

Dr Tamal Sarkar

Contact Addresses:

- Contact No. +91-8250528250
- E-Mail: ta.sa.nbu@hotmail.com ; tsarkar@nbu.ac.in

Mailing Address

- Dr Tamal Sarkar, C/O- The Director, High Energy & Cosmic Ray Research Centre, University of North Bengal, P.O: North Bengal University, Rajarammohanpur, District: Darjeeling, PIN – 734013

Qualification: M.Sc. (Physics), M. Phil (Physics), Ph.D. (Physics with Course work)

Area of specialization: Electronics (P.G.) , Computational Physics (M.Phil) and Astrophysics (Ph. D)

Area of Research Interest: Astrophysics and Computational Physics

Additional Qualification: M.Sc. (Computer Science), MLISc

Number of Ph.D. students a) Supervised : Nil b) Ongoing : Nil

Number of M.Phil. students a) Supervised : Nil b) Ongoing : Nil

Publications and citation: **Publications** : Journal: 14, Conference, Proceedings: 15, Book Chapter: 03

Please Visit: https://www.researchgate.net/profile/Tamal_Sarkar or <https://scholar.google.com/citations?user=eAcETmcAAAAJ&hl=en>

Achievement and awards: CSIR-JRF- NET FELLOWSHIP, JEST, GATE

Few Selected Papers:

- 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
- Exact Relativistic Newtonian Representation of Gravitation Space-time Geometries. The Astrophysical Journal 826:6(4pp), 2016 September1. DOI:10.3847/000-637X/828/1/6
- Spectral lags of flaring events in LSI + 61° 303 from RXTE.2016 Vol.16 No.7.104(10pp),DOI: 10.1088/1674-4527/16/7/104

- 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
- 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
- Newtonian analogue of corresponding space-time 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
- 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

Book Chapters:

- 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
- Tamal Sarkar and A Bhadra : Exploring the Cosmos, editor A Bhadra, Lambert Academic Publishing, Germany, PP: 63-68, 2012, ISBN: 978-3844-39165-7
- 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

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)
- IUCAA Associate: Selected for Associateship Program of IUCAA, Pune (August 1, 2019 for three years)

Paper presentation in Seminar/Conferences:

Name of the Event	Duration and place	Title of the presentation/ Acted as
CRAGA Online Colloquium Series, organized by High Energy & Cosmic Ray Research Centre (HECRRC), NBU	July 19, 2020, Google meet	Signature of Synchrotron radiation from High Energy Astrophysical sources
107 th Indian Science congress	January 3-7, 2020	Design of Different latches and flip-Flops sing QCA Investigation of the nature of X-ray Source 1E 161348-5055.1 using Spectral and Timing Analysis
India International science festival 2019	November 5-8, 2019, Biswa Bangla Convention centre, kolkata	Is 1E 161348-5055.1 a young low mass Binary or isolated magnetar?
UGC sponsored Orientation Programme (OP-NBU-41)	10.01.2020, HRDC, NBU	Online and Transnational education: A brief introduction
UGC sponsored Orientation Programme (OP-NBU-40)	08.11.2019, HRDC, NBU	Earth's Gravity and its Efect
106 th Indian Science congress	January 3-7, 2019, Lovely Professional University, Phagwara, Jalandhar	Study of radiation...using XMM Newton data
International Seminar on Correlative advancement on Analytical and Applied physics	October 21-22, 2019, Saint Joseph's College , Darjeeling	Importance of synchrotron radiation in X-ray Astronomy
UGC sponsored Orientation Programme (OP-NBU-39)	15.09.2019, HRDC, NBU	A brief introduction regarding development of online education and transnational education
UGC sponsored Orientation Programme (OP-NBU-38)	17.07.2019, HRDC, NBU	Understanding gravity with examples
Recent trend in Indian Higher Education Administration and Finance, organized by WBUOA	12 January, 2019 , Digha	Download of e-Resources under e-Shodhsindhu Consortium: A case study of North Bengal University
TECHNOVISION 2K19, organized by SIT, Siliguri	February 19, 2019, Siliguri Institute of Technology, Siliguri	Judge for the HARDWARE BASED Competition

TECHNOVISION 2K19, organized by SIT, Siliguri	February 20 , 2019, Siliguri Institute of Technology, Siliguri	Judge for the ROBOTICS Competition
Recent Advances in engineering Sciences, organized by SIT, Siliguri	September, 28-29, 2018 , SIT, Siliguri	An overview of Synchrotron Radiation from relativistic electrons and its application in X-Ray Astronomy

