

Biplob Sarkar

Curriculum Vitae



Birth : September 9, 1986
Sex, Marital Status : Male, Married
Languages : Bengali (mother tongue), Assamese, Hindi & English
Address : Office of the Dean, School of Engineering, Tezpur University
Sonitpur, Napaam, Assam, India, Pin-784028
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PRESENT EMPLOYMENT	Assistant Professor <i>India</i> <i>Branch: Physics</i>	Department of Applied Sciences, Tezpur University Jan 2020 - Present
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PAST EMPLOYMENT	Assistant Professor <i>India</i> <i>Branch: Physics</i>	Faculty of Science and Technology, The ICFAI University Tripura Jul 2018 - Jan 2020
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EDUCATION	PhD Astrophysics Indian Institute of Technology Guwahati, India Jul 2011 - Aug 2018	C.P.I. (Course Work): 7.50
	MSc. Physics (1st Class) Tezpur University, India 2009 - 2011	CGPA: 7.78
	BSc. Physics (Major, 1st Class with Distinction) Cotton College, University of Gauhati, India 2006-2009	% of marks: 69.1
	Higher Secondary Examination (Science Stream) Cotton College, Guwahati Assam Higher Secondary Education Council 2004	% of marks: 80.0
	High School Leaving Certificate Examination Modern English School, Kahilipara, Guwahati Board of Secondary Education, Assam, Guwahati 2002	% of marks: 80.2

THESIS	Ph.D. Dissertation BIPOB SARKAR: <i>Investigation of magnetized dissipative accretion flow around Black Holes.</i> Supervisor: Dr. Santabrata Das Aug 2018 (Thesis Defended) Dec 2018 (Degree Awarded)
	M.Sc. Dissertation BIPOB SARKAR: <i>Active Galactic Nuclei (AGN) and Xray studies of Galaxy M51.</i>

Supervisor: Dr. Jayanta Kumar Sarma
May 2011

RESEARCH EXPERIENCE

Research Scholar

Department of Physics, Indian
Institute of Technology Guwahati
India

Jul 2011 - Aug 2018

Magnetized astrophysical flows around Black Holes.

Principal Investigator

Department of Applied Sciences,
Tezpur University
India

April 2019 - November 2022

Project Title: *Investigation of the accretion flow properties of black hole binaries with AstroSat*

Sponsoring Agency: Indian Space Research Organisation (ISRO)

Project No.DS_2B-13013(2)/2/2019-Sec.2

Principal Investigator

Department of Applied Sciences,
Tezpur University
India

December 2021 - Present

Project Title: *Spectrum of magnetized dissipative accretion flow around a rotating black hole with thermal conduction and hydrodynamical winds*

Sponsoring Agency: UGC-BSR Research Start-Up-Grant

Project No.F.30-558/2021 (BSR)

Visiting Associate of IUCAA

Department of Applied Sciences,
Tezpur University
India

Aug 2019 - Present

I was selected to the Visiting Associateship Programme at the Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune, for a period of three years with effect from August 1, 2019 till July 31, 2022.

My term of Visiting Associateship at IUCAA has been extended for a further period of three years with effect from August 1, 2022.

TEACHING EXPERIENCE

Assistant Professor

Department of Applied Sciences,
Tezpur University
India

Spring 2020 - Spring 2024

PH-104/PH-103, B. Tech 1st Year Physics Course.

Autumn 2024 - Present

APPH100, B. Tech 1st Year Physics Theory Course.

APPH101, B. Tech 1st Year Physics Laboratory Course.

Spring 2022, 2023, 2024

AP 701: Astrophysical Gas Dynamics and Accretion Process, Ph.D. Course.

Spring 2024

AP 703: Introduction to Computational Methods and Applications, Ph.D. Course.

Assistant Professor

Faculty of Science and Technology,
The ICFAI University Tripura
India

Aug 2018 - Jan 2020

Mathematical Physics I, B. Sc Physics Honours 1st Year Course.

General Physics -I, B.Sc. General 1st Year Course (pass).

Fiber Optics and Optoelectronics, B. Tech (ECE) 4th Year Course.

Physical Optics, B. Sc Physics Honours 1st Year Course.

General Physics -II, B.Sc. General 1st Year Course (pass).

Heat and Thermodynamics Lab, B. Sc Physics Honours 1st Year Course.

Thermodynamics, B. Sc Physics Honours 2nd Year Course.

Nuclear and Particle Physics, M. Sc Physics Honours 2nd Year Course.

Introduction to Astronomy & Astrophysics, M. Sc Physics Honours 2nd Year Course.

Teaching Assistant

Department of Physics, Indian
Institute of Technology Guwahati
India

Jan 2013 - May 2015

M.Sc. 2nd and 3rd Sem Physics Lab, B. Tech First Year General Physics Lab.

ACHIEVEMENTS, AWARDS & GRANTS

Achievement: Departmental Winner in Best Poster Category Competition in Research Conclave'17 organized by Students' Academic Board, Indian Institute of Technology Guwahati.
Mar 2017

Scholarship: CSIR Junior Research Fellowship in Physical Sciences (Rank: 0252/0317)
Jun 2012

Scholarship: Graduate Aptitude Test in Engineering (GATE) in Physics Paper
2011

Achievement: 1st Runner Up of competition in Data & Computational Techniques organized under Research and Industrial Conclave 2023 by Indian Institute of Technology Indore from 20 January to 22 January, 2023.
Jan 2023

SKILLS & ACTIVITIES

Programming Languages: FORTRAN, C, C++, L^AT_EX.

Applications: SuperMongo, Xmgrace, Gnuplot, HEAssoft.

Operating Systems: Linux, Windows, Android.

