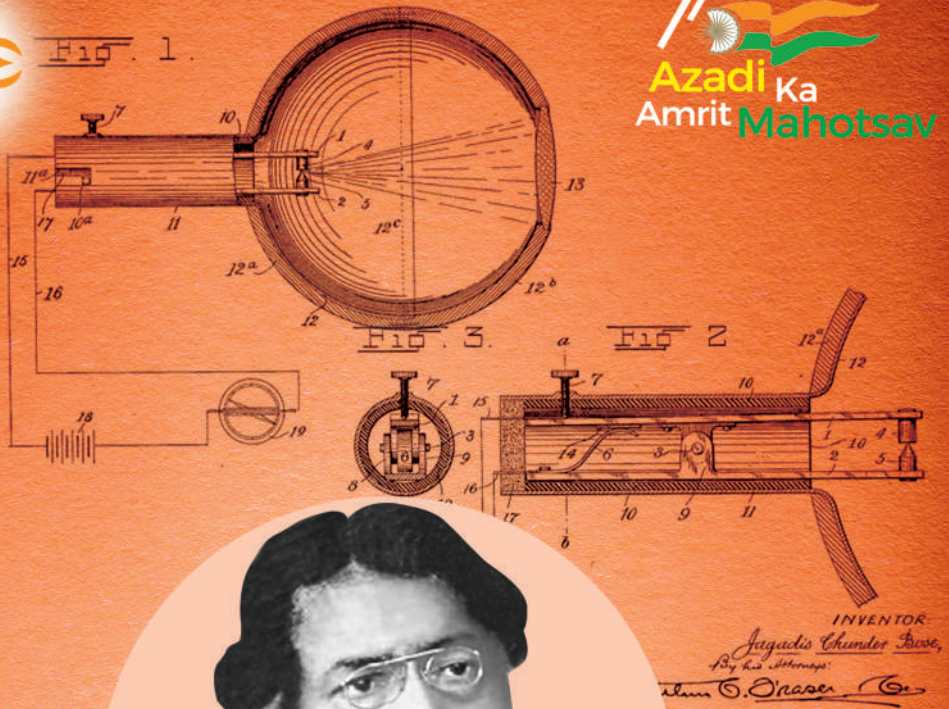




75
Azadi Ka
Amrit Mahotsav



106th FOUNDATION DAY

83rd

ACHARYA J.C. BOSE MEMORIAL LECTURE

30th November, 2022

BOSE INSTITUTE

(An Autonomous Institute under Department of Science and Technology, Govt. of India)



**The Brave New World of Science Today is but the World of
J. C. Bose & C. V. Raman: Coming Full Circle**

Prof. Ashutosh Sharma

Institute Chair Professor
Department of Chemical Engineering
Indian Institute of Technology Kanpur

Abstract

This talk is NOT about a specific area or product of science, but an examination of some of the compelling processes of doing science and its translation to useful applications. Such processes include, but are not limited to: the power of lateral thinking and scientific commonsense; connecting the dots, creativity, being interdisciplinary; relating a narrow domain of research to the larger concerns of science and, while doing all this, putting some fun, quality and excitement back in research starting at PhD level! In short, everything that is not addressed in classrooms and labs!

The talk will indicate some major oncoming challenges, opportunities and directions in scientific research such as: Sustainable Development, Convergence of technologies, Rise of Intelligent Machines & Industry 4.0/Society 5.0, Managing Data and information and knowledge: Science Communication and Popularization; Connecting Science to Innovation and Society; and Nurturing Diversity.

To meet these and other challenges requires a new mind, a new culture which I will argue were in fact not so different in the life and world of Acharya J. C. Bose!

The idea is to encourage awareness and debate on some of the issues that concern the principles, processes and practice of science in the future which is rushing at us at ever faster (even exponential) rate!



BOSE INSTITUTE
KOLKATA



As a part of the Celebration of the
75th Year of Independence of India
Azadi Ka Amrit Mahotsav

Bose Institute Observes

106th FOUNDATION DAY

Director
and
Staff Members of Bose Institute
request the pleasure of your company at the

83rd ACHARYA J. C. BOSE MEMORIAL LECTURE

on
30th November, 2022 at 3.00 p.m.

