue : Sports Complex (SPC)

Symposium

Session: Evening Public Lecture - II

Chairperson **S M Chitre**

Speakers

**AbhayAshtekar**

Institute for Gravitational Physics and Geometry at Pennsylvania State University

*“Gravitation and the Cosmos 100 Years after Einstein's Discovery of General Relativity”*

Liaison Officer: RadhaSrinivasan

Monday, January 5, 2015, 06:00 pm to 07:00 pm  
Venue : Sports Complex (SPC)

Symposium

Session: Evening Public Lecture - III

Chairperson **RajanWelukar**

Speakers

**Robin Warren**

Nobel Laureate (Physiology/Medicine 2005)

Royal Perth Hospital, Australia

**Sharad Shah**

Gastroenterologist, Breach Candy Hospital, Mumbai

Liaison Officer: A K Srivastava



**Science and Technology for Human Development**

# **102<sup>nd</sup> Indian Science Congress 2015**

**SYMPOSIA PROGRAMME OF 06 JANUARY 2015**



Tuesday, January 6, 2015, 09:15 am – 01.30 pm  
Venue : National Centre for Nanoscience and Nanotechnology (NS-118)

Symposium

Session: The Dynamic Earth and its Near and Far Environment: New Paradigms

Convener & Chairperson: S Gurubaran

Speakers

**Prasad Subramanian**

Indian Institute of Science Education and Research (IISER), Pune

*“Living with our Star, the Sun”*

**V K Gaur**

Distinguished Professor CSIR-CMMACS, NAL Belur Campus, Bengaluru

*“Earthquake Hazard Assessment in the Indian Continent and A Critique of the VAN Method”*

**Lucie Rolland**

Physicienne Adjointe, Geoazur/ Observatoire de la Cote d'Azur, University of Nice, France

*“Ionospheric Seismology: Monitoring Earthquakes and Tsunamis from Space”*

**Joanna Haigh**

Professor of Atmospheric Physics, Co-Director Grantham Institute – Climate Change and Environment  
Imperial College London, London

*“Solar Variability and Climate”*

**Nat Gopalswamy**

NASA Goddard Space Flight Center, Greenbelt, MD, USA

*“Earth-Affecting Solar Eruptions”*

**S K Tandon**

Indian Institute of Technology, Kanpur

*“Climate-Energy CO<sub>2</sub> Challenges and the CCS (Carbon Capture and Storage) Debate”*

Coordinator **Geetha Menon**



Tuesday, January 6, 2015, 09:15 – 11.15 am  
Venue : KaviKusumagrajBhashaSankul (KKBS-001)

**Symposium**

**Session: Climate Change and Society: Past, Present and Future**

**Convener** DhruvSen Singh **Chairperson** S Rajan

**Speakers** S Rajan

Director, National Centre for Antarctic and Ocean Research, Goa

*“Do the polar regions influence the Indian Monsoon?”*

**A D Singh**

Micropaleontology &Paleoceanography, Center of Advanced Study in Geology, Banaras Hindu University, Varanasi

*“Impacts of climate variability on marine biota over the last thirty millennia: An evaluation from the Arabian Sea records and its future implications”*

**DhruvSen Singh**

Professor in Geology, Centre of Advanced Study in Geology,University of Lucknow

*“Impact of Climate Change on Glaciers and its Consequences on Society”*

**NetramaniSagar**

CSIR-National Geophysical Research Institute, Hyderabad

*“Effects of sea surface temperature changes on live scleractinian corals of the Lakshadweep Archipealago: Implications of regional Climate variability”*

**PradeepSrivastava**

Scientist, Wadia Institute of Himalaya Geology33 GMS Road, Dehradun

*“Records of long term climate change from the Rivers of Himalaya”*

**Rajesh Agnihotri**

Radio and Atmospheric Science Division (RASD),National Physical Laboratory, New Delhi

*“Indian monsoonal rainfall variability during a global warming era: An overview”*

**Coordinator** Indu Anna George



**102<sup>nd</sup> Indian Science Congress**  
**3 – 7 January 2015**



**Tuesday, January 6, 2015, 09:15 – 11.15 am**  
**Venue : Green Technology Auditorium (GT-001)**

**Symposium**

**Session: Agricultural Statistics**

**Convener UmeshSud**

**Chairperson RajanWelukar**

**Speakers**

**AjayMehra**

Director General, National Sample Survey Organisation (NSSO)

**“Indian Statistical System”**

**V K Gupta**

National Professor, Indian Council of Agricultural Research (ICAR)

**“Importance of Statistics in Agricultural Research”**

**Prajneshu**

Emeritus Scientist, Indian Agricultural Statistics Research Institute (IASRI)

