



INFOSYS PRIZE 2016

INFOSYS SCIENCE FOUNDATION

“A century ago astronomers, geologists, chemists, physicists, each had an island of his own, separate and distinct from that of every other student of Nature; the whole field of research was then an archipelago of unconnected units. Today all the provinces of study have risen together to form a continent without either a ferry or a bridge.”

George Iles

From 'Jottings from a Notebook',
in *Canadian Stories* (1918)

A portrait of Prof. V. Kumaran, a middle-aged man with dark hair, wearing a light blue short-sleeved button-down shirt. He is seated and gesturing with both hands as if speaking. The background is a blurred indoor setting with windows and architectural details.

ENGINEERING AND COMPUTER SCIENCE

V. KUMARAN

Professor, Department of Chemical Engineering, Indian Institute of Science, Bengaluru

Prof. V. Kumaran is a senior professor at the Department of Chemical Engineering of the Indian Institute of Science (IISc), Bengaluru. Prof. Kumaran has been carrying out path-breaking research on many select topics in the areas of fluid mechanics and statistical mechanics.

Kumaran received his B.Tech. in 1987 from IIT-Madras and Ph.D. from Cornell University in 1992. He is a fellow of the Indian Academy of Sciences (1998), Indian National Science Academy (2001), and

the Indian National Academy of Engineering (2006). More recently, Prof. Kumaran has been elected to the fellowship of the American Physical Society (2015).

He has won several prestigious awards including the Shanti Swarup Bhatnagar Prize (2000), Swarnajayanti Fellowship (2002), J. C. Bose National Fellowship (2007), the Rustom Choksi Award (2012) for Excellence in Engineering Research by IISc, the TWAS Prize (2014), and the APS-IUSSTF Chair Professorship (2014).

The Infosys Prize 2016 in Engineering and Computer Science is awarded to Prof. Viswanathan Kumaran, for his seminal work in complex fluid flows especially in transition and turbulence in soft-walled tubes. His work has been translated into innovative technologies for lab-on-a-chip devices for point-of-care diagnostics in cardiovascular and pulmonary health.

ABOUT KUMARAN'S WORK AND ITS IMPACT

Prof. Kumaran pioneered research in the area of microfluidic devices which has enormous implications for cardio-vascular and pulmonary health. His work on transition and turbulence in the flow through soft-walled tubes and channels has the potential to alter the current paradigms used in the design of these devices. Kumaran's work has had great societal impact as well. MicroXLabs, a start-up company working in Prof. Kumaran's lab, has been awarded the first prize in the Tata Social Enterprise Challenge, a contest for social impact ideas that enrich the quality of life across rural India.

Kumaran's work in formulating theories for flowing granular materials is very novel. He was the first to show that the grains in the flow can be modeled using a velocity distribution in a manner similar to gas molecules in the kinetic theory of gases. He has developed a statistical mechanics framework to provide quantitative predictions for the flow down an inclined plane, which is often encountered in geophysical phenomena (avalanches, landslides) and industrial applications (chutes, solids transport).

Kumaran has also done pioneering work in lamellar liquid crystalline materials, which are widely used in the Food and Cosmetics industry. Kumaran has formulated a framework for the multiscale modeling of these materials. These are the only models currently

available for the rheological behavior of lamellar phases, and have been employed for product design by the two largest Fast Moving Consumer Goods companies in the world, Unilever and Procter & Gamble.

CITATION BY THE JURY

Prof. Kumaran was the first to theoretically predict, using sophisticated mathematical techniques, different types of transition to turbulence in soft-walled tubes and channels. These are qualitatively different from, and at flow speeds significantly smaller than, the transition in rigid conduits.

His group was also the first to experimentally demonstrate turbulence at small scales and low speeds in the flow past soft surfaces, and show that the turbulence is different from, and more intense than, that in the flow past rigid surfaces.

Kumaran's work on flowing granular materials, and the thermodynamics and dynamics of complex fluids including co-polymers as well as the lamellar liquid crystalline materials and the extension of Onsager model reflect his unique talents to combine concepts in fluid mechanics, statistical mechanics and theoretical physics.