Speaker

Prof. Ashutosh Sharma

Institute Chair Professor
Department of Chemical Engineering
Indian Institute of Technology
Kanpur

Titled

**The Brave New World of Science Today is but the World of
J. C. Bose & C. V. Raman: Coming Full Circle**

Prof. Gautam R. Desiraju

Honorary Professor
Solid State and Structural Chemistry Unit
Indian Institute of Science, Bangalore
has kindly consented to preside over the programme.

Venue:

Unified Academic Campus
Block EN, Plot No. - 80, Sector-V
Salt Lake City
Kolkata - 700 091

Prof. (Dr.) Uday Bandyopadhyay

Director
Bose Institute

“In the pursuit of my investigations I was unconsciously led into the border region of physics and physiology and was amazed to find boundary lines vanishing and points of contact emerge between the realms of the Living and Non-living”

- Sir Jagadis Chandra Bose



About the Speaker



Prof. Ashutosh Sharma received his PhD from the State University of New York at Buffalo (SUNYAB; 1988), his MS from the Pennsylvania State University (1984) and B.Tech. from IIT Kanpur (1982). He has been a full professor (1997-), an Institute Chair Professor (2007-) and the Head (2003-05) of Chemical Engineering, and the founding PI & Coordinator of Nanosciences Center and Advanced Imaging Center at the Indian Institute of Technology at Kanpur.

He is a former Secretary to the Government of India (January 2015 to August 2021), heading the Department of Science and Technology (DST), and Chairman of Science and Engineering Research Board (SERB) and Technology Development Board (TDB)-institutions where he helped initiate several new policies and programs related to: infrastructure and human capacity building; innovation and startups; surveying, mapping and geospatial data; R&D in advanced manufacturing, waste processing, clean energy, quantum technologies and cyber-physical systems; industry-academia cooperation; science communication; women scientists; and major international collaborations in the areas of priority for the nation.

Prof. Sharma's research contributions are highly interdisciplinary, spanning a wide spectrum in nanotechnology; thin polymer films; nanocomposites and devices in energy, health and environment; functional interfaces; micro/nano-mechanics of soft matter; nano-patterning and nanofabrication; colloid and interfacial engineering; biomaterials & biosurfaces; wetting and adhesion. He has published over 350 peer reviewed papers which have been cited around 20000 times (H index: 77), filed over 12 patents, given over 150 invited or key note scientific conference presentations and mentored a successful nanotechnology startup.

Prof. Ashutosh Sharma is a recipient of numerous honors and awards including the inaugural Infosys Prize in Engineering and Computer Science, TWAS Science Prize of the World Academy of Sciences, Bessel Research Award of the Humboldt Foundation, J. C. Bose Fellowship, S. S. Bhatnagar Prize, Homi J. Bhabha Award of UGC, The Syed Husain Zaheer Medal and the Meghnad Saha Medal of INSA, Distinguished Alumni Awards of IIT Kanpur and SUNY Buffalo, Firodia Award, the Life-time Achievement Award of the Indian Science Congress and several Doctor of Science honoris causa, including from SUNY Buffalo, and Jadavpur University.

Prof. Ashutosh Sharma is an elected Fellow of The Indian National Science Academy, The Indian Academy of Sciences, The National Academy of Sciences, India and Indian National Academy of Engineering, The World Academy of Sciences (TWAS) and the Asia-Pacific Academy of Materials. He has also served on the Councils of the first two. He has been an associate editor of ACS Applied Materials and Interfaces, Proceedings of Indian National Science Academy and ASME Journal of Micro- and Nano-Manufacturing and has been on the editorial boards of several journals: Carbon; ACS Industrial and Engineering Chemistry Research; Current Science; Nanomaterials and Energy; Chemical Engineering Science; Journal of Colloid and Interface Science; Canadian Journal of Chemical Engineering and Indian Chemical Engineer.

Prof. Sharma other interests are in ancient history and philosophy, poetry and art.



**BOSE INSTITUTE
KOLKATA**

OBSERVANCE OF
106th FOUNDATION DAY
AND

83rd ACHARYA J. C. BOSE MEMORIAL LECTURE

PROGRAMME
30th November, 2022

HOMAGE

12:00 - 13:30 ... Floral Offerings at the Samadhi, Main Campus
Garlanding the busts of Acharya J. C. Bose at Unified
Academic Campus, Centenary Campus, Madhyamgram
Campus, Falta Campus, Shyamnagar Campus, and
Darjeeling Campus