**“Statistical modeling in the welfare of the society: Some Applications”**

**Umesh C Sud**

Director, Indian Agricultural Statistics Research Institute (IASRI)

**“Calibration Approach Based Estimator of Population Total for Successive Sampling in Presence of Auxiliary Information”**

**Coordinator Rajendra P Deore**



Tuesday, January 6, 2015, 09:15 am – 1.30pm  
Venue : Alkesh Dinesh Modi Institute (ADM)

Symposium

Session: Targeting translational & post translational modification in health & diseases

Convener	Manoj Kumar Chakrabarti	Chairperson	Rajendra A Badawe
Speakers	<p><b>Sufi M Thomas</b> Kansas City Departments of Otolaryngology and Cancer Biology, The Kansas University Medical Center, Kansas City, USA <i>"Head And Neck Cancer Therapy: Finding The Right Hammer To Crack A Tough Nut"</i></p> <p><b>Michael Henry</b> Professor, Molecular physiology and Biophysics, University of Iowa, USA <i>"High Throughput Screening for Compounds Selectively Cytotoxic for an EMT-like Phenotype in Prostate Cancer Cells"</i></p> <p><b>Nanjoo Suh</b> Department of Chemical Biology, Ernest Mario School of Pharmacy, Rutgers University , NJ, USA <i>"Targeting breast cancer stem cells for inhibition of cancer progression"</i></p> <p><b>AnimeshDhar</b> Cancer Biology, Rainbow Blvd, Kansas City, USA <i>"Histone Lysine Demethylase 3A: A Novel Epigenetic Target for Pancreatic Cancer"</i></p> <p><b>Manoj K Chakrabarti</b> Director Grade Scientist &amp; Head, Division of Pathophysiology, National Institute of Cholera &amp; Enteric Diseases, Calcutta</p> <p><b>ShrikantAnant</b> Department of Molecular and Integrative Physiology, Kansas University Cancer Center, Kansas University Medical Center, Kansas City, USA <i>"RNA Binding Protein RBM3: A Novel Therapeutic Target for Intestinal Tumorigenesis"</i></p> <p><b>Tomoolwakuma</b> Department of Cancer Biology, University of Kansas Cancer Center, University of Kansas Medical Center, Kansas City, USA <i>"Targeting oncogenic mutant p53 for cancer therapy"</i></p> <p><b>Paramita M Ghosh</b> VA Northern California Health Care System, Sacramento, CA, USA <i>"Targeting Translation-Related Signaling Pathways in Castration Resistant Prostate Cancer"</i></p>		
Coordinator	AmitaAthavale		



Tuesday, January 6, 2015, 09:15 – 11.15 am  
Venue : Phirozshah Mehta Bhawan(PMB-9A)

Symposium

Session: Clean Energy systems for the future

Convener & Chairperson: D C Kothari

Speakers

**A Miotello**

Dipartimento di Fisica, Università degli Studi di Trento, Italy

*“On the development of a hydrogen-based energy system”*

**Walter Merida**

Director, Clean Energy Research Centre, The University of British Columbia, Canada

*“The Hydricity Age: renewable sources in the transition to sustainable energy systems”*

**Ram B Gupta**

Associate Dean for Research, and Professor, School of Engineering, Virginia Commonwealth University

*“Clean Energy for a Growing and Prospering World”*

**Rajiv Dusane**

Dean (International Relations) & Professor, Department of Metallurgical Engineering & Materials Science, Indian Institute of Technology, Bombay, Powai, Mumbai

*“Sunlight + Thin Film Silicon = Green Energy”*

**Satish Ogale**

Chief Scientist and Coordinator, Centre of Excellence in Solar Energy, National Chemical Laboratory, Pune

*“Engineered nanomaterials for next generation solar energy harvesting and storage devices”*

**S K Gupta**

Distinguished Scientist and Head, Technical Physics Division, Bhabha Atomic Research Centre, Trombay, Mumbai

*“Novel strategies to improve conversion efficiencies of organic and dye sensitized solar cells”*

Coordinator **Pravin Walke**



Tuesday, January 6, 2015, 11:30 – 01.30 pm  
Venue : Green Technology (GT-001)