"I want to congratulate you on winning the Infosys Prize. The jury was unanimous in your selection and they were really impressed by your work in modelling the flow and transition through soft-wall tubes and its implications for lab-on-a-chip devices."

– Pradeep K. Khosla

SUNIL AMRITH

Mehra Family Professor of South Asian Studies, Professor of History, History Department, Harvard University, USA

Prof. Sunil Amrith is a historian of outstanding achievement, who has produced field-changing research on social, economic and environmental history of India and Southeast Asia, in a large transnational perspective. He is the Mehra Family Professor of South Asian Studies at Harvard University. He did his doctoral research at the University of Cambridge in 2005.

His range of work has varied from the international history of health management to studies of migration and the development of multi-ethnic societies in Asia. His work on the trans-regional movement of people, ideas and institutions has focused most recently on the Bay of Bengal connecting South and South-East Asia.

The Infosys Prize 2016 in Humanities is awarded to Prof. Sunil Amrith for his outstanding contributions to the history of migration, environmental history, and the history of international public health, and in recognition of his field-changing research on the interrelated past of contemporary Asia.

ABOUT AMRITH'S WORK AND ITS IMPACT

Sunil Amrith's first book, *Decolonizing International Health: South and South-East Asia, 1930-1965* (2006), is a far-reaching study of the early history of the World Health Organization that skilfully brings ideas and institutions into a common framework of historical analysis. His second book, *Migration and Diaspora in Modern Asia* (2011), is an authoritative survey of the great human drama of migration across Asia during the last 150 years.

His third and most recent book, *Crossing the Bay of Bengal: The Furies of Nature and the Fortunes of Migrants* (2013), presents a masterful, imaginative, and elegantly written narrative of the long history of a part of the Indian Ocean region that once acted as a maritime highway between India and China and was marked, in modern times, by imperial contests, the rise of port cities, and the movement of large numbers of people across territories. Based on field visits and archival research in multiple countries, Amrith has brought into a seamless narrative and a single frame of analysis the climatic, geological, political, economic, institutional, and human connections that shaped the pasts of this bay, the largest in the world, and made this region a vibrant and cosmopolitan center of global history.

Amrith's path-breaking book will act as a model for humanist historians who seek to bring natural and human histories together in the broad field of global history. It will also go a long way towards breaking down the usual academic separation of South Asian and South-East Asian histories.

CITATION BY THE JURY

Sunil Amrith is a brilliant historian of international public health and Asian migration. For his book, *Crossing the Bay of Bengal*, on Tamil migration from India and the Tamil diaspora in South-East Asia, Amrith has skilfully mined archival records in London, Chennai and Singapore and conducted fieldwork in Tamil Nadu, Malaysia and Myanmar. In this scholarly work of exquisite craftsmanship, he has been able to weave together diverse forms of evidence into a coherent and illuminating historical narrative. Amrith's writings have transformed every area of history in which he has worked.



Sunil Amrith has not only helped us understand our social, economic and environmental past, he has also made us appreciate why history is such an exciting and rewarding subject, and so necessary for leading a critically informed life.

– Amartya Sen



GAGANDEEP KANG

Executive Director of Translational Health Science and Technology Institute, Faridabad

Prof. Gagandeep Kang, a physician scientist, was Professor of Microbiology and Head – Division of Gastrointestinal Sciences and Wellcome Trust Research Laboratory at Christian Medical College (CMC), Vellore. She obtained her M.B.B.S., M.D., and Ph.D. in 1986, 1991 and 1997, respectively, from CMC.

Kang's groundbreaking work has been recognized with numerous awards and honors. These include Woman Bioscientist of the Year

from the Government of India (2006); Fellowship of the American Academy of Microbiology (2010), the Indian Academy of Sciences (2011), National Academy of Sciences (2013), the Faculty of Public Health, UK (2015), and the Indian National Science Academy (2016).