MAIN PROGRAMME

15:00 - 15:05 ... Invocation
15:05 - 15:20 ... Welcome Address & Director's Report by
Prof. (Dr.) Uday Bandyopadhyay
Director, Bose Institute
15:20 - 15:30 ... Introduction to the Speaker by the Chairman
15:30 - 16:15 ... 83rd Acharya J. C. Bose Memorial Lecture by
Prof. Ashutosh Sharma
16:15 - 16:25 ... Chairman's Address by **Prof. Gautam R. Desiraju**
16:25 - 16:30 ... Vote of Thanks by the Chairman of the Foundation
Day Committee

NATIONAL ANTHEM



Past Lecturers

Rabindra Nath Tagore	:	1938	Prof. Niharranjan Ray	:	1980
Prof. M.N. Saha	:	1939	Prof. Sukumar Sen	:	1981
Prof. S. S. Bhatnagar	:	1940	Prof. B.K. Bachhawat	:	1982
Dr. J. C. Ghosh	:	1941	Swami Lokeshwarananda	:	1983
Sir Cyril S. Fox	:	1943	Prof. N.S. Subbarao	:	1984
Dr. K.P. Biswas	:	1944	Prof. R.C. Majumder	:	1985
Dr. P. Jarija	:	1945	Prof. C.N.R. Rao	:	1986
Dr. S.K. Mitra	:	1946	Prof. S. Chandrasekher	:	1987
Dr. J. N. Mukherjee	:	1947	Dr. A.P. Mitra	:	1988
Prof. K.N. Bhal	:	1948	Prof. O. Siddiqi	:	1989
Dr. K.C. Mehta	:	1949	Dr. S. R. Ramachandran	:	1990
Dr. S.K. Banerji	:	1950	Prof. P.N. Tandon	:	1991
Dr. P.C. Mahalanobis	:	1951	Prof. H. Sarat Chandra	:	1992
Prof. R.C. Majumder	:	1952	Dr. U.R. Rao	:	1993
Dr. N.K. Bose	:	1953	Dr. S.Z. Qasim	:	1994
Prof. S.N. Bose	:	1954	Dr. P.K. Iyenger	:	1995
Dr. S.I. Hora	:	1955	Dr. G. Padmanaban	:	1996
Dr. A.C. Ukil	:	1956	Prof. V. Ramalingaswami	:	1997
Dr. D.N. Wadia	:	1957	Prof. N.K. Ganguly	:	1998
Dr. S. Radhakrishnan	:	1958	Dr. R.A. Mashelkar	:	1999
Sir Jhangir Gandhi	:	1959	Prof. P. Balaram	:	2000
Dr. V.R. Khanolkar	:	1960	Prof. Ramanath Kowsik	:	2001
Dr. B.C. Guha	:	1961	Dr. Pushpa M. Bhargava	:	2002
Dr. D.N. Ramachandran	:	1962	Prof. M. S. Valiathan	:	2003
Dr. S. Bhagavantan	:	1963	Prof. Asok Sen	:	2004
Shri Asoke Mehta	:	1964	Prof. Rajesh Kochhar	:	2005
Prof. P. Maheshwari	:	1965	Prof. V. S. Ramamurthy	:	2006
Dr. Atma Ram	:	1966	Swami Jitatananda	:	2007
Acamedician A.I. Oparin	:	1967	Prof. F. P. Marconi	:	2008
Dr. B.D. Nag Chowdhuri	:	1968	Prof. J. N. Mohanty	:	2009
Dr. Homi N. Seethna	:	1969	Prof. André Bêteille	:	2010
Dr. P.R. Ray	:	1970	Swami Atmapriyananda	:	2011
Dr. N.K. Bose	:	1971	Shri Gopal Krishna Gandhi	:	2012
Prof. S. Swaminathan	:	1972	Professor Mushirul Hasan	:	2013
Dr. A. Srinivasan	:	1973	Dr. Srikumar Banerjee	:	2014
Dr. A. Ramachandran	:	1974	Dr. T. Ramasami	:	2015
Dr. B. Mukherjee	:	1975	Prof. Raghavendra Gadagkar	:	2016
Prof. G.P. Talwar	:	1976	Prof. Ada Yonath	:	2017
Dr. Raja Ramanna	:	1977	Prof. T.V. Ramakrishnan	:	2018
Prof. (Mrs.) A. Chatterjee	:	1978	Prof. Subhash Kak	:	2019
Prof. S.K. Mukherjee	:	1979	Prof. Gautam R. Desiraju	:	2021