Scientific Memberships:

1. Admitted as *Life Member* to the Physics Academy of the North East (PANE) [Life Membership No: LM-334].
2. Admitted as *Life Member* to the Indian Association of Physics Teachers (IAPT) [Life Membership No: 13075 L8129].
3. Admitted as *Life Member* to the Astronomical Society of India (ASI) [Life Membership No: L2337].
4. Admitted as *Life Member* to the INDIAN PHYSICS ASSOCIATION (IPA) [Life Membership No: LM-2022-CAL-13686].
5. Admitted as *Junior Member* of The International Astronomical Union (IAU) since Jun 14, 2022.
6. Admitted as *Life Member* to the ASSAM PHYSICAL SOCIETY (APS) [Sl. No.: 280] since October 09, 2022.
7. Admitted as *Life Member* to The Indian Science Congress Association [Life Membership No: L42676] since February 14, 2023.
8. Admitted as *Life Member* to Assam Science Society [Life Membership No: LM 6766] since May 29, 2023.
9. Admitted as *Life Member* to PLASMA SCIENCE SOCIETY OF INDIA [Life Membership No: LM-1951] since Jan 05, 2024.

Interests: Reading, Painting, Music, Adventure, Karate.

PUBLICATION HIGHLIGHTS

Journal Publications:

1. *X-Ray spectral and temporal properties of LMXB 4U 1608-52- observed with AstroSat and NICER*,
Sree Bhattacharjee, Ankur Nath, **Biplob Sarkar**, Aru Beri, Suchismito Chattopadhyay, Yashpal Bhulla, Ranjeev Misra, 2024, *The Astrophysical Journal*, 971:154 (13pp), 2024.
2. *Plasma Technologies: A Sustainable Frontier for Environmental Conservation*,
Liza Devi, Asish Jyoti Boruah, **Biplob Sarkar**, Khwairakpam Shantakumar Singh, 2024, *Mapana – Journal of Sciences*, 23 (2), 163-201.
3. *Gamma Ray Bursts: Fundamentals, Challenges and Insights from Recent Observations*,
Arbind Pradhan, Asish Jyoti Boruah, Liza Devi, **Biplob Sarkar**, 2024, *Mapana – Journal of Sciences*, 23 (1), 1-33.
4. *AstroSat observation of rapid type-I thermonuclear burst from the low mass X-ray binary GX 3+1*,
Ankur Nath, **Biplob Sarkar**, Jayashree Roy, Ranjeev Misra, 2022, *Journal of Astrophysics and Astronomy*, 43, 93.
5. *LOOKING AT THE HIGH-ENERGY X-RAY UNIVERSE- AN OVERVIEW*,
Bitopan Das, **Biplob Sarkar** and Ankur Nath, 2021, *Journal of the Maharaja Sayajirao University of Baroda*, Volume-55, No.2. ISSN:0025-0422. (UGC CARE)
6. *Effect of magnetic flux advection on the dynamics of shock in accretion flow around a rotating black hole*,
Biplob Sarkar and Anjali Rao, 2020, *Research in Astronomy and Astrophysics*, 20(3), 040
7. *Standing shocks in magnetized advection accretion flows onto a rotating black hole*,
Santabrata Das and **Biplob Sarkar**, 2018, *Monthly Notices of the Royal Astronomical Society*, 480, 3446
8. *Standing shocks in magnetized dissipative accretion flow around black holes*,
Biplob Sarkar and Santabrata Das, 2018, *Journal of Astrophysics and Astronomy*, 39, 3
9. *Properties of magnetically supported dissipative accretion flow around black holes with cooling effects*,
Biplob Sarkar, Santabrata Das and Samir Mandal, 2018, *Monthly Notices of the Royal Astronomical Society*, 473, 2415
10. *Dynamical structure of magnetized dissipative accretion flow around black holes*,
Biplob Sarkar and Santabrata Das, 2016, *Monthly Notices of the Royal Astronomical Society*, 461, 190
11. *On the possibilities of mass loss from an advective accretion disc around stationary black holes*,
Santabrata Das, Indranil Chattopadhyay, Anuj Nandi and **Biplob Sarkar**, 2014, *Bulletin of the Astronomical Society of India*, 42, 39

Conference Proceedings:

1. *Shocks in magnetically supported accretion flow around black holes*,
Biplob Sarkar and Santabrata Das, 2015, *Astron. Soc. India Conf. Ser.*, 12, 91

2. *Dissipative standing shocks in accretion flows around black holes: a self-consistent analytical study*,

Biplob Sarkar and Santabrata Das, 2013, Astron. Soc. India Conf. Ser., 8, 143

Book Chapters:

1. L. Devi, A. Jyoti Boruah, **B. Sarkar**, *Accretion Disc Outbursts and Stability Analysis*, pp 8-11, Book title: Physics Frontiers: Bridging Theories and Experiments (Volume-I) edited by Dr. Darpan Bhattacharjee and Dr. Vivek Baruah Thapa, Published by- Assam Science Society In collaboration with Research & Development Cell, Bhawanipur Anchalik College, Barpeta, Assam - 781352, India, ISBN: 978-81-983738-4-7, Edition: 2025.

2. **B. Sarkar**, L. Devi, A. Jyoti Boruah, *An Overview of Numerical Simulations in Accretion Physics*, pp 12-17, Book title: Physics Frontiers: Bridging Theories and Experiments (Volume-I) edited by Dr. Darpan Bhattacharjee and Dr. Vivek Baruah Thapa, Published by- Assam Science Society In collaboration with Research & Development Cell, Bhawanipur Anchalik College, Barpeta, Assam - 781352, India, ISBN: 978-81-983738-4-7, Edition: 2025.

3. S. Bhattacharjee, A. Pradhan, **B. Sarkar**, *Spectro-temporal study of atoll source GX 9+9 observed with AstroSat*, pp 18-22, Book title: Physics Frontiers: Bridging Theories and Experiments (Volume-I) edited by Dr. Darpan Bhattacharjee and Dr. Vivek Baruah Thapa, Published by- Assam Science Society In collaboration with Research & Development Cell, Bhawanipur Anchalik College, Barpeta, Assam - 781352, India, ISBN: 978-81-983738-4-7, Edition: 2025.

