Arup Kumar Raychaudhuri

Distinguished Professor (Emeritus)

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General area of research:Experimental Condensed Matter Physics, Materials Physics and Nanosciences

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Prof. Raychaudhuri obtained his M.Sc from IIT,Kanpur (1975) and Ph.D from Cornell University (1980). He had post-doctoral experience at the Max Planck Institute (FKF),Stuttgart as an Alexander von Humboldt Fellow (1980-1982). He served as the Director and Distinguished Professor of S.N.Bose National Centre for Basic Sciences from March 2006 to September 2014. Prior to joining the Centre in 2004 as a Senior Professor , he worked as a Professor of Physics in Indian Institute Science (IISc), Bangalore from 1982 and as Director, National Physical Laboratory (NPL), New Delhi from 1997-2000.

His research interests, spanning a period from 1976 till date, covered a broad canvas of problems in condensed matter physics and materials physics. This includes physics of glassy states, metal-insulator transition in oxides, physics of High Tc superconductors and colossal magnetoresistance . His research activities encompass synthesis of materials of different kinds, fabrication of nano devices and physical measurements done down to low temperatures in high magnetic fields using a variety of techniques involving electrical, magnetic and optical measurements as well as scanning probe techniques and electron microscopy. During his tenure as the Director, most of the important experimental research facilities including the Technical Cell , that houses the sophisticated instruments for common use in the Centre were established.

His current research mainly focuses mainly on two streams. One of his major interests is in the field of nanoscience and technology that include nanofabrications using nanolithography techniques such as use of electron-beam and ion-beam lithography for fabrication of single nanowires based devices. These single nanowires devices are used for studying new physics and making ultra-sensitive radiation and charge detectors. His other interest is study of basic physics issues of metal insulator transition in ultra thin epitaxial films of correlated oxides made using Laser Epitaxy. The study involves extensive use of Scanning Tunneling Microscopy (under Ultra High Vacuum)) , 1/f noise and resistance fluctuations , impedance spectroscopy and low temperature and high magnetic field transport measurements.

Professor Raychaudhuri is also the Nodal Officer of the prestigious Technical Research Center project of the centre .

His group (in IISc and SNBNCBS) had graduated more than 35 Ph.D students who are now established researchers/academics/professionals in India and abroad. His research work is widely cited. He is a recipient of the Shanti Swarup Bhatnagar Prize in Physical Sciences and is a Fellow of all the Science academies in India.

Professor AKR serves in a number of national committees that include Science and Engineering Research Board (SERB) and Programme Advisory Committee (PAC) on Solar energy research initiative of the Department of Science and Technology, Gov of India. He had been a member of the Science and Engineering Research Council (SERC) of the Department of Science and Technology and chaired the PAC on condensed matter physics and materials science. He also chaired the FIST advisory committee of DST on physical sciences. He has served as the member of Board of Governors (BOG) of IISER , Pune and IIT, Kanpur.