

INDIAN INSTITUTE OF TECHNOLOGY KANPUR

Institute Foundation Day

Professor Ashutosh Sharma

Prof. Ashutosh Sharma is a visionary academician who has made some exceptional interdisciplinary contributions in nanosciences and nanotechnology fields. Since January 2015, he has been serving as the Secretary, Department of Science and Technology, Government of India where he has helped in initiating several new programs related to infrastructure and human capacity building, innovation and startups, R&D in advanced manufacturing, waste processing, clean energy and cyber-physical systems, industry-academia cooperation, science communication, women scientists and initiated major international collaborations in the areas of priority for the nation.

Prof. Sharma received his B.Tech. in Chemical Engineering from IIT Kanpur in 1982. In 1983, he obtained his master's from Pennsylvania State University and later joined the doctoral program at the State University of New York, Buffalo, and obtained a Ph.D. under the supervision of Prof. Eli Ruckenstein in 1987. For the next three years, he worked as a research scientist with the Department of Ophthalmology, School of Medicine and Biomedical Sciences, State University of New York. In 1991, he moved back to India and joined IIT Kanpur as an Assistant Professor in the Department of Chemical Engineering. He later served as Head, Chemical Engineering from 2003 to 2005.

Prof. Sharma's research contributions are highly interdisciplinary, spanning a wide range of nanotechnology areas: carbon based nanocomposites and MEMS/NEMS in energy, health and environment, functional interfaces, mechanics of soft matter, nano-patterning and nanofabrication, colloid and interfacial engineering, biomaterials & bio surfaces, wetting, adhesion and thin polymer films. He has made original contributions to the understanding of the behavior of thin films and other highly confined nanoscale systems. He has explained the instability and evolution of morphology of thin films on homogeneous substrates by 3D nonlinear stability theory and experiments. He has proposed a new theory for de-wetting of thin films on heterogeneous and patterned substrates leading to a novel method for the small-scale patterning of polymer films by templating. His works on nano-fabrication using carbon based materials have led to the development of hierarchical micro to nano structures which are expected to have applications in energy storage devices, sensors in the domain of health care, filtration and so on. He has, so far, published 350 peer reviewed papers, filed over 15 patents, given over 150 invited or keynote conference presentations and mentored a successful nanotechnology start-up.

Prof. Sharma is a recipient of numerous national and international honor and awards including the prestigious Shanti Swarup Bhatnagar award (2002) in engineering sciences for his "original pioneering contribution to the understanding of the behavior of thin films and other highly confined nanoscale systems". He is also the recipient of the UNESCO medal for outstanding contributions to the development of nanoscience and nanotechnologies (2017), Distinguished alumni award, State University of New York, SUNY Buffalo (2016), In 2010, the Infosys Science Foundation awarded him with the Infosys Prize in Engineering and Computer Science for his "scholarly scientific contributions in the broad areas of nanoscale surface pattern evolution, instability, and the dynamics of thin liquid and solid films and soft matter." Prof. Sharma was bestowed with the TWAS Prize in the engineering sciences (2008) for his fundamental contributions to meso-mechanics, instabilities and self-organization in soft thin films; meso-patterning; wetting; adhesion and interfacial interactions, ." In, 2007, he received the IIT Kanpur Distinguished Alumnus Award and in 2006, the inaugural Bessel Research Award of the Humboldt Foundation. Other special awards include Homi J. Bhabha Award (2007) for Applied Sciences, University Grants Commission (UGC), Kapsita Gold Medal from Russian Academy of Natural Sciences (2010), Firodia award (2017), Herdillia award (2003), J. C. Bose National Fellowship, DST (2006), National Hari Om Ashram Trust Awards (2007) and R. C. Mehrotra Memorial Lifetime Achievement Award (2010). He is an elected fellow of the Indian National Academy of Engineering, National Academy of Sciences and Indian Academy of Sciences. He has also been an INAE Chair Professor from 2011 to 2013, and C. V. Seshadri Chair Professor, 2012.

IIT Kanpur takes great pride in honouring Professor Ashutosh Sharma as an Institute Fellow.

2nd November 2020



Abhay Karandikar
Director