4. A. Jyoti Boruah, L. Devi, **B. Sarkar**, *Relativistic Accretors and High Energy X-Ray view*, pp 33-40, Book title: Physics Frontiers: Bridging Theories and Experiments (Volume-I) edited by Dr. Darpan Bhattacharjee and Dr. Vivek Baruah Thapa, Published by- Assam Science Society In collaboration with Research & Development Cell, Bhawanipur Anchalik College, Barpeta, Assam - 781352, India, ISBN: 978-81-983738-4-7, Edition: 2025.

5. *Study of Properties of Active Galactic Nuclei and Observational Findings (Chapter-36)*,

Hritwik Bora, Niranjana Gogoi, **Biplob Sarkar**, Sree Bhattacharjee and Rupjyoti Gogoi, Book title: Recent Trends in Physics Research (A Proceedings of XIII Biennial National Conference of Physics Academy of North East, Pane-2022) edited by Prof. N. Nimai Singh (Editor in Chief) and Dr. Thongam Gombi Devi (Editor), Publisher: Allied Publishers Pvt. Ltd., Noida-201301, ISBN: 978-93-90951-66-6, Edition: 2023.

6. *Science, Technology and Development: Relationship, Challenges and Opportunity (Chapter-5)*,

Arbind Pradhan, **Biplob Sarkar** and Gyan Prakash Bharti, Book title: Society, Economy and Development: Challenges and Opportunities edited by Dr. A. Basak, Sk. Kamruzzaman, and P. Dey (Rajesh Publications, New Delhi-110002, ISBN: 978-93-91139-38-4, Edition: 2023).

7. *An Effective Curriculum and Activity Based Teaching Learning in College Education (Chapter-13)*,

Biplob Sarkar, Book title: Emerging Trends and Research in Educational Technology edited by Dr. Neeta Sahu and Dr. Priya Soni Khare (ABS Books Delhi-110086, ISBN: 978-93-91002-99-2, Edition: 2022).

PRESENTATIONS Oral Presentations:

1. “*Shocks in magnetically supported accretion disc*”, **Biplob Sarkar** and Santabrata Das, in **Accretion Onto Black Holes**, A topical conference, International Center, Goa, September 5-7, 2013 organized by TIFR.
2. “*Effects of magnetic fields on shocks in BH accretion discs*”, **Biplob Sarkar** and Santabrata Das, in the conference, **Hard X-ray Astronomy: Astrosat and Beyond**, International Center, Goa, September 24-26, 2014 organized by TIFR.
3. “*Magnetically supported viscous accretion flow around Black Holes*”, **Biplob Sarkar**, Santabrata Das and Samir Mandal, in National conference on **Recent Trends in the Study of Compact Objects: Theory and Observation (RETCO-II)**, 6-8 May, 2015, ARIES, Nainital, India.
4. “*Accretion flow around black holes*”, **Biplob Sarkar**, in a one day symposium on **100 years of General Relativity: Where do we stand?**, 13 February, 2016, Department of Physics, Indian Institute of Technology Guwahati.
5. “*Magnetically supported accretion flow around black holes with shocks*”, **Biplob Sarkar**, in the **Department Day, Physics**, 12 March, 2016, organized by Research Scholar Forum (RSF), Department of Physics, Indian Institute of Technology Guwahati.
6. “*Implications of standing shocks in magnetized accretion discs around black holes*”, **Biplob Sarkar** and Santabrata Das, in the conference, ‘**Wide Band Spectral and Timing Studies of Cosmic X-ray Sources**’, January 10-13, 2017, organized by TIFR, Mumbai, India.
7. “*Hints from standing shocks in magnetized accretion flows around black holes*”, **Biplob Sarkar**, in the **Annual Physics Meet**, 28 January, 2017, organized by Research Scholar Forum (RSF), Department of Physics, Indian Institute of Technology Guwahati.
8. “*Properties of magnetically supported dissipative accretion flow around black holes*”, **Biplob Sarkar**, Santabrata Das and Samir Mandal, in the **29th meeting of the Indian Association for General Relativity and Gravitation (IAGRG)**, May 18-20, 2017, organized by Department of Physics, Indian Institute of Technology Guwahati, Assam, India.
9. “*A study of shocks in magnetized dissipative accretion flow around Black Holes*”, **Biplob Sarkar**, in the **Physics Activity Program**, April 20, 2018, organized by Department of Physics, Tezpur University, Assam, India.
10. “*Magnetically supported viscous accretion flow around a rotating black hole*”, **Biplob Sarkar**, in **International Conference on Exploring the Universe: Near Earth Space Science to Extragalactic Astronomy**, 14 - 17 November, 2018, organized by the S. N. Bose National Centre for Basic Sciences, Kolkata, India.
11. “*Investigation of magnetized accretion flow properties around a black hole and prospects with Astrosat*”, **Biplob Sarkar**, in **Multi-wavelength Sky Observations – AstroSat and Beyond Symposium**, 3-9 February, 2019, organized by Indian Institute of Technology Indore, India.
12. “*Spectral and Timing Analysis of GRS 1716-249 using AstroSat/LAXPC during 2017 outburst*”, **Biplob Sarkar**, in **North East Meet of Astronomers (NEMA)-V**, September 11-13, 2019, Sponsored by IUCAA, Pune and organized by Department of Physics, Tezpur University.
13. “*AstroSat observation of rapid Type-I thermonuclear burst from the low mass X-ray binary GX 3+1*”, **Biplob Sarkar**, in **National Conference on Emerging Trends in Physics (NCETP 2021)**, held on 16 June, 2021, organized by Department of Physics, Tezpur University, Assam, India.
14. “**AN OVERVIEW OF THE UNIVERSE OF HIGH ENERGY X-RAYS**”, **Biplob Sarkar**, in the **National Conference on Emerging Trends in Physical Sciences (ETPS-2021)**- virtual mode, organized by the Department of Physics,

ICFAI Science School, The ICFAI University Tripura during 27th September to 1st October, 2021.

