

## Brief Academic Profile of Professor Purushottam Chakraborty

Presently, 'Senior Professor of Physics' at Saha Institute of Nuclear Physics, Kolkata, INDIA

### Research Areas of Interest:

- Atomic collisions in solids, in general
- Inelastic ion-surface collisions, Secondary ion mass spectrometry (SIMS), Rutherford backscattering spectrometry (RBS), X-ray photoelectron spectroscopy (XPS)
- Ion beam analysis of surfaces and interfaces, Secondary emission of complex molecular ions, Ion beam modifications of materials
- SIMS/XPS/RBS/XTEM/XRR studies on surfaces/interfaces of ultrathin films, multilayers and quantum structures
- Molecular Beam Epitaxy (MBE) grown semiconductor systems - Si/Ge multilayers,  $\text{Si}_x\text{Ge}_{1-x}$  alloys and self-assembled Ge quantum dots
- Ion beam synthesis of metal-glass nanocomposites for nonlinear photonic applications
- Diffusion kinematics of silver in SiC and pyrolytic graphite at elevated temperatures and analysis of microstructures of the layers in TRISO Particles used as fuels in Pebble Bed Modular Reactor (PBMR) [in collaboration with Physics Department, University of Pretoria, South Africa]
- Layered synthetic microstructures as x-uv optical elements

### Honours and Recognitions:

- Appointed as '*Honorary Professor*', Department of Physics, University of Pretoria, SOUTH AFRICA
- Elected Fellow, West Bengal Academy of Science and Technology
- Invited Member, Council of NANOAFNET (Nanosciences African Network)
- "*Most Eminent Mass Spectrometrists of India*" - awarded (2003) by the Indian Society for Mass Spectrometry (ISMAS) for outstanding contributions in the field of "Secondary Ion Mass Spectrometry"
- Felicitated with '*Gold Medal*' by Dr. Anil Kakodkar, Chairman, Atomic Energy Commission, Government of India (2003)
- '*K C Kar Memorial Lecture*' delivered at the Institute of Theoretical Physics, Kolkata (31 August 1996)
- Recipient of "*Mouat Silver Medal*" of Calcutta University (1988)
- "*Rashbehari Ghose Fellowship*", awarded by Calcutta University (1984)
- '*Premchand Roychand Scholarship* (PRS)' awarded by Calcutta University (1980)

### Scientific Visits and Invited Talks delivered:

- Physics Department, Vanderbilt University, Nashville - Tennessee, **USA** (Sept 2010)
- Physics Department, Furman University, Greenville - South Carolina **USA** (Sept 2010)
- Electrical Engineering Department, Yale University, New Haven - Connecticut, **USA** (October, 2010)
- Materials Department, Imperial College, London, **ENGLAND** (June 2010)
- Newcastle University, Newcastle, **AUSTRALIA** (November-December, 2008)
- Osaka University of Electro-Communications, Osaka, **JAPAN** (March-April, 2008)
- Visiting Professor, Physics Department, University of Pretoria, **SOUTH AFRICA** (2007-08)
- Visiting Professor, Physics Dept., Universite' Laval, Quebec, **CANADA** (1994-95)
- Visiting Professor, Friedrich Schiller University, Jena, **GERMANY** (1994)
- Visiting Scientist (as ICTP Fellow), Physics Dept., Padova University, **ITALY** (1992-94)
- Visiting Scientist, Marie Curie Sklodowska University, Lublin, **POLAND** (1987)
- Research Associate, International Centre for Theoretical Physics (ICTP), Trieste, **ITALY** (June-September, 1987)
- Visiting Scientist, FOM-Institute for Atomic and Molecular Physics, Amsterdam; worked in collaboration with Philips Research Laboratories, Eindhoven, **NETHERLANDS** (1984-1985)

### Publications

Published more than **100 research papers** in international journals including reviews, monographs and book-chapters.

Edited a book on '*Ion Beam Analysis of Surfaces and Interfaces*' (Nova Science Publishers, New York, USA), 2002 and *Journal of Physics: Conference Series* (IOP Publications, UK), 2006