Recently, Prof. Kang was appointed Executive Director of the Translational Health Service and Technology Institute (THSTI), Department of Biotechnology, Government of India.

The Infosys Prize 2016 in Life Sciences is being awarded to Prof. Gagandeep Kang for her pioneering contributions to understanding the natural history of rotavirus and other infectious diseases that are important both globally and in India. Her findings have enormous implications for vaccines and other public health measures to thwart these infections.

ABOUT KANG'S WORK AND ITS IMPACT

Prof. Kang has made pivotal contributions to understanding the natural history of rotavirus infections as well as other enteric infections, which are important causes of mortality and morbidity in India. Her work has shown that natural immunity to rotavirus infections is much lower in the Indian population than in other populations. These findings lead directly to an understanding of why the rotavirus vaccine is not as efficacious in India as in other populations globally with similar socioeconomic demographics. Kang's findings also have broad implications for other enteric viruses such as the polio virus.

In collaboration with colleagues at CMC, Vellore, Kang has shown that the recipient may mount weaker enteric immunity to the polio virus as well, providing an explanation for why Indians require more vaccinations with the oral polio vaccine for effective immunity. These findings raise the question of why both natural and vaccine-induced immunity to enteric viruses are weaker in India. Kang and her collaborators are approaching this question taking comprehensive approaches — clinical, epidemiological and basic science — that exploit wide-ranging sophisticated tools.

In addition to her basic research, Prof. Kang has extended her work to important practical areas. She has established a clinical laboratory for rotavirus vaccine evaluation that has provided critical reagents

and training to rotavirus vaccine manufacturers not only in India but also in China and Brazil. She has been part of a collaborative network that developed an indigenous rotavirus vaccine for India starting with an Indian rotavirus isolate.

CITATION BY THE JURY

Prof. Gagandeep Kang is a tremendously successful medical researcher whose work has provided insights into basic infectious disease pathogenesis as well as immediate action items to reduce disease burden and transmission. She has focused her efforts on serious childhood enteric infections in India and in so doing has identified ways to improve immunity and prevent disease transmission in the Indian context.

Kang's discoveries contribute to exciting new areas including how the variation of the human microbiome in different parts of the world might impact natural and vaccine-induced immunity. Her work spans the diverse disciplines of epidemiology, microbiology and human immunology to truly bridge the gap between clinical medicine and basic science.

Translational work of this nature is extremely difficult and Prof. Kang's ability to excel in it has been recognized both nationally and internationally.



Prof. Kang's tremendous achievements in translational and clinical science reflect her scientific breadth and depth, her willingness to tackle hard problems pertaining to human health in India, her ability to forge national and international collaborations to take critically-needed comprehensive approaches, and her inspiring leadership and mentorship. We are thrilled to recognize Prof. Kang for her cutting-edge and highly impactful translational research in biomedicine.

– Inder Verma



MATHEMATICAL SCIENCES

AKSHAY VENKATESH

Professor, Department of Mathematics, Stanford University, USA

Prof. Akshay Venkatesh was born in New Delhi in 1981 and grew up in Perth, Australia. By the age of 12, he had become a child prodigy winning medals in International Olympiads in Mathematics and Physics. He entered the University of Western Australia at the age of 13 and graduated with honors at 16. At 17, he started his doctoral work with Peter Sarnak at Princeton University and received his Ph.D. at 21 years of age.

After spending a few years at MIT and Courant Institute of NYU, including a two-year stint as a Clay Research Fellow, Venkatesh has settled down at Stanford as a professor from 2008. His work encompasses number theory, automorphic forms, representation theory and ergodic theory. Akshay Venkatesh is a recipient of the Salem Prize (2007), Packard Fellowship (2007) and the SASTRA Ramanujan Prize (2008).

The Infosys Prize 2016 in Mathematical Sciences is awarded to Prof. Akshay Venkatesh for his exceptionally wide-ranging, foundational and creative contributions to modern number theory. His unique ability to use techniques drawn from analytic number theory, ergodic theory, and homotopy theory to address concrete problems in number theory and discover new phenomena attest to the essential unity of mathematics.