15. “*LOOKING AT THE HIGH-ENERGY X-RAY UNIVERSE-AN OVERVIEW*”, **Biplob Sarkar**, in National Conference on Advanced Materials, Technology, Applications Education [AMTAE-2021] (Multidisciplinary) Approved by Savitribai Phule Pune University, Pune organized by Department of Physics, HON. BALASAHEB JADHAV ARTS, COMMERCE & SCIENCE COLLEGE, Ale, on 16th October 2021.
16. “*Exploring the magnetized dissipative accretion flow properties onto a spinning black hole*”, **Biplob Sarkar**, in the 27th International Conference of International Academy of Physical Sciences on Advances in Relativity and Cosmology, October 26-28, 2021, organized by the Department of Mathematics, Birla Institute of Technology and Science – Pilani, Hyderabad Campus, Hyderabad, India.
17. “*Investigating the properties of magnetized dissipative accretion flow onto a rotating black hole*”, **Biplob Sarkar**, at North-East Meet Of Astronomers-VII, organized by Department Of Physics, Rajiv Gandhi University, Rono Hills, Arunachal Pradesh in association with Inter University Centre for Astronomy and Astrophysics (IUCAA), Pune held in hybrid mode from January 27-29, 2022.
18. “*Probing the accretion flow properties of NS LMXB 4U 1608-52 using AstroSat observations*”, **Biplob Sarkar**, in 21st National Space Science Symposium, January 31 - February 4, 2022, organized by IISER Kolkata, India.
19. “*An outline of X-ray astronomy and the X-ray transient sky*”, **Biplob Sarkar**, in One Day National Symposium on the occasion of NATIONAL SCIENCE DAY, held on March 1, 2022, organized by Department of Physics in association with in-SCIgnis '22, Tezpur University, Assam, India.
20. “*An Overview Of X-ray Astronomy And Discovering And Understanding X-ray Transients*”, **Biplob Sarkar**, in 4th IUCAA Sponsored Workshop On Astronomical Data Analysis (WADA 2022), held from 12th-14th May, 2022, organized by Department Of Physics, Jagannath Barooah College, Jorhat, Assam Sponsored By: The Inter-university Centre For Astronomy And Astrophysics (IUCAA), Pune.
21. “*On The Discovery And Understanding Of X-ray Transients, A Novel Type Of X-ray Source*”, **Biplob Sarkar**, in National Conference On Physical Sciences (NCPS-22), held from 29th-30th April, 2022, organized jointly By Department Of Physics, DHSK College, Dibrugarh, Assam & Department Of Physics, Manipur University, Manipur.
22. “*Study of Properties of Active Galactic Nuclei and Observational Findings*”, **Biplob Sarkar**, in the XIII Biennial National Conference of Physics Academy of North East (PANE-2022), held on 8-10 November, 2022 organized by the Department of Physics, Manipur University, Imphal-795003, Manipur, India.
23. “*Examining the impact of thermal conduction on the flow of magnetized dissipative accretion material onto a rotating black hole*”, **Biplob Sarkar**, in Challenges and Innovations in Computational Astrophysics IV, held virtually on 21-23 November 2022, organized by IAU Commission B1: Computational Astrophysics.
24. “*Investigation of Properties and Observational Results of Active Galactic Nuclei*”, **Biplob Sarkar**, in the online Second International Conference on Applied Sciences, held from November 24 to 25, 2022, organized by the Department of Basic Science and Humanities, SCMS School of Engineering and Technology, Karukutty, Kerala.
25. “*Investigating the properties of the magnetized dissipative accretion flow onto a rotating black hole with hydrodynamical winds and thermal conduction*” (Mode: Online), **Biplob Sarkar**, in Data & Computational Techniques organized under Research and Industrial Conclave 2023 by Indian Institute of Technology Indore from 20 January to 22 January, 2023.

26. “*LAXPC / AstroSat Study of rapid type-I thermonuclear burst in the low mass X-ray binary GX 3+1*” (Mode: Online), **Biplob Sarkar**, in the Exploring the Cosmos 2023: A National Seminar on Relativistic Universe (NSRU-2023), held on February 15, 2023, Organized by High Energy and Cosmic Ray Research Centre, University of North Bengal, West Bengal, India.
27. “*Exploring The Impact Of Thermal Conduction And Hydrodynamical Winds On The Magnetized Dissipative Accretion Flow Onto A Spinning Black Hole*”, **Biplob Sarkar**, in the Conference on New Approaches of Basic Sciences towards the Development of Engineering and Technology-2023 (NABSET-2023), held during 24th - 25th February, 2023 organized by School of Technology (SoT), Assam Don Bosco University (ADBU).
28. “*Magnetized viscous accretion flow around black holes with thermal conduction and hydrodynamical winds*”, **Biplob Sarkar**, in the One Day National Symposium On the ocassion of National Science Day, held on March 10, 2023, organised by Department of Physics, Tezpur University In collaboration with Students’ Science Council, Tezpur University.
29. “*Investigation of rapid type-I thermonuclear burst in the X-ray binary GX 3+1 using Astrosat observations*”, **Biplob Sarkar**, in the 67th Annual Technical Session Cum National Seminar On Current Developments In Science And Technology, held on April 06, 2023, organised by Bhattadev University, Bajali.
30. “*Magnetized Viscous Accretion Flow around Black Holes with Thermal Conduction and Hydrodynamical Winds*”, **Biplob Sarkar**, in the 3rd International Conference on Plasma Theory and Simulations (PTS -2023), held from 21 -23 September, 2023, organized by School of Physical Sciences Jawaharlal Nehru University, New Delhi.
31. “*Magnetized dissipative accretion flow onto a rotating black hole with hydrodynamical winds and thermal conduction*”, **Biplob Sarkar**, in Challenges and Innovations in Computational Astrophysics V, held virtually on November 7-9, 2023, organized by IAU Commission B1: Computational Astrophysics.
32. “*Spectral and timing properties of GX 17+2 using AstroSat and NICER simultaneous view*”, **Biplob Sarkar**, in the 10th International Conference on Gravitation and Cosmology: New Horizons and Singularities in Gravity, held from 06-09 December, 2023, organized by Department of Physics, IIT Guwahati.
33. “*A rotating black hole’s accretion flow dynamics affected by magnetic flux advection*”, **Biplob Sarkar**, in the 16th International Conference on Plasma Science and Applications (ICPSA - 2023), held from 12-14 December, 2023, hosted by University of Lucknow and Asian African Association for Plasma Training (AAAPT) in online mode.
34. “*Investigation of Gamma Ray burst Properties and Observational Results*”, **Biplob Sarkar**, in the two-day Multidisciplinary International Conference on Advances in Applied Sciences (ICAAS-2023), jointly organized by the Departments of Physics and Chemistry, Vasavi College of Engineering (Autonomous), Ibrahimbagh, Hyderabad, Telangana during 22nd-23rd December 2023 (Online Mode).
35. “*Spectral and temporal properties of GX 17+2 utilizing a simultaneous view from AstroSat and NICER*”, **Biplob Sarkar**, in the One day NATIONAL CONFERENCE on Modern Trends in Physical Science Research (MTPSR-2024), held on 20th January, 2024, organized by IQAC & Department of Physics, M.S.P. Mandal’s Balbhim Arts, Science and Commerce College, Beed - 431122 (M.S).
36. Online Oral Presentation entitled “*Rapid type-I thermonuclear burst from low-mass X-ray binary GX 3+1 observed by AstroSat*”, **Biplob Sarkar**, in the Research and Industrial Conclave 2024, IIT Indore, held on January 20-21, 2024, organized ACADEMIC COUNCIL, IIT INDORE in association with IEEE NTC Student Branch Chapter IIT Indore, IEEE MP Section EDS Chapter & IEEE Sensors Council Student Branch Chapter IIT Indore.

