

## **CURRICULUM VITAE**

1. **Name** : Dr. Ratan Kumar Paul
2. **Date of Birth** : 12<sup>th</sup> July 1961
3. **Marital Status** : Married
4. **Nationality** : Indian
5. **Field of Specialization** : Plasma Physics
6. **Address for Communication** : Dr. Ratan Kumar Paul  
Dept. of Physics  
BIT Mesra
  
7. **Academic Qualifications** :
  - a) Passed B.Sc. (Honours in Physics) with 62.6%, from the University of North Bengal (1980-1983)
  - b) Obtained M. Sc. (Post Graduate, Spl. Paper – Nuclear Physics) degree in Physics with 62% from the University of North Bengal
  - c) Obtained Ph.D. degree in Physics (October 1996) from the University of Calcutta
  - d) Post Doctoral Fellow at Saha Institute of Nuclear Physics, Kolkata (October 1996-April 1999)
  - e) Visiting Scientist at Saha Institute of Nuclear Physics, Kolkata (16.10.2000-16.12.2000)
  
8. **Title of Thesis**

**Some investigations of MHD activities in SINP Tokamak plasma using optical imaging techniques.**
  
9. **Experiences**
  - a) Operation of a small Tokamak machine
  - b) Operation of several subsystems as audio frequency discharge cleaning system, slow bank and data acquisition system
  - c) Development of soft-x-ray tomography system, visible light imaging system
  - d) Experience with several diagnostics such as magnetic pickup loops, Spectroscopy.
  - e) Data analysis on disruption phenomena like sawtooth activity (internal Disruption), Minor and Major disruption using the software for image reconstruction
  - f) Comparing the experimental results with the existing theoretical models

- g) Spectroscopic work on plasma torch
- h) Lecturer at Bidhannagar College from November 1999 to April 2000
- i) Lecturer at Maharani Kasiswari College, Kolkata – 700 003
- j) Lecturer at Birla Institute of Technology, Mesra, Ranchi – 835215 from October 1, 2001 to January 31, 2003.
- k) Lecturer (selection Grade) at Birla Institute of Technology, Mesra, Ranchi – 835215.
- l) Associate Professor and In-charge Physics dept, BIT Mesra, extension centre Deoghar from 2008 to Dec 2015.
- m) At present Associate Professor Physics dept, BIT Mesra.

**10. Research Interest:** Presently Dr. Paul is working on the development of very fast, accurate, convenient and viable method for computerized tomography which has potential application in a host of technological areas including medicine, space research and plasma diagnostics. The existing methods warrant the use of a large number of detectors, making the apparatus complex. They also require longer computational time and consume considerable computer resource. Abel inversion is pivotal in tomography and he has developed a novel method for performing the same that effectively reduces the complexity of the entire process drastically. An elaborate article on this technique has been published in Review of Scientific Instruments (Sep 2007). Intensive computational work is underway at his level to achieve and ease out the complexities of conventional computer aided tomography. An article namely “Investigation on the Feasibility of Fusion in a Compressed Beam of Ions Subject to Electrostatic Field” has been published in the Journal of Plasma Physics (2015) on his finding of cold fusion process. At present he is having 18 different high quality international journal, national journal, international conference and national conference papers in his credit.

**12. List of Publications:**

**(A) INTERNATIONAL JOURNAL PUBLICATIONS**

1. **R.K.Paul** , “Investigation on the Feasibility of Fusion in a Compressed Beam of Ions Subject to an Electrostatic Field” , Journal of Plasma Physics (2015) vol 81, 905810107.
2. **R.K.Paul**, “Novel Approach to Abel Inversion,” Rev. Sci. Instrum, 78, 093701(2007), published online 4th Sep 2007.
3. **R.K.Paul**, J.T.Andrews, K.Bose and P.K.Barhai, “Reconstruction errors in Abel Inversion,” Plasma Devices and Operations, 13 (2005) 281-289.

