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UNIVERSITY OF NORTH BENGAL

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Raja Rammohunpur, Dist- Darjeeling, West Bengal, Pin-734013, India.



HIGH ENERGY COSMIC RAY RESEARCH CENTRE (HECRRC)



Dr. Tamal Sarkar



M.Sc. (Physics & Computer Science), MLISc,
M.Phil.(Physics), Ph.D (Physics)

Scientific Research officer Gr- II

Contact Addresses:

Contact No. +91-9434352457

E-Mail ta.sa.nbu@hotmail.com ; tsarkar@nbu.ac.in

Dr Tamal Sarkar, C/O- The Director, High Energy &
Cosmic Ray Research Centre, University of North

Mailing Address Bengal, P.O: North Bengal University,
Rajarammohanpur, District: Darjeeling, PIN –
734013

Subject

**Specialization, if
any**

Electronics (P.G.) and Computational Physics
(M.Phil)

Area of Research Interest

Astrophysics and Computational Physics

Number of Ph.D. students

a) Supervised : Nil **b) Ongoing :** Nil

Number of M.Phil. students

a) Supervised : Nil **b) Ongoing :** Nil

Number of Publications

Journal-13, Book Chapter-03

Achievement and awards

CSIR-JRF-NET FELLOWSHIP, JEST, GATE

Professional Experiences

- Operating Assistant (2001-2002): West Bengal Power Development Cooperation Limited
- JRF at IITG-2002
- Assistant Teacher Physics in Govt. Aided School (PG Scale) (2002-2007),
- Technical Officer -I, USIC, NBU (February 15, 2007 to December, 23, 2018)

- Scientific Research Officer Gr-II, HECRRC,NBU (Since December, 24, 2018 to present)

Administrative Experience Technical Officer -I, USIC, NBU (February 15, 2007 to Decemeber,23, 2018)

Members of Professional Bodies FOSET (Life member, LM2011-2069-SLG), The Indian Science Congress Association

Any other Information For other details please visit [Research Gate](#) or [Google](#)

Publications

- Journals:**
1. *Effects of the dark energy and flat rotational curve on the gravitational time delay of particle with non-zero mass*, Eur. Phys. J.C. (2016) 76:405, DOI: 10.1140/epjc/s10052-016-4252-0
 2. *Exact Relativistic Newtonian Representation of Gravitation Spacetime Geometries. The Astrophysical Journal* 826:6(4pp), 2016 September1 . DOI:10.3847/000-637X/828/1/6
 3. Tamal Sarkar , Samir Sarkar and Arunava Bhadra, *Spectral lags of flaring events in LSI + 61o 303 from RXTE.2016 Vol.16 No.7.104(10pp),DOI: 10.1088/1674-4527/16/7/104*
 4. Tamal Sarkar, Arunava Bhadra, Shubhrangshu Ghosh: *Newtonian analogue of static general relativistic spacetimes: An extension to naked singularities*. Physical Review D 10/2015; 92(8). DOI:10.1103/PhysRevD.92.083010
 5. Tamal Sarkar, Animesh Basak: *Image Analysis of Suzaku Observation of Transient Pulsar EXO 2030+375*. 12/2014; 4(1):5. DOI:10.9756/BIJAIP.10358
 6. Shubhrangshu Ghosh, Tamal Sarkar, Arunava Bhadra: *Newtonian analogue of corresponding spacetime dynamics of rotating black holes: Implication on black hole accretion*. Monthly Notices of the Royal Astronomical Society 11/2014; 445(4):4460-4476. DOI:10.1093/mnras/stu2046
 7. Tamal Sarkar, Shubhrangshu Ghosh, Arunava Bhadra: *Newtonian analogue of Schwarzschild–de Sitter spacetime: Influence on the local kinematics in galaxies*. Physical Review D 09/2014; 90(6):063008. DOI:10.1103/PhysRevD.90.063008
 8. Tamal Sarkar and Tanay Chattopadhyay: *Design of RS latch and RS flip-flop in quantum*