37. Successfully presented a paper “*Investigating the Properties of Gamma Ray Bursts and the Findings of Observations*” on 23rd February, 2024 at **National Conference on Recent Trends in Science and Technology (NCRTST-2024)** organized by Department of Information Technology, Babasaheb Bhimrao Ambedkar University, Lucknow.
38. “*EXPLORING THE CHARACTERISTICS OF GAMMA RAY BURSTS AND OBSERVATIONAL FINDINGS*” (Mode: Online), **Biplob Sarkar**, in the **Exploring the Cosmos 2024: A National Conference on Relativistic Universe**, held on March 7-8, 2024, Organized by High Energy and Cosmic Ray Research Centre, University of North Bengal, West Bengal, India.
39. Participated and presented Oral on the topic entitled “*Spectral and temporal study of neutron star X-ray binary 4U 1608-52 using AstroSat and NICER observations*” in the 68th Annual Technical Session of Assam Science Society and National Seminar on **Recent Breakthroughs and Innovations in Science and Technology (RBIST-2024)** organized by Assam Science Society, AdtU Branch, in association with Faculty of Science, & Faculty of Pharmaceutical Science, AdtU on the 30th of March 2024 at Assam down town University.
40. Presented (online) a paper entitled “*Simulation Techniques in Accretion Physics*”, **Biplob Sarkar**, in the National conference **Physics Frontiers - 2024**, organised by Department of Physics, Bhawanipur Anchalik College in collaboration with IQAC and R&D Cell, Bhawanipur Anchalik College from 2 - 4 July, 2024.
41. “*Magnetized Viscous Accretion Flow onto a Rotating Black Hole with Thermal-Driven winds and Thermal Conduction*”, **Biplob Sarkar**, in **North East Meet of Astronomers (NEMA)-X**, 23rd to 25th October, 2024, Sponsored by IUCAA, Pune and organized by Department of Physics, Tezpur University.
42. Presented a paper titled “*Study of Energy-dependent properties of MAXI J1803-298*” in the **XIV Biennial Conference of Physics Academy of the North East (PANE-2024)** held at Tezpur University, Assam during 12th to 14th November, 2024, organised by Department of Physics, Tezpur University in collaboration with Physics Academy of the North East (PANE).

Poster Presentations:

1. “*Self-consistent study of dissipative standing shocks in accretion flows around black holes*”, **Biplob Sarkar** and Santabrata Das, in National conference on **Recent Trends in the Study of Compact Objects: Theory and Observation**, 11-13 March, 2013, Indian Institute of Technology Guwahati, Assam, India.
2. “*Astrophysical flows around black holes*”, Indu Kalpa Dihingia, Ramiz Aktar and **Biplob Sarkar**, in the **Research Conclave’15** organized by Students’ Academic Board, 23-26 March, 2015, Indian Institute of Technology Guwahati.
3. “*Accretion around Black Hole, A Journey*”, Indu Kalpa Dihingia, Ramiz Aktar and **Biplob Sarkar**, in the **Research Conclave’16** organized by Students’ Academic Board, 17-20 March, 2016, Indian Institute of Technology Guwahati.
4. “*Dissipative accretion flow around Black Holes*”, Indu Kalpa Dihingia, Ramiz Aktar and **Biplob Sarkar**, in the **Research Conclave’17** organized by Students’ Academic Board, 16-19 March, 2017, Indian Institute of Technology Guwahati.
5. Presented a poster entitled “*AstroSat observations of the transient low-mass X-ray binary 4U 1608-52*” in Two-days International Conference on **Innovative Trends in Natural and Applied Sciences - 2021 (ICITNAS - 2021)** organized by Mahatma Gandhi College Of Science, Gadchandur, Tah. Korpana, Dist. Chandrapur- 442908 (M.S.), India on 17 -18 August, 2021.
6. Presented a poster entitled “*Broad-band spectral and temporal characteristics of NS LMXB 4U1608-52 through AstroSat observations*” in the 40th Annual Meeting of the Astronomical Society of India (ASI), hosted jointly by IIT Roorkee and ARIES Nainital during 25-29 March 2022.