ABOUT VENKATESH'S WORK AND ITS IMPACT

Prof. Akshay Venkatesh is a very broad mathematician who has worked at the highest level in number theory, arithmetic geometry, topology, automorphic forms and ergodic theory. He is almost unique in his ability to fuse algebraic and analytic ideas to solve concrete and hard problems in number theory.

Venkatesh's work on subconvexity estimates for L-functions, which are predicted by the Riemann hypothesis, made novel use of ergodic methods, which changed the field. Using ergodic methods, Venkatesh proved strong results towards classical problems in the theory of quadratic forms over number fields. He has made several important contributions to enumerative problems in number theory. He has introduced revolutionary new methods to understand torsion in the cohomology of arithmetic groups and link this to K-theory, Galois representations and L-functions of adjoint motives.

All of Venkatesh's work is characterized by stunning new insights, unexpected use of sophisticated techniques from several different areas of mathematics, and uncovering of new structures, which were previously unsuspected.

CITATION BY THE JURY

Prof. Venkatesh's work is characterized by unexpected guiding heuristic ideas, which are then brought to fruition with dazzling technical virtuosity. Together with Philippe Michel, he proved optimal and general sub-convexity results for L-functions arising from automorphic forms on GL_2 over number fields.

Venkatesh, together with Manfred Einsiedler and Philippe Michel, proved the extension to dimension three of a well-known result of Duke about the equi-distribution of Heegner points and closed geodesics on modular surfaces.

Together with David Treumann, he proved surprising new functoriality results for torsion classes in the cohomology of arithmetic manifolds. Venkatesh's work on torsion in the homology of arithmetic groups introduces a completely new picture, which seems to explain a number of puzzling phenomena and links topics no one expected to see linked.



Let me congratulate Akshay Venkatesh for being chosen as the recipient of the Infosys Prize in Mathematics this year. His work weaves together, in a surprising way, threads from many different fields, creating a wonderful fabric. It is really what mathematics is all about, unexpected beautiful connections between different areas.

– Srinivasa S. R. Varadhan

A photograph of Dr. Anil Bhardwaj, a man with glasses and a goatee, wearing an orange button-down shirt. He is standing in a laboratory, gesturing with his hands as if speaking. In the background, there is a large piece of scientific equipment, possibly a vacuum chamber or a particle detector, with various pipes and gauges. To the right, a computer monitor and a piece of equipment with a logo are visible on a desk. The overall setting is a professional scientific environment.

PHYSICAL SCIENCES

ANIL BHARDWAJ

Director, Space Physics Laboratory, Vikram Sarabhai Space Centre, Thiruvananthapuram

Dr. Anil Bhardwaj, Director of the Space Physics Laboratory at the Vikram Sarabhai Space Centre, received his M.Sc. in Physics from Lucknow University (1987) and his Ph.D. from the Banaras Hindu University (1992). His research interests cover a broad spectrum including studies of surface, atmosphere and ionosphere of planetary bodies. Bhardwaj has authored half a dozen book chapters and more than a hundred refereed journal publications.

He is a recipient of the Shanti Swarup Bhatnagar Prize (2007) and Distinguished Alumnus Award of IIT, Banaras Hindu University (2015). He has been inducted into the Indian Geophysical Union (2008), the Indian Academy of Sciences (2009), Indian National Science Academy (2010), and the National Academy of Sciences of India (2014). Bhardwaj is also an elected member of the International Astronomical Union (2009) and the International Academy of Astronautics (2014).

The Infosys Prize 2016 in Physical Sciences is awarded to Dr. Anil Bhardwaj for his outstanding contributions to Planetary Science and Exploration. His experiments on Chandrayaan-1 and Mars Orbiter Mission revealed new features of solar wind interactions with the lunar surface and brought a new understanding of the Martian atmosphere.

ABOUT BHARDWAJ'S WORK AND ITS IMPACT

Dr. Anil Bhardwaj is a versatile space scientist equally adept in both analytical and experimental studies. His astute understanding of relevant science, coupled with his strength in design and development of instruments for space research, is clearly reflected in his ongoing and upcoming experiments on Indian space missions.