4. M.K.Sinha, S.K.Mukherjee, B.Pathak, **R.K.Paul**, P.K.Barhai, "Effect of deposition process parameters on resistivity of metal and alloy films deposited using anodic vacuum arc technique," *Thin Solid Films*, 515 (2006) 1753-1757.
5. **R.K.Paul**, D.Banik, A.N.S.Iyenger, "Electron Temperature Estimation in the Saha Institute of Nuclear Physics Tokamak from the soft x-ray Imaging System," *Rev.Sci.Instrum*, 69 (1998) 1378-1382.
6. **R.K.Paul**, A.N.S.Iyenger, A.K.Hui, "Anomalous Current Penetration in the SINP Tokamak," *Nuclear Fusion*, 38 (1998) 1381-1383.
7. P.Ranjan, A.K.Hui, S.Chowdhury, **R.K.Paul**, S.Basu, P.S.Bhattacharya, A.Bal, R.Roy, S.K.Mazumder and N.K.Mukhopadhyay, "Audio-frequency Discharge Cleaning System for the SINP Tokamak using Single Turn Primary," *Rev.Sci.Instrum*, 65(1) (1997) 135-139.
8. C.V.S.Rao, Y.Shankara Joisa, C.J.Hansalia, Amit k. Hui, **Ratan Paul**, Prabhat Ranjan, "Vacuum Photodiode Detectors for Broadband vacuum Ultraviolet Detection in the Saha Institute of Nuclear Physics Tokamak," *Rev.Sci.Instrum*, 68(2) 1997 1142-1148.

**(B) NATIONAL JOURNAL PUBLICATION**

1. A.N.Sekhar, Iyenger, S.K.Mazumder, J.Basu, **R.K.Paul**, R.Pal and S.Chowdhury, "Ultra Low q Discharge Experiments in the SINP Tokamak," *Pramana*, 39 (1992) 177-180.
2. P.Ranjan, A.K.Hui, **R.K.Paul** and P.mukherjee, "Modification of Gas Puffing System in SINP Tokamak," *Indian Journal of Pure and Applied Physics*, 34 (1996) 140-148.

**(C) INTERNATIONAL CONFERENCES**

1. **Paul.R.K**, Hui.A.K, Banik.D, Ranjan.P, Mukherjee, "The Study of Disruption phenomena in SINP Tokamak," *Frontier of Physics in Fusion relevant Plasma*, 96 Asian Science Seminar, Oct. 20-29, 1996, Hefei-Tunxi, Anhui Province, P.R.China.
2. **Paul.R.K**, Hui.A.K, Banik.D, Ranjan.P, Iyenger.A.N.S, Chowdhury.S and Munshi.S, "The Study of MHD Activities in SINP Tokamak using Visible Light Detector Array," *Proceedings of the 1989 International Conference on Plasma Physics*, New Delhi, India, November 22-28, 01 (1989) 37-40.
3. A.K.Hui, **R.K.Paul**, P.Ranjan and D.Banik, "The Study of Sawtooth oscillation in the SINP Tokamak," *IAEA- Technical Committee meeting on Research Using Small Tokamaks*, Serra Negra, S.P., Brazil, 25-26 October, 1993 82-87.

**(D) NATIONAL CONFERENCE**

1. **Paul,R.K**, Hui A.K, Banik D, Ranjan P, "Study of Disruptions in SINP Tokamak using Soft x-ray Imaging System," *Plasma Science and Technology*, *Proceedings of the Saha Centenary Symposium*, Allahabad, Oct 11-14, 1993 (399-402).
2. **Paul R.K**, Banik D, Iyenger A.N.S and Hui A.K, "Estimation of Electron Temperature and the Study of Current Penetration during Current Rise Phase using Soft X-ray Imaging system in SINP Tokamak," *XII National Symposium on Plasma Science and Technology*, *PLASMA-97*, Dec, 2-5, 1997, Ahmedabad.

3. **R.K.Paul**, D.Banik, M.S.Janaki, S.Lahiri, A.N.Sekhar. Iyenger, S.K. Mukhopadhyay, P.Ranjan and A.K.Hui, "Investigation of Sawtooth Oscillation in the SINP Tokamak," 15<sup>th</sup> National Symposium on Plasma Science and Technology, PLASMA-2000, Dec. 5-8, 2000, Kolkata.
4. **R.K.Paul**, S.Mukherjee, D.Banik and A.K.Hui, "Investigation of Soft X-ray Profile in the Discharges of SINP Tokamak," 16<sup>th</sup> National Symposium on Plasma Science and Technology, Plasma -2001, Dec, 17-20, 2001, Guwahati.
5. **R.K.Paul**, J.T.Andrews, K Bose and P.K.Barhai, " Development of Abel Inversion Program for the study of Thermal Plasma Generated by Arc Generator," 17<sup>th</sup> National Symposium on Plasma Science and Technology, PLASMA- 2002, Dec, 16-19, 2002, Coimbatore.