**INVITED
TALKS/
LECTURES**

7. Presented a poster entitled “*Investigating the Properties of Active Galactic Nuclei via a Multidisciplinary Approach*” in the **One Day National Symposium on Emerging Trends in Multidisciplinary Research** organized by the Centre for Multidisciplinary Research (CMDR), Tezpur University, Assam, India on 18 March, 2024.
1. Talk on “*A Remarkable Woman at the Crossroads of Astronomy : Cecilia Payne-Gaposchkin*”, during celebration of “National Science Day-19” at ICAFI University Tripura campus on 28th February, 2019.
2. Talk on “*Investigation of magnetized accretion flow properties around a black hole and prospects with Astrosat*”, 22 April, 2019, Department of Physics, Indian Institute of Technology Guwahati.
3. Talk on “*On the consequences of magnetic flux advection in dynamics of shocked accretion flow around a rotating black hole*”, in online Neem Seminar organized by IUCAA on 14 July, 2020.
4. Online talk on “*Astrophysics of the Sun: the role of magnetic fields*”, as a resource person. The talk was organized by Department of Physics, Kohima Science College, Jotsoma on 22nd August, 2020.
5. Lecture on “*Detection of a Type-I X-ray thermonuclear burst from GX 3+1 through AstroSat*” in **North East Meet of Astronomers (NEMA)-VI**, November 10-13, 2020, organized by the Department of Physics, IIT Guwahati.
6. Talk on “*On the detection of thermonuclear X-ray burst from low mass X-ray binary GX 3+1 with AstroSat*”, in the **Seven years of AstroSat conference**, at Indian Space Research Organisation HQ Bangalore during 28 - 29 September 2022.
7. Online talk on “*An Outline Of X-ray Astronomy And X-ray Transients*”, as an Invited Speaker on International Day Of Light 2023 (IDL-2023). The talk was organized by Department Of Physics, Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya (PDUAM) Eraligool, Karimganj on 16 May, 2023.
8. Online talk on “*Understanding the Intriguing and Enigmatic Phenomena of Gamma-ray Bursts*”, as an Invited Guest on National Space Day 2024. The talk was organized by Department Of Physics, Sipajhar College, Darrang (Assam) on 23 August, 2024.

**WORKSHOPS/
WEBINARS/
SCHOOLS/
RCs/
STCs/
FDPs
ATTENDED**

1. **National Seminar on Photonics and Quantum Structures**, 4-6 November, 2009, Department of Physics, Tezpur University, Tezpur-784028, Assam, India.
2. **National Science Academies’ Lecture Workshop on NONLINEAR DYNAMICS (ND2011)**, 26-28 April, 2011, Department of Physics, Tezpur University, Tezpur-784028, Assam, India.
3. **WINTER SCHOOL ON GRAVITATION & COSMOLOGY**, 5-14 February, 2011, Department of Physics, Assam University, Silchar, Assam, India.
4. **Advanced Workshop on X-Ray Astronomy**, 3-7 March, 2011, Tezpur University, Tezpur-784028, Assam, India.
5. **Quality Improvement Program on Computational Techniques in Physics**, 1-6 August, 2011, Department of Physics, Indian Institute of Technology Guwahati.
6. **Workshop on Multiwavelength Astronomy with Astrosat**, 9-12 January, 2012, IIST, Trivandrum.
7. **IUCAA Sponsored Introductory Workshop on Relativistic Astrophysics (IWRAP)**, 21-23 August, 2014, Department of Physics, Gauhati University, Guwahati.
8. **Workshop on Multi-wavelength Sky Observations - AstroSat and Beyond**, 3-9 February, 2019, Indian Institute of Technology Indore.

9. Attended a **One Day Python workshop for Teachers** held on Saturday, 22 June 2019, at NIT Agartala which was organised by the Teaching Learning Centre (ICT) at IIT Bombay.
10. Participated in the National Webinar on **Space Astronomy Research** organised by the Albertian Centre for Human Resource Development and Research, St. Albert's College (Autonomous) on Wednesday 22nd April, 2020.
11. Participated in webinar on **The Fascinating World of Nanomaterials** by the speaker- Dr. Somnath C. Roy, IIT Madras on 25th of May, 2020 conducted by Department of Physics, ICFAI Science School , The ICFAI University Tripura.
12. Participated in the webinar **Symposium on Special Theory of Relativity 2020**, organized by the Physics Department, Assam Don Bosco University, on 4 June, 2020.
13. Participated in two day online hands on workshop on **Integration Of Basic ICT Tools In Teaching Pedagogy** on June 8 & 9, 2020, organized by Teaching Learning Centre, Tezpur University in Association with IQAC, Tezpur University under PMMMNMTT Scheme of Ministry of Human Resource Development.
14. Participated in **Science Leadership Workshop** organized by Central University of Punjab, Bathinda, India from 22-28 June 2020.
15. Participated in webinar on **Glimpse Into The Quantum World** organized by the Department of Physics, Debraj Roy College, Golaghat on 17 July 2020.
16. Participated in popular talks on **Comet: The spectacular visitor to the Solar System**, organized by the Department of Physics, Assam University, Silchar on 25 July 2020.
17. Participated in the **Online Lecture Series in Physics**, organised by Department of Physics, Digboi College, in association with IQAC, Digboi College, Digboi, Assam, under DBT Star College Scheme during : 20th to 27th July, 2020.
18. Participated in the three days International webinar on **Recent Aspects In Physics** organized by Department of Physics, Lakhimpur Girls' College from 27th to 29th July, 2020.
19. Participated in Faculty Development Programme on **Flipped Classroom** organized by ANJUMAN-I-ISLAM'S KALSEKAR TECHNICAL CAMPUS, New Panvel held on 15th August 2020.
20. Participated in the one week Faculty Development Programme on **Research Article Writing and Online Academic Presentation** jointly organized by Zoology & Biotechnology Department and Internal Quality Assurance Cell (IQAC) of Government Girls' P.G. College Ujjain (M.P.) In Association with The National Academy of Sciences, India, Bhopal Chapter from 17th - 23rd August 2020.
21. Attended the National Webinar on **ADVANCES IN MATHEMATICAL MODELLING OF INFECTIOUS DISEASES** held on 31st August 2020 in virtual mode, organized by Department of Applied Sciences, School of Engineering, Tezpur University.
22. Participated in one day National E-Conference on **Recent Progress in Physical Science** held online at Google Meet and YouTube platform organized by Department of Physical Education and IQAC Tarakeswar Degree College, Tarakeswar, Dist. Hooghly (WB), India on 31st August, 2020.
23. Participated in Short Term Training Programme on **MATLAB for Scientific Research** organized by RESEARCH CULTURE SOCIETY, Scientific Research Organization held from 01 to 05 September, 2020.
24. Attended a webinar on **Introductory Seminar on Astrophysics and Cosmology** held on Saturday, 16 September 2020, organized by IUCAA Centre for Astronomy Research and Development (ICARD), Physics Department, North Bengal University.

