Curriculum Vitae

Personal Profile

Name	Banibrata Mukhopadhyay
Place of Birth	Calcutta (now Kolkata)
Citizenship	Indian

Contact Information

Office	Department of Physics, Indian Institute of Science, Bangalore-560012, India E-Mail: bm@iisc.ac.in Phone: +91-80-2293-2799 Fax: +91-80-2360-2602 URL: http://www.physics.iisc.ernet.in/∼bm/
Residence	HE-313 Faculty Housing, Indian Institute of Science Campus, Bangalore-560012, India Phone: +91-80-2360-6618
Permanent Residence	CZ-28, Metropolitan Housing Society, Canal South Road, Sector-B, Calcutta-700105, West Bengal, India

Research Profile

Present Position (from May 2018)	Professor
Past Position	
From May 2012 to April 2018	Associate Professor
From May 2006 to April 2012	Assistant Professor

Past Employment

Visiting Professor May 2009	African University of Science and Technology, Abuja, Nigeria
Post-Doctoral Researcher May 2004 to April 2006	Harvard University, USA

Post-Doctoral Researcher April 2003 to April 2004	University of Oulu, Finland
Post-Doctoral Fellow *May 2002 to April 2003*	Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune, India
Post-Doctoral Fellow *November 2000 to May 2002*	Physical Research Laboratory, Ahmedabad, India

Academic History

Ph.D. (Thesis Submitted 2000; Degree 2001)	S. N. Bose National Centre for Basic Sciences, Calcutta, India
Post M.Sc. Graduate Course, 1997	Saha Institute of Nuclear Physics, Calcutta, West Bengal, India
M.Sc.(1st Class, Specialization in High Energy Physics) 1996	University of Calcutta West Bengal, India
B.Sc.(1st Class, Honours in Physics) 1994	Scottish Church College University of Calcutta West Bengal, India

Awards/Scholarships

- *Honorable Mention in the Gravity Research Foundation 2015 Awards for Essays on Gravitation* on the work "Imprint of modified Einstein's gravity on white dwarfs: Unifying type Ia supernovae".
- *B. M. Birla Science Prize in Physics, 2012 (given in 2013)* for the proposal of Highly Super-Chandrasekhar White Dwarfs and a new Mass-Limit.
- *Honorable Mention in the Gravity Research Foundation 2013 Awards for Essays on Gravitation* on the work "New mass limit of white dwarfs".
- *Honorable Mention in the Gravity Research Foundation 2012 Awards for Essays on Gravitation* on the work "Violation of Chandrasekhar Mass Limit: The Exciting Potential of Strongly Magnetized White Dwarfs".
- *Buti Foundation Award, 2011* administered by Physical Research Laboratory, Ahmedabad, for contribution to *Astrophysical Plasmas & its application to accretion disks and black holes.*
- *Vainu Bappu Gold Medal, 2006* from 'Astronomical Society of India' awarded in 2008.
- *Associate* of 'Indian Academy of Science, Bangalore', 2007-2010.

- *National Merit Scholarship in B.Sc.* from University of Calcutta in 1994.
- *National Merit Scholarship in Higher Secondary (Class XII)* from West Bengal Council of Higher Secondary Education in 1991.

Selective Work in News/Press

- Black Hole: The Times of India, Nature India, The Telegraph, Hindustantimes, Sangbad Pratidin (A Bengali Newspaper), Ei Samay (A Bengali Newspaper)
- White Dwarf: Physics World, The Telegraph (2 times), Nature India (2 times), 2Physics (semi-popular article), Frontline, The Times of India, Deccan Herald, Dream-2047: A Monthly Newsletter of Vigyan Prasar

Membership of Professional Bodies

- *Active membership* of 'International Astronomical Union (IAU)'.
- *Life membership* of 'Astronomical Society of India (ASI)'.
- *Life membership* of 'Indian Association for General Relativity and Gravitation (IAGRG)'.
- *Life membership* of 'Indian Science Congress Association'.

Supervising Ph.D. Students

Already degree awarded

1. Subham Ghosh: Ph.D. thesis (2016 - 2022).
2. Sudeb Ranjan Datta: Ph.D. thesis (2016 - 2021).
3. Surajit Kalita: Ph.D. thesis (2017 - 2021).
4. Tushar Mondal: Ph.D. thesis (2015 - 2020).
5. Oluwashina K. Adegoke (foreign national student): Ph.D. thesis (2014 - 2019).
6. Prasun Dhang (jointly with Prateek Sharma): Ph.D. thesis (2013 - 2018).
7. Sujit Kumar Nath: Ph.D. thesis (2009 - 2016).
8. Upasana Das: Ph.D. thesis (2010 - 2015).
9. Indrani Banerjee: Integrated-Ph.D. thesis (2011 - 2014).
10. S. R. Rajesh: Ph.D. thesis (2007 - 2011).
11. Shubhrangshu Ghosh: Ph.D. thesis (2006 - 2008; for technical reasons registered officially with Prof. Vinod Krishan of IIA).