Symposium

Session: Disaster Management

Convener	S SThigale	Chairperson	Shailesh Nayak
Speakers	<b>Shailesh Nayak</b> Secretary, Ministry of Earth Sciences & Chairperson, New Delhi <b>“Use of Technology for Disaster Reduction - Indian Context”</b>		
	<b>N P Kurian</b> Director, National Centre for Earth Science Studies, Thiruvananthapuram <b>“Technology for Coastal Disaster Risk Reduction – Indian Context”</b>		
	<b>Alok Avasthy</b> Commandant, 5th Bn, NDRF, Pune <b>“Technology: Back bone of National Disaster Reduction Force”</b>		
	<b>S SThigale</b> Former Head, Geology Department, University of Pune <b>“Technology for Awareness &amp; Preparedness Processes in Disastrous areas”</b>		
	<b>M P Singh</b> Former Head, Geology Department, Lucknow University		
	<b>V Subramanyan</b> Former Professor of Geology, IIT Bombay <b>“Surviving Earthquakes, Landslides and Floods in Mumbai”</b>		
	<b>OP Singh</b> Director General, National Disaster Response Force, New Delhi <b>“Technology for Disaster Reduction”</b>		
Coordinator	Shivram S Garje		



**102<sup>nd</sup> Indian Science Congress**  
**3 – 7 January 2015**



**Tuesday, January 6, 2015, 09:15 – 11:15 am**  
**Venue : Shankar RaoChavan Auditorium (SRC-114)**

**Symposium**

**Session: Urban Development**

<b>Convener</b>	<b>Krithi Ramamritham</b>	<b>Chairperson</b>	<b>Swadheen S Kshatriya</b>
<b>Speakers</b>	<b>Amita Bhide</b> Profesor and Chairperson, Centre for Urban Planning and Governance, School of Habitat Studies, Tata Institute of Social Sciences (TISS), Mumbai <b>“Technology for Inclusive Cities: Outlining the Challenge”</b>		
	<b>Bharat Bhushan</b> Professor, Environmental Planning, Dean (Academic) and Secretary, YASHADA <b>“Science, technology and public administration perspectives for sustainable urban management with specific reference to Maharashtra”</b>		
	<b>Krithi Ramamritham</b> Head, Centre for Urban Science and Engineering, IIT, Powai <b>“Ensuring the Future of Cities: A non-compartmentalized Approach”</b>		
	<b>Sundeep Kapila</b> Founder and CEO, Swasth India <b>“Primary Care as the key lever to reduce Impoverishment due to health shocks”</b>		
<b>Coordinator</b>	<b>Kavita Laghate</b>		



Tuesday, January 6, 2015, 9:15 am – 01.30 pm  
Venue : Sports Complex (SPC)

Symposium

Session: Future of the Past

Convener **Mayank N Vahia** Chairperson **Vasant Shinde**

Speakers **Vasant Shinde**  
Director, Deccan College, Pune

*"New questions in archaeology"*

**Shanti Pappu**

Sharma Centre for Heritage Education, Mylapore, Chennai.

*"Tools, Techniques and Time: Multiple Approaches to the Study of South Asia's Prehistoric Past"*

**Mayank Vahia**

Tata Institute of Fundamental Research (TIFR), Navy Nagar, Mumbai

*"Future labs for archaeology"*

**K S Saraswat**

BirbalSahni Institute of Palaeobotany, Lucknow

*"Archaeobotany and Old and New World Relations"*

**RakeshTiwari**

Director General of the Archaeological Survey of India

*"Need for Scientific Archaeology"*

**Kurush F Dalal**

Centre for Archaeology, Department of Extramural Studies, Mumbai University

*"Excavations and new technologies"*

Coordinator **Suhas Jejurikar**



Tuesday, January 6, 2015, 9:15 am – 01.30 pm  
Venue : KaviKusumagrajBhashaSankul (Marathi BhashaBhavan) [KKBS – 101]

**Symposium**

**Session: Aquaculture and Marine Biotechnology for Human Health**

**Convener** W S Lakra

**Chairperson** K C Pandey

**Speakers** M Vijay Gupta

Assistant Director General World Fish Center (Retd), Hyderabad

***“Sustaining Contribution of Aquaculture to Food Security and Nutrition in Growing Global Population: The challenges”***

**K Sunil Mohamed**

Principal Scientist & Head Molluscan Fisheries Division Central Marine Fisheries Research Institute, Kochi, Kerala

***“Future of India's Marine Fisheries”***

**P Jayasankar**

Director, Central Institute of Freshwater Aquaculture Kausalyanga, Bhubaneswar

***“Research and Development in Genetic Improvement – Journey from Black Box approach to Genomics”***

**Maroti A Upare**

Consultant World Bank, FAO. Mumbai

***“Aquaculture Technology Management for Development of sustainable Livelihood - Experiences in India and Vietnam ”***

**I S Bright Singh**

Cochin University of Science & Technology, Kochi, Kerala

***“Biotechnological Interventions in Aquatic Animal Health in Perspective of Human Health: Options and Challenges”***

**Arun S Ninawe**

Advisor (Scientist 'G'), Department of Biotechnology, New Delhi

***“Sustainable livelihood options for nutritional and food security through Aquaculture and Marine Biotechnology”***

**S N Ogale**

Former Consultant to World Bank & TATA Power Company for Mahasheer Conservation, Pune