Dr. Bhardwaj was India's lead scientist in an Indo-Swedish experiment, conducted on the Chandrayaan-1 mission to study the nature of interactions of solar wind ions with the lunar surface. This led to novel results that include reflection of a small fraction of incident solar wind ions from lunar surface as neutrals and the unexpected presence of ions on the lunar night-side. Bhardwaj is also the Principal Investigator of an experiment on the ongoing Mars Orbiter Mission for in-situ measurements of composition in low latitude Martian exosphere. The results from this experiment suggest a transition from carbon dioxide dominated to oxygen-dominated exosphere near 270 km, a key input needed for the analytical study of composition and thermal escape of the Martian atmosphere.

He also played a leading role in an international effort to understand the nature and origin of planetary X-rays. This led to the detection of X-rays from Rings of Saturn and X-ray flare from Jupiter and Saturn,

suggesting that the gas giants act as 'diffuse mirrors'. He was the lead author of two major papers of this study.

Dr. Bhardwaj is currently involved in realizing approved payloads for the upcoming Chandrayaan-2 mission and the Indian solar mission, Aditya-L1.

CITATION BY THE JURY

Dr. Anil Bhardwaj has made pioneering contributions in the field of planetary and space research. Early in his career, he carried out collaborative studies of planetary auroras and followed that with studies to decipher the origin and nature of planetary X-rays. Dr. Bhardwaj was the Indian lead in an Indo-Swedish experiment SARA on the Chandrayaan-1 mission that provided several new results on solar wind ions interactions with the lunar surface.

His experiment, MENCA, on the Indian Mars Orbiter Mission suggests the presence of a transition from carbon dioxide-dominated to oxygen-dominated evening Martian exosphere at higher altitudes. Bhardwaj is currently involved in the design and development of approved payloads for Chandrayaan-2 and the Indian solar mission Aditya-L1, making him the only scientist having payloads in all the Indian space missions approved so far.



Congratulations Dr. Anil Bhardwaj for winning the 2016 Infosys Prize in Physical Sciences! Dr. Bhardwaj is a brilliant example of an exceptional blend of scientific expertise and engineering competence, which is required for planning, designing and developing, operating the instruments and bringing the first rated science on planetary missions. He is the only scientist in the country whose scientific payloads have been selected for every planetary mission.

– Shrinivas Kulkarni

KAIVAN MUNSHI

Frank Ramsey Professor of Economics, Faculty of Economics, University of Cambridge, UK

Since 2013, Prof. Kaivan Munshi has been the Frank Ramsey Professor of Economics at the University of Cambridge. Prof. Munshi received his B. Tech in Civil Engineering from IIT-Bombay, a Master's from UC Berkeley and a Ph.D. in Economics from MIT in 1995. Prior to joining Cambridge University, he held teaching positions at Boston University, the University of Pennsylvania, and Brown University.

He is a Research Associate of the Harvard-Cambridge Joint Centre for History and Economics, and Research Fellow at the Institute for Fiscal Studies (IFS), the Institute for the Study of Labor (IZA), the Centre for Economic Policy Research (CEPR) and the Centre for Research and Analysis of Migration (CReAM).

The Infosys Prize 2016 in Social Sciences (Economics) is awarded to Prof. Kaivan Munshi in recognition of his remarkably deep analysis of the multifaceted role of communities, such as ethnic groups and castes, in the process of economic development.

ABOUT MUNSHI'S WORK AND ITS IMPACT

Prof. Kaivan Munshi's research career has been largely devoted to understanding the role of communities and social networks in the process of economic development. His work on social networks and mobility brings together theory and data in ways that help us understand patterns of economic development in a variety of settings, historical as well as contemporary.

Munshi's early research provided credible empirical evidence that social norms and community-based networks had large effects on individual decisions and outcomes, going beyond the existing qualitative work of historians and other social scientists. His 2003 paper, in the *Quarterly Journal of Economics*, on Mexican labor market networks in the USA was extremely influential. Using past rainfall at the village of origin as a source of exogenous variation for the size of the network, he showed, using a level of rigor rarely seen before, how having a larger network of people from the same Mexican village of origin helped migrants find jobs in the USA.