25. Participated and successfully completed UGC-Sponsored Faculty Induction Program (FIP-02) held during 21st September till 20th October 2020 in online mode conducted by UGC Human Resource Development Centre, Gauhati University.
26. Participated in an International Webinar on Recent Trends in Physical and Mathematical Sciences organized by department of Physics and Mathematics of Late. Rajkamalji Bharti Arts, Commerce and Snit. Sushilabai R. Bharti Science College Arni on dated 26/12/2020.
27. Participated in the Faculty Enrichment Webinar for Physics Teachers in Higher Education organized by National Resource Centre for Education of National Institute of Educational Planning and Administration (NIEPA), (Deemed to be University) on March 12, 2021.
28. Successfully completed the Interdisciplinary Refresher Course on Curriculum and Pedagogy conducted through online mode during 07-21 June 2021 by Teaching Learning Centre, Tezpur University, Assam.
29. Successfully completed One Week Short Term Training Programme through ICT Mode on Numerical and Statistical Methods with SCILAB organised by National Institute of Technical Teachers' Training and Research, Kolkata from 21st June to 25th June, 2021.
30. Participated in National Webinar on Uncovering the Concept: Artificial Intelligence held on 26 June 2021 organized by Lucky Institute of Professional Studies, Jodhpur, Rajasthan in collaboration with G D Memorial College of Management & Technology, Jodhpur, Rajasthan.
31. Participated in International E-Conference on Recent Advances in Chemical, Physical and Biological Sciences (RACPBS-2021) on 29th-30th June 2021 organized by Department of Chemistry, Nabira Mahavidyalaya, Katol and Association of Chemistry Teachers (ACT), C/o Homi Bhabha Centre for Science Education (TIFR) Mumbai.
32. Participated in the International Webinar on Technology Enabled Teaching and Learning: Challenges and Prospects held on 29th-30th June, 2021 organised by Teachers' Training College, Bhagalpur, Bihar-812003.
33. Participated in a Webinar on Quantum world - a fascinating, but 'spooky' story by Prof. Bobby Antony, IIT (ISM) Dhanbad held on 2nd July, 2021 conducted by Department of Physics, Faculty of Science and Technology, The ICFAI University Tripura.
34. Participated in International Conference (Virtual Mode) on Recent Trends in Science and Technology ICRST-2021 on Saturday 3rd July 2021 Organized by Sevadal Mahila Mahavidyalaya, Nagpur, Sardar Patel Mahavidyalaya, Chandrapur, and Guru Nanak College of Science, Ballarpur.
35. Participated in One Day National Webinar on New Technology Telescope organized by Department of Physics, University of Science & Technology Meghalaya held on 10th July 2021.
36. Participated in One Day International Webinar on Recent Developments In Space Science organized by the Department of Physics, Anjuman-e-Islam's Nehru Arts, Science and Commerce Degree College, Ghantikeri, Hubballi - 580020 (Karnataka) held on 14th July, 2021.
37. Participated in Webinar on PHYSICAL STUDIES ON METAL OXIDE NANOPARTICLES organised by Department of Physics, Sri Sarada College for Women(Autonomous), Tirunelveli-11 held on 17th July, 2021.
38. Attended National Webinar on Recent Advances in Physics and Astrophysics organised by Midnapore City College, Paschim Medinipur, West Bengal, India held on 28th July, 2021.

39. Participated in the National Webinar on **Introduction to Mathematica** organised by Department of Mathematics, Seth Kesarimal Porwal College of Arts and Science and Commerce, Kamptee, Nagpur, Maharashtra on 3rd August 2021.
40. Attended Online Short Term Course on **Python for Machine Learning** conducted by the Department of Computer Science and Engineering in association with the Center for Continuing Education of NIT Warangal from 16-08-2021 to 20-08-2021.
41. Participated in the Three Days' International Webinar Series on Basic Sciences : **Into the Basics** organised by Department of Physics, In collaboration with IQAC, Nowgong Girls' College, Nagaon held from 20th August to 22nd August, 2021.
42. Completed One Week Short Term Training Programme through ICT Mode on **Numerical and Statistical Methods with SCILAB** organised by NATIONAL INSTITUTE OF TECHNICAL TEACHERS' TRAINING AND RESEARCH (NITTTR) KOLKATA from 21st June to 25th June, 2021 successfully.
43. Successfully completed the **Orientation Training Programme for NSS Programme Officers** held from 14th September to 20th September 2022 in Indian Institute of Entrepreneurship, Guwahati, in association with Regional Directorate of National Service Scheme, Guwahati, sponsored by Ministry of Youth Affairs & Sports, Government of India.
44. Participated in the five days Faculty Development Program on **RECENT ADVANCES IN MATERIALS AND DEVICES**, organized by the Department of Physics, School of Applied Sciences, REVA University, Bengaluru in association with CSIR-IMMT, Bhubaneswar, during 26-30 September, 2022 in online mode.
45. Successfully completed the **Online Weeklong Faculty Development Program (FDP) on Academic Writing and Publication** organized by Teaching Learning Centre (TLC), Tezpur University in association with Sibsagar Girls' College, Sivasagar, Assam & Duliajan College, Dibrugarh, Assam during 01- 07 November 2022.
46. Attended the **1st National Workshop on GEANT4 and its Application to High-Energy Physics and Astrophysics**, organized jointly by TIFR and IUCAA at IUCAA, Pune, during December 5 - 9, 2022.
47. Participated in three days National Level Faculty Development Program on **Student Centric and Interactive Teaching Strategies using Technological Tools** organized by Sinhgad Academy of Engineering, Kondhwa (Bk.), Pune - 411048 from 22nd to 24th May 2023.
48. Completed the **online weeklong Faculty Development Program on Implementation of NEP 2020 in Higher Educational Institutions** organized by Teaching Learning Centre, Tezpur University during 07-13 September 2023.
49. Successfully Participated in **6-days Faculty Development Programme on Innovative Teaching Learning Pedagogy In Higher Education** organized by Institute of Law & Legal Studies, SAGE University, Indore Held From October, 3 to 8, 2023.
50. Participated in the **One-Day International Conference on Astronomy, Cosmology & Space Technology Exploration (ACSTEX)** held on October 16, 2023, jointly organised by the Institute of Astronomy Space and Earth Science (IASSES), the Department of Physics (PKC), and the Department of Mathematics (PKC) at Prabhat Kumar College, Contai.
51. Completed the **Short Term Course on NEP Orientation & Sensitization under Malaviya Mission Teacher Training Programme (MM-TTP) of the University Grants Commission (UGC)** organized by MMTTC, Tezpur University from 18/01/2024 to 30/01/2024.