Name of the Event	Duration and place	Title of the presentation/ Acted as
Training programme on webpage designing	April 9-13, 2018, USIC, NBU	Acted as Course Coordinator
25 th West Bengal State Science and technology Congress, GOWB	March 4-5 , 2018, Science city Kolkata	The Effect of spin on the Radiative Flux in Kerr-Space Time
Workshop on Research Methodology, organized by North Bengal Saint Xavier's College	March 27, 2018, North Bengal Saint Xavier's College, Rajgunj	Acted as resource person
Workshop on Application and Usage of Scanning Electron Microscope (SEM)	January 11-12, 2018, USIC, NBU	Acted as Convener
2 nd Regional Science & technology congress, 2017	December 7-8, 2017, Siliguri College, Siliguri	The Effect of spin on the Radiative Flux in Kerr-Space Time and Outstanding paper Award
National workshop on recent Advances in Astrophysics & Cosmology, Organized by IUCAA resource Centre (IRC), Department of Physics	March 17-18, 2017, Department of Physics, NBU	Acted as Resource Person
Exploring the Cosmos: 2016-17, UGC Sponsored National Conference, organized by HECRRC, NBU	January 16-17, 2017, HECRRC, NBU	Particle trajectories in static Black Hole Spacetimes
National seminar entitled Higher Education: Inclusive and Qualitative Growth vis a vis officers, Organized by North Bengal University Officers' Association (NBUOA)	September 10, 2016, Conference hall, NBU	Impact of Cost-recovery Measures on Quality of Higher Education
National conference on current issues in Cosmology, Astrophysics and High Energy Physics (CICAHEP)	November, 2-5, 2015, department of Physics, Dibrugarh University, Assam	Generalized Pseudo-Newtonian potential for Kerr Black Holes
National Seminar entitled Digital India: Higher	August 22-23, 2015, Udayshankar Hall,	Need of virtual classroom to enhance the quality of open

Education Scenario: Issues, Challenges & Prospects	Jorasanko campus, Rabindra Bharati University, Kolkata	mode of learning: An emerging form, of education
22 nd West Bengal State Scienced & technology Congress-2015	February 28 and March 1, 2015, University of north Bengal	Digital circuit Designing using iVerlog Process of Triple formation and its Evolution

Name of the Event	Duration and place	Title of the presentation/ Acted as
Physics and Applied Mathematics Researchers' Meet-2015	March 18-20 , 2015, Indian Statistical Institute, Kolkata	Influence of Cosmological constant on Gravitational Time Delay of Massive particles
Exploring the Cosmos, UGC Sponsored Conference	January 22, 2015, HECRRC, NBU	Dependence of gravitational transit on Cosmological constant for massive particle

Professional / Faculty Development Programme Completed:

Professional Body / Agency	Name of the FDP/Course	Duration
NPTEL-AICTE, IITM	Patent law for engineers	Jan-Apr 2018
NPTEL-AICTE, IITM	Effective Engineering Teaching in Practice	Feb-march 2018
NPTEL-AICTE, IITR	Biomedical nanotechnology	Aug-sep 2018
NPTEL-AICTE, IITM	Biology for Engineers and other Non Bilogists	Aug-sep 2018
NPTEL-AICTE, IITM	Matlab Programming for Numerical Computation	Jan-Mar 2019
NPTEL-AICTE, IITR	Introduction to remote sensing	Jan-Feb 2019
NPTEL-AICTE, IITM	Teaching and learning in Engineering	Feb-March 2019
NPTEL-AICTE, IITM	Descriptive Statistics with R software	Feb-Apr 2019
NPTEL-AICTE, IITM	Data Science for Engineers	Jul-sep 2019
NPTEL-AICTE, IITM	Physics of materials	Jul-Oct 2019
UGC and IGNOU	Web content Management	July-October, 2019
UGC and H.N.B Garhwal University	Academic Writing	July-October, 2019
ARPIT, MHRD	Refresher Course on teacher and teaching in Higher Education	Feb, 2020
TLC, IUCAA, under PMMMNTT scheme of MHRD, GOI	Refresher Course on Astronomy and Astrophysics	11 th May-12 th June, 2020

CREATES, IISER Bhopal , under PMMMMNMTT scheme of MHRD, GOI	Online Workshop on Evidence Based Teaching and learning Strategies in Higher education	
Department of Physics, Bodoland University	Short Tern online Course on Computational Physics	12 to 18may 2020
Johns Hopkins University under COURSERA project	COVID-19 Contact Tracing, online non- credit course	May, 2020
NPTEL-AICTE, IITR	Introduction to Atomspheric and Space sciences	Jan-Apr 2020

Administrative Experience

- Technical Officer -I, USIC, NBU (February 15, 2007 to December, 23, 2018)
- Development Officer, NBU, April, 2019 to present
- Director, HECRRC, NBU, January, 2020 to present

Members of Professional Bodies

- FOSET (Life member, LM2011-2069-SLG), The Indian Science Congress Association

Other Information:

- Acted as Faculty for Basic Physics Course offered by NBU to MSc Biotechnology PG student
- Acted as Faculty for BSc General Physics Course offered by NBU to Geology (Hons) UG student
- Visiting faculty for Orientation Programme as well as Short Term Programme offered by HRDC, NBU time to time
- Acted as Judge in various Scientific invent and given invited talks in SIT, Siliguri
- Participated as well as Presented papers in various Conferences

WhatsApp group "NBU Astrophysics group" maintained by Dr Tamal Sarkar: To join this group, please contact, Dr Tamal Sarkar

Link to webpage developed by Dr Tamal Sarkar in which he shares useful information related to his activities : <https://sites.google.com/site/tamalsarkarnbu>