Several of Munshi's papers co-authored with Mark Rosenzweig have demonstrated the importance of caste-based networks for a number of aspects of life—marriage, education, informal insurance, and spatial and occupational mobility—which are key determinants of long-run economic outcomes. Munshi and Rosenzweig (*American*

Economic Review, 2016) show how caste-based communities offer social protection in the absence of formal insurance, but by doing so, restrict spatial mobility and increase geographic misallocation of labor.

In other work, Munshi has shown the importance of community networks in Kenya, Bangladesh and the United States. His 2014 paper on the subject in the *Journal of Economic Perspectives* examines the impact on jobs, health services and political decisions, among other consequences of group-level interactions.

CITATION BY THE JURY

Prof. Kaivan Munshi has accumulated an impressive body of research organized around themes of social networks, and occupational and spatial mobility, and their implications for long-run economic outcomes.

This work is important because, when markets function imperfectly, networks of socially connected individuals can both hinder and enhance economic efficiency in complex ways.

His research brings theoretical and empirical analysis to bear on the above topics and does so by using a combination of rigorous econometric analysis and attention to social and historical detail that is rare in economics.



"Kaivan Munshi's research has enhanced our understanding of the role of community networks in promoting and, in other ways, also hindering economic development. It is his outstanding talent for combining attention to historical and institutional detail with rigorous statistical analysis that makes his research so durable and influential."

– Kaushik Basu

ENGINEERING AND COMPUTER SCIENCE



Pradeep K. Khosla

Jury Chair

Pradeep K. Khosla is the Chancellor, University of California, San Diego, USA. He has received several awards, including the ASEE George Westinghouse Award for Education (1999), SiliconIndia Leadership award for Excellence in Academics and Technology (2000), the W. Wallace McDowell award from IEEE Computer Society (2001), Cyber Education Award from the Business Software Alliance (2007), the ASME Computers in Engineering Lifetime Achievement Award (2009), and the inaugural Pan IIT American Leadership Award for Academic Excellence (2009). He was awarded the Philip and Marsha Dowd Professorship in 1998 at the Carnegie Mellon University, Pittsburgh, USA. He has been elected as Member, National Academy of Engineering, Fellow of the Institute of Electrical and Electronics Engineers (IEEE) and Fellow of the American Association of Artificial Intelligence (AAAI).

Jurors

Rajesh K. Gupta

Professor and Qualcomm Endowed Chair, Department of Computer Science and Engineering, University of California, San Diego, USA

Arunava Majumdar

Jay Precourt Provostial Professor, Department of Mechanical Engineering, Stanford University, a faculty member of the Departments of Mechanical Engineering and Materials Science and Engineering (by courtesy), and co-director of the Precourt Institute for Energy, Stanford University, USA

Bhakta B. Rath

Associate Director of Research, Head – Materials Science and Component Technology Directorate, U.S. Naval Research Laboratory, USA

Narayanaswamy Balakrishnan

Department of Aerospace Engineering and Supercomputer Education Research, Indian Institute of Science, India

HUMANITIES



Amartya Sen

Jury Chair

Amartya Sen is Thomas W. Lamont University Professor, and Professor of Economics and Philosophy, at Harvard University. Until 2004, he was the Master of Trinity College, Cambridge. He has served as President of the Econometric Society, the American Economic Association, the Indian Economic Association, and the International Economic Association.

Amartya Sen's awards include Bharat Ratna (India); Commandeur de la Legion d'Honneur (France); the National Humanities Medal (USA); Ordem do Merito Cientifico (Brazil); Honorary Companion of Honour (UK); Aztec Eagle (Mexico); Edinburgh Medal (UK); the George Marshall Award (USA); the Eisenhower Medal (USA); and the Nobel Prize in Economics.