52. Actively participated in a one day National Webinar on **Dielectric Spectroscopy for Material Characterization** held on February 16, 2024, organised by Department of Physics, Sunderrao Solanke Mahavidyalaya, Majalgaon District . Beed State: Maharashtra.
53. Attended the **IPA Young Physicists Meet (YPM)**, organized by Indian Physics Association (IPA), Visakhapatnam Chapter in association with GITAM (Deemed to be University), Visakhapatnam held on 26th February 2024.
54. Participated in one day National Webinar on **National Education Policy and Vocational Course** on 28 May 2024, Organized by Government College Bajag Dist.- Dindori (M.P.) in online mode.
55. Participated in an **International Webinar on Energy Traps in Atomic Nuclei** by Prof. P.M. Walker, University of Surrey, UK organised by Department of Physics, Akal University, Talwandi Sabo, Bathinda, Punjab on June 05, 2024.
56. Participated in the One Week Faculty Development Program on **Scientific Software** organized by Department of Mathematics, School of Basic Sciences. The Assam Kaziranga University from 12th - 18th July, 2024.
57. Participated in an **International Webinar on What You See Is What You Get: Compton Scattering Explores Nuclear Forces** by Prof. Harald W. Griesshammer, Institute for Nuclear Studies, Department of Physics, The George Washington University, Washington DC, USA organised by Department of Physics, Akal University, Talwandi Sabo, Bathinda, Punjab on August 08, 2024.

WORKSHOP/ SCHOOL ORGANIZED

1. IUCAA Sponsored **Introductory Workshop on Physical Perspectives of Astronomy (IWPPA)**, October 30 - 31, 2019, Department of Physics, The ICFAI University Tripura. **Coordinators: Biplob Sarkar & Gulab Chand Dewangan**
2. 1-Day Online Conference on **Emerging Trends in High Energy Astrophysics (ETHEAP)**, March 16, 2022, organized by Department of Applied Sciences, Tezpur University, in collaboration with Indian Association of Physics Teachers (RC -17) As a part of Prof. D.P. Khandelwal Birth Centenary Celebrations. **Convener: Biplob Sarkar**
3. **Meet The IAU Astronomers!** A One day Online Astronomy Workshop with Interactive Session & Career Guidance for Young Aspirants, April 22, 2023, organized by Department of Applied Sciences, School of Engineering, Tezpur University in Collaboration with Office for Astronomy Outreach, International Astronomical Union (IAU OAO). **Convener: Biplob Sarkar**
4. **Invited Guest Talk** at the Department of Applied Sciences, Tezpur University, on 20-11-2023, delivered by Dr. Indu Kalpa Dhingia, a postdoctoral fellow at the Tsung-Dao Lee Institute, Shanghai Jiaotong University. The title of his talk was "Understanding Physics around Black Holes with General Relativistic Magnetohydrodynamics (GRMHD)." **Co-ordinator: Biplob Sarkar**

TELESCOPE TIME AWARDED

1. **AstroSat Proposal ID:** A09_018. **Title:** AstroSat AO proposal for the X-ray transient GX 9+9. **PI:** Biplob Sarkar. **Co-Is:** Ankur Nath & Samuzal Barua. **Status:** Accepted: full allocation.
2. **AstroSat Proposal ID:** A13_037. **Title:** [Legacy] Long-term spectro-timing studies of Z type Neutron Star Low Mass X-ray Binaries. **PI:** Ranjeev Misra. **Co-Is:** Biplob Sarkar & 11 others. **Status:** Accepted: partial allocation.
3. **AstroSat Proposal ID:** A13_090. **Title:** ASTROSAT Proposal for the Black Hole X-ray Binary 4U 1755-338. **PI:** Arbind Pradhan. **Co-Is:** Sree Bhattacharjee, Biplob Sarkar & Samuzal Barua. **Status:** Accepted: partial allocation.

4. **AstroSat Proposal ID:** A14_073. **Title:** [Legacy] Long-term spectro-timing studies of Z type Neutron Star Low Mass X-ray Binaries. **PI:** Suchismito Chattopadhyay. **Co-Is:** Biplob Sarkar & 11 others. **Status:** Accepted: partial allocation.
5. **AstroSat Proposal ID:** A14_082. **Title:** AstroSat AO proposal for spectral-timing study of the Neutron star low-mass XRB source 4U 1746-37. **PI:** Biplob Sarkar. **Co-Is:** Biplob Sarkar & 4 others. **Status:** Accepted: full allocation.

REFERENCES

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