- cellular automata*. Physics Express 2014, 4: 27, PP: 1-7, Cognizure, www.cognizure.com/pubs
9. Tamal Sarkar: *Design of DFlip-Flip Using Nano-Technology based Quantum Cellular Automata*. International Journal of Soft Computing and Engineering (IJSCE),, ISSN: 2231-2307, Volume-3, Issue-4, September 2013
 10. Tanay Chattopadhyay, Tamal Sarkar: *All-optical switching by Kerr nonlinear prism and its application to of binary-to-gray-to-binary code conversion*. Optics & Laser Technology 09/2012; 44(6):1722-1728. DOI:10.1016/j.optlastec.2012.02.007
 11. Tamal Sarkar, Samir Chandra Das: *Mathematical modeling and estimation of physical dimensions of quantum dot using quantum theory*, Indian Journal of Theoretical Physics, Vol. 60. No.1, 2012, PP:27-34
 12. T.Chattopadhyay, T.Sarkar: *Logical Design of Quaternary Signed Digit Conversion Circuit and its Effectuation using Operational Amplifier*. **Bonfring International Journal of Power Systems and Integrated Circuits**, 2.4 (Dec 2012): 7-12
 13. Tamal Sarkar and Gautam Biswas: *A Study on Quantum Gates*, Indian Journal of Theoretical Physics, Vol. 56.No.4, PP: 251-275, 2008

Book Chapters:

1. Tamal Sarkar and A Bhadra : *An Introduction to Astronomical Data Analysis*, editor Dr BC Paul, Chapter 5, Scholar's Press, Germany, PP: 115-148, 2015, ISBN: 978-3-639-85990-4
2. Tamal Sarkar and A Bhadra : *Exploring the Cosmos*, editor A Bhadra, Lambert Academic Publishing, Germany, PP: 63-68, 2012, ISBN: 978-3844-39165-7
3. Tamal Sarkar and Arunava Bhadra: XXII DAE High Energy Physics Symposium, 2016, Chapter 209, Springer International Publishing AG, PP:859-861, ISBN 978-3-319-73171-1

Selected Conference Papers:

1. Tamal Sarkar, Samir Chandra Das, Ardhendu Mandal (2009): *A Study of Computer-Based Simulations for Nano-Systems and their types* <http://arxiv.org/abs/1109.1653> (2009, ISBN: 978-93-80043-61-6)
2. Tamal Sarkar, Samir Chandra Das, Tanay Chattopadyay: *Mathematical Modeling of Quantum Dot* (MS-18, ISBN: 978-93-80813-14-7) PP.183-185 [Link](#) (2011)
3. Tamal Sarkar And Tanay Chattopadyay (2012): *Kerr Prism as all Optical Switch* (2012: ISBN : 93-80813-14-7) PP. 193-195 (MDCCT-2012)

4. Tanay Chattopadyay And Tamal Sarkar (2012): Conversion from 2's Compliment Binary Number to Quaternary Signal Digit (NCECS 2012): ISBN 978-93-82338-06-2 (Bonfring) PP. 79-82
5. Tamal Sarkar (2013): Design of D Flip-Flop using Quantum Cellular Automata and its Cell-Cell response using Computer Simulation (ICTWR-2013):ISBN No. 978-93-5126-699-0, PP. 26-31
6. Tanay Chattopadyay And Tamal Sarkar (2013) : Design of AND-OR Gate using Quantum Quantum Cellular Automata and its Cell-Cell response using Computer Simulation(NCECS 2013) : 978-93-82338-71-0 (Bonfring) PP. 29-32
7. R. K. Dey, T. Sarkar, A. Bhadra (2013): Estimating Air Shower Fluctuations from the Monte Carlo Simulation Code CORSIKA, Procedia Technology 10 (2013) 236 – 241, ISSN: 2212-0173
8. Tamal Sarkar (2014): New QCA based Robust Design of RS Flip-Flop (2014): ISBN : 978-93-80663-20-3) PP. 193-195 (MDCCT-2014)
9. Tamal Sarkar, Arunava Bhadra and Shubrangshu Ghosh (2015): Generalised Pseudo-Newtonian potential for Kerr Black Holes, CICAHEP15.158, ational Conference on CICAHEP, Dibrugarh (2015),01, 126 – 130