Presently on roll

1. Mriganka Dutta: Ph.D. thesis (2023 - till date).

2. Mayank Pathak: Ph.D. thesis (2022 - till date).
3. Rohan Raha: Ph.D. thesis (2022 - till date).
4. Zenia Zuraiq: Ph.D. thesis (2022 - till date).
5. Mayusree Das: Ph.D. thesis (2021 - till date).
6. Srishty Aggarwal: Integrated-Ph.D. thesis (2019 - till date).

Supervising Under Graduate Students' thesis

1. Surendra Bhattarai (2023 - 2024)
2. Anindya Guria (2022 - 2025)
3. Panchajanya Dey (2022 - till date)
4. Gopika S. M. (2022 - 2023)
5. Arghya Ranjan Das (2020 - 2023)
6. Achal Kumar (2020 - 2023)
7. Abhay Gupta (2018 - 2019)
8. Tanayveer Singh Bhatia (2015, June - December)
9. Sathyawageeswar Subramanian (2013 - 2015)
10. Mukul Bhattacharya (2013 - 2015)
11. Praveer Tiwari (jointly with Prateek Sharma; 2014 - 2015)

Other students

• Bidya Binay Karak: M.S. thesis (2008; supervised jointly with Prof. Arnab Rai Choudhuri, he is registered with).
• Randall Cooper: Harvard University graduate student, in a project *Super-Burst* in 2005, jointly with Prof. Ramesh Narayan.

Mentoring Postdocs

1. Abhishek K. Jha (SERB: 2023 June - till date)
2. Priti Gupta (Raman: 2022 December - 2023 November)
3. Chandrachur Chakraborty (DST-SERB: 2021 August - 2022 February; now in MCNS, Manipal Academy of Higher Education, Manipal, as a Faculty Member)
4. Debabrata Deb (Raman: 2020 February - 2022 February; now in The Institute of Mathematical Sciences, Chennai)
5. Drisya Karinkuzhi (CSIR SRA: 2019 November - July 2021; now in University of Calicut, as a Faculty Member)

6. Nagendra Kumar (ISRO/D.S.Kothari: 2017 February - December 2020)
7. Ritabrata Biswas (ISRO: 2012 - 2013; now in Burdwan University, as a Faculty Member)
8. Ritam Mallick (ISRO: 2010 - 2011; now in IISER Bhopal, as a Faculty Member)
9. Monika Sinha (IISc Centenary: 2009 - 2010; now in IIT Jodhpur, as a Faculty Member)
10. Debbijoy Bhattacharya (DST: 2009 - 2011; now in MCNS, Manipal Academy of Higher Education, Manipal, as a Faculty Member)
11. Shubhrangshu Ghosh (DST: 2009 - 2010; now in SRM University, Sikkim, as a Faculty Member)
12. Prasad Basu (DST: 2008 - 2009; now in NIT Sikkim, as a Faculty Member)

Mentoring Project Assistants

• Tanayveer Singh Bhatia (June - December 2016)
• Vishal M. V. (2013 - 2014; joined in TIFR, Mumbai, as a Ph.D. student)
• Ranchu Mathew (2008 - 2009; joined in University of Maryland, as a Ph.D. student)
• Jayanta Dutta (February - October 2008; joined in ITA, Heidelberg, as a Ph.D. student)

Organizing conferences

- As the Chair of Local Organizing Committee of *Annual Meeting of the Astronomical Society of India* at the Indian Institute of Science, Bangalore, January 31 to February 4, 2024.
- As a member of Scientific Advisory Committee organized *The International Symposium on Recent Developments in Relativistic Astrophysics* at the SRM University, in Sikkim, December 11-13, 2023.
- As a Convener organized *A One-Day Symposium on Galaxies to celebrate Prof. Chanda J. Jog's 60th Birth Anniversary at Indian Institute of Science* on November 29, 2014
- Solely organized *Accretion Processes Around Compact Objects* at Indian Institute of Science in July 14-16, 2010.
- Jointly organized *In-House Symposium* at the Department of Physics, Indian Institute of Science in 2006-2009.
- Member of organizing committee *Observational Evidence for Black Holes in the Universe* in Kolkata, February 10-15, 2008.

Visit and/or Collaboration with other Centers

• Institute of Astronomy, University of Cambridge, UK (with Prof. Christopher Tout) on 'Super-Chandrasekhar magnetized white dwarfs'. Period of visit: 11-25th June, 2025.

• University of Wroclaw, Poland (with Prof. Armen Sedrakian) on 'Superconductivity in neutron stars'. Period of visit: 16-19th July, 2024.

• University of Warsaw, Poland (with Prof