Jurors

Harriet Ritvo

Arthur J. Conner Professor of History, Massachusetts Institute of Technology, USA

Dipesh Chakrabarty

Lawrence A. Kimpton Distinguished Service Professor of History and South Asian Languages and Civilizations, University of Chicago, USA

Justice Leila Seth

Retired Chief Justice of Himachal Pradesh, India

Sugata Bose

Gardiner Professor of History and Director of the South Asia Initiative at Harvard University, USA

LIFE SCIENCES



Inder Verma

Jury Chair

Inder Verma is American Cancer Society Professor (Emeritus) and the first incumbent of the Irwin and Joan Jacobs Chair in Exemplary Life Science, Laboratory of Genetics, Salk Institute for Biological Studies, USA. He is one of the world's leading authorities on the development of viruses for gene therapy vectors. He is a member of the National Academy of Sciences (USA), Institute of Medicine, American Academy for Arts & Sciences, American Philosophical Society, Third World Academy of Sciences, and a foreign associate of the Indian National Academy of Sciences. He has won the NIH Outstanding Investigator Award (1988), the Vilcek Foundation's prize in biomedical science (2008), the Columbia University's Spector Prize (2010), and the 22nd Annual Cancer Research Award of the Pasarow Foundation.

Jurors

David Baker

Professor of Biochemistry, University of Washington, Seattle, USA

Lalita Ramakrishnan

Professor, Immunology & Infectious Diseases, University of Cambridge, UK

Joseph Ecker

Director, Genomic Analysis Laboratory; Howard Hughes Medical Institute and Gordon and Betty Moore Foundation Investigator; Salk International Council Chair in Genetics, USA

J. Anthony Movshon

University Professor and Silver Professor, Center for Neural Science, New York University, USA

Shankar Subramaniam

Professor, Bioengineering; Faculty, Computer Science and Engineering; UC San Diego Jacobs School of Engineering, USA

MATHEMATICAL SCIENCES



Srinivasa S. R. Varadhan

Jury Chair

Srinivasa S. R. Varadhan is Professor of Mathematics and Frank J. Gould Professor of Science at the Courant Institute of Mathematical Sciences, New York University (NYU), New York, USA. His awards and honors include the National Medal of Science (2010) from US President Barack Obama, the highest honor bestowed by the United States government on scientists, engineers and inventors. He is also the winner of the Abel Prize (2007), the Leroy Steele Prize (1996), the Margaret and Herman Sokol Award of the Faculty of Arts and Sciences, New York University (1995) and the Birkhoff Prize (1994). He also has honorary degrees from the Chennai Mathematical Institute (2008), the Indian Statistical Institute in Kolkata, India (2004) and from Université Pierre et Marie Curie in Paris (2003).

Jurors

Cedric Villani

Professor of Mathematics, Lyon University and Director of the Henri Poincaré Institute, Paris, France

Chandrashekhar Khare

Professor of Mathematics, University of California, Los Angeles, USA

Gopal Prasad

Raoul Bott Professor of Mathematics, University of Michigan, USA

M. S. Raghunathan

Head, National Centre for Mathematics, Indian Institute of Technology, Mumbai, India

Jennifer Chayes

Distinguished Scientist and Managing Director, Microsoft Research New England, Cambridge, Massachusetts, and Microsoft Research New York City, USA

PHYSICAL SCIENCES



Shrinivas Kulkarni

Jury Chair

Shrinivas Kulkarni is the John D. and Catherine T. MacArthur Professor of Astronomy and Planetary Science at the California Institute of Technology (Caltech), Pasadena, USA. His primary interests are the study of compact objects (neutron stars and gamma-ray bursts) and the search for extra-solar planets through interferometric and adaptive techniques. He serves as the Interdisciplinary Scientist for the Space Interferometry Mission (SIM) and is co-Principal Investigator of the Planet Search Key Project (also on SIM). He has been awarded the Alan T. Waterman Prize of the NSF, a fellowship from the David and Lucile Packard Foundation, a Presidential Young Investigator award from the NSF and the Helen B. Warner award of the American Astronomical Society and the Jansky Prize of Associated Universities, Inc. He was also elected a Fellow of the American Academy of Arts and Sciences (1994), Fellow of the Royal Society of London (2001) and Fellow of the National Academy of Sciences (2003).