***“Pioneering efforts in Cage Culture, & Ranching for restoration of Mahseer Sanctuary In Indrayani River at Dehu, Dist : Pune ( M. S.)”***

**Coordinator** B L Jadhav



**102<sup>nd</sup> Indian Science Congress**  
**3 – 7 January 2015**



**Tuesday, January 6, 2015, 11:30 am – 01.30 pm**  
**Venue : Phirozshah Mehta Bhawan (PMB-9A)**

**Symposium**

**Session: High Energy Physics in 2014**

<b>Convener</b>	<b>G Rajasekaran</b>	<b>Chairperson</b>	<b>K KasturiRangan</b>
<b>Speakers</b>	<b>G Rajasekaran</b> Institute of Mathematical Sciences, Chennai and Chennai Mathematical Institute <i>"A Crisis in Fundamental Physics"</i>		
	<b>ShrihariGopalakrishna</b> Theoretical High Energy Physics, The Institute of Mathematical Sciences (IMSc), Chennai <i>"Standard Model and Beyond"</i>		
	<b>Naba K Mondal</b> Project Director, India-based Neutrino Observatory, Tata Institute of Fundamental Research, Mumbai <i>"India-based Neutrino Observatory (INO) Project"</i>		
	<b>Sunil Mukhi</b> Indian Institute for Science Education and Research, Pune <i>"String Theory and Quantum Gravity"</i>		
	<b>SrinivasKrishnagopal</b> Bhabha Atomic Research Centre, Mumbai and Centre for Basic Sciences, Mumbai <i>"Laser Plasma Accelerators"</i>		
<b>Coordinator</b>	<b>AnuradhaMisra</b>		



**102<sup>nd</sup> Indian Science Congress**  
**3 – 7 January 2015**



**Tuesday, January 6, 2015, 2:30 pm – 04.30 pm**  
**Venue : Hall of Harmony, Nehru Centre, Worli, Mumbai**

**Symposium**

**Session: Challenges for Education in Modern India**

**Convener & Chairperson: Anil Kakodkar**

**Speakers**

**H C Pradhan**

Raja Ramanna Fellow, UM-DAE CBS, University of Mumbai

*“Science and Mathematics Education – Perspectives and Prospects”*

**Pandit Vidyasagar**

Vice Chancellor, Swami Ramanand Teerth Marathwada University, Nanded

*“Revitalization of Teaching Learning Process”*

**Sanjay GDhande**

Former Director, Indian Institute of Technology, Kanpur

*“Education for Global Leadership in Technology”*

**Varun Sahni**

Jawaharlal Nehru University, New Delhi

*“Technology Vision 2035 – Education”*

**Vivek Sawant**

Managing Director and C.E.O., M.K.C.L., Pune

*“Technology for Large-scale Access to holistic Education”*

**Ved Prakash**

Chairperson, University Grant Commission (UGC), New Delhi

**Coordinator H C Pradhan and Aniket Sule**



**102<sup>nd</sup> Indian Science Congress**  
**3 – 7 January 2015**



**Tuesday, January 6, 2015, 03.00 pm – 05.30 pm**  
**Venue : Main Pandal (MP)**

**Symposium**

**Plenary Session: Innovate and Make in India**

**Convener & Chairperson: Vijay Bhatkar**

**Speakers**

**Ravi Pandit**

Chairperson and Group CEO, KHIT, Pune

**Vijay Bhatkar**

Pune

**Pramod Choudhary**

Executive Chairperson, Praj Industries Ltd

**Anil Datar**

Director General (Armament & Combat Engineering Cluster), DRDO, Pune

**Pawan Goenka**

President & ED, Automotive and Farm Equipment Sector Mahindra Group

**Coordinator**

**Prachi Gharpure**

**Monday, January 6, 2015, 05:30 pm to 07:30 pm**

**Venue : Kavi Kusumagraj Bhasha Sankul (Marathi Bhasha Bhavan) [KKBS – 001]**

**Panel discussion on Focal Theme**

**Science & Technology for Human Development**

**Chairperson S B Nimse (General President)**

*All Sectional Presidents and Senior Academicians are invited to participate in this panel discussion*



**Science and Technology for Human Development**

# **102<sup>nd</sup> Indian Science Congress 2015**

**SYMPOSIA PROGRAMME OF 07 JANUARY 2015**



**102<sup>nd</sup> Indian Science Congress**  
**3 – 7 January 2015**



**Wednesday, January 7, 2015, 09:30 am– 01.30pm**  
**Venue : Fort Campus**

**Symposium**

**Session: Science and Technology for Inclusive Development**

**Convener & Chairperson: Anil Kakodkar**

**Speakers**

**Swadheen S Kshatriya**

Chief Secretary, Govt. of Maharashtra

**ArunFirodia**

Chairperson of Kinetic Group of Companies, India

***“How to promote Innovation”***

**CharudattaMayee**

Indian Agricultural Research Institute (IARI), New Delhi

***“Farm Technologies that brought Inclusive Development in Maharashtra”***

**GirishG Sohani**

Bharatiya Agro Industries Foundation (BAIF), Pune

***“Emergent Needs and Strategies that Work for Rural India”***

**G D Yadav**

Vice Chancellor, Institute of Chemical Technology, Mumbai

***“Challenges and Opportunities for Building World Class Innovation Institutes in Maharashtra”***

**BrajamohanMisra**

Principal Adviser, Department of Economic and Policy Research, Reserve Bank of India, Mumbai

***“Farmer's Suicides - Raising the Issues for Possible Causes”***

**Coordinator**

**RohanFernandes**



102<sup>nd</sup> Indian Science Congress  
3 – 7 January 2015



Wednesday, January 7, 2015, 09:15 – 11.15 am  
Venue : Alkesh Dinesh Modi Institute (ADM)

Symposium

Session: Tissue Banking & Tissue Engineering

Convener	Ashok Kolaskar	Chairperson	ShashiBala Singh
Speakers	<p><b>Raj Manda</b> Director, Research DCI Donor Services Tissue Bank, Nashville, TN, USA <i>"Allograft advantage – empirical evidence based medicine"</i></p> <p><b>Rony Thomas</b> President &amp; Chief Executive Officer, Institute of Regenerative Medicine Virginia Beach, VA, USA <i>"New Frontiers in Tissue Engineering and its life saving applications"</i></p> <p><b>Scott A Brubaker</b> Chief Policy Officer, American Association of Tissue Banks, Virginia, USA <i>"Hot Topics in Tissue Banking: Enhancing Quality &amp; Safety of Allograft Tissue for Transplantation"</i></p> <p><b>AstridLoboGajiwala</b> Head, Tissue Bank, Tata Memorial Hospital, Mumbai <i>"Establishing a Tissue Bank at the Tata Memorial Hospital"</i></p>		
Coordinator	VarshaKelkar-Mane		

Wednesday, January 7, 2015, 11:30 am – 01.30 pm  
Venue : Alkesh Dinesh Modi Institute (ADM)

Symposium

Session: Recent advances in Cancer Biology

Chairperson :	Shubhada V Chiplunkar
Speakers	<p><b>Salil K Das</b> Professor of BiochemistryDept. of Biochemistry and Cancer BiologyMeharry Medical College, USA <i>"Translocator Protein as a Biomarker of Breast Cancer"</i></p> <p><b>Dipak K Banerjee</b> Professor Department of Biochemistry, School of Medicine, University of Puerto Rico, USA <i>"Glycotherapy for Breast Cancer"</i></p> <p><b>Dinesh K Daftary</b> Dental Section, Tata Institute of Fundamental Research, Mumbai <i>"Oral pre-cancer"</i></p>
Coordinator	SunitaShailajan



Wednesday, January 7, 2015, 09.15 am – 01:30 pm  
Venue : PhirozshaMethaBhawan (PMB-9A)

Symposium

Session: Research needs in the field of Environmental Sciences

Convener & Chairperson: Rakesh Kumar

Speakers

**VirendraSethi**

Centre for Environmental Science and Engineering, Indian Institute of Technology, Bombay, Mumbai

*“Air quality – Status and Management”*

**ShyamAsolekar**

Centre for Environmental Science and Engineering, Indian Institute of Technology, Bombay, Mumbai

*“Environmental Management & Hazardous Waste”*

**Deepak Kantawala**

Environmental consultant

*“Wastewater Management”*

**R N Singh**

Former Director, CSIR-NEERI

*“Research needs in the field of Environmental Sciences”*

**BittuSehgal**

Editor, Sanctuary Asia Magazine

*“Wildlife Protection”*

**U C Mishra**

Director, Health, Safety and Environment Group, BARC

*“Environmental Hazards & Safety”*

**JankiAndharia**

Tata Institute of Social Sciences

*“Social aspects of Environmental Science”*

Coordinator **PM Dongre**