Jurors

Richard Zare

Marguerite Blake Wilbur Professor in Natural Science, Stanford University, USA

Spenta Wadia

Distinguished Professor Emeritus and Founding Director, International Centre for Theoretical Sciences of Tata Institute of Fundamental Research, India

Rajaram Nityananda

Professor, Azim Premji University, Bengaluru, India

Jitendra Nath Goswami

Former Director, Physical Research Laboratory, Ahmedabad, India

SOCIAL SCIENCES



Kaushik Basu

Jury Chair

Kaushik Basu is Professor of Economics and the C. Marks Professor of International Studies at Cornell University. He is a former Chief Economist and Senior Vice President of the World Bank. Prior to joining the World Bank, he served as Chief Economic Adviser to the Government of India. A Fellow of the Econometric Society, he has published widely in the areas of Development Economics, Industrial Organization, Game Theory and Welfare Economics. His books include *Analytical Development Economics* (1997, MIT Press), *Prelude to Political Economy: A Study of the Social and Political Foundations of Economics* (2000, Oxford University Press), *Of People, Of Places: Sketches from an Economist's Notebook* (1994, Oxford University Press), and *Beyond the Invisible Hand: Groundwork for a New Economics* (2011, Princeton University Press and Penguin). In May 2008, he was awarded the Padma Bhushan by the Government of India.

Jurors

Avinash Dixit

John J. F. Sherrerd '52 University Professor of Economics Emeritus at Princeton University, USA

Arunava Sen

Professor, Economics and Planning Unit, Indian Statistical Institute, New Delhi, India

Nirvikar Singh

Professor, Economics and Sarbjit Singh Aurora Chair of Sikh and Punjabi Studies, UC, Santa Cruz, USA

Roger Myerson

2007 Nobel Laureate in Economics, Glen A. Lloyd Distinguished Service Professor of Economics, University of Chicago, USA

Garance Genicot

Associate Professor, Department of Economics, Georgetown University, Washington DC, USA

TRUSTEES



S. D. Shibulal

Co-founder, Infosys Limited
President of the Board of Trustees,
Infosys Science Foundation
Co-founder, Axilor Ventures Private
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Narayana Murthy

Founder, Infosys Limited
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Dr. Vishal Sikka

Chief Executive Officer and
Managing Director, Infosys Limited
Trustee, Infosys Science Foundation



S. Gopalakrishnan

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Trustee, Infosys Science Foundation
Co-founder, Axilor Ventures Private
Limited



Bhavna Mehra

General Manager, Infosys Science
Foundation



T. V. Mohandas Pai

Former Director, Infosys Limited
Trustee, Infosys Science Foundation
Chairman, Manipal Global
Education Services Pvt. Limited

THE INFOSYS SCIENCE FOUNDATION

SECURING INDIA'S SCIENTIFIC FUTURE

The Infosys Science Foundation is a not-for-profit trust set up in 2009. It confers the Infosys Prize to honor outstanding achievements across six categories of research: Engineering and Computer Science, Humanities, Life Sciences, Mathematical Sciences, Physical Sciences and Social Sciences. A jury comprising eminent leaders in each of these fields evaluates the achievements of nominees against the standards of international research, placing the winners on par with the finest researchers in the world. The prize consists of a gold medal, a citation and a purse of ₹65 lakh.

In keeping with its mission of spreading the culture of science, the Foundation has instituted the Infosys Science Foundation Lectures – a series of public talks, mostly by jurors and laureates of the Infosys Prize. These talks and interactions aim to inspire young researchers and students by igniting their curiosity and opening up a world of possibilities. In 2014, the Foundation piloted *Gnanadeepa*, a training program for school teachers from rural Karnataka, to improve the delivery of concepts in science and mathematics.

INFOSYS SCIENCE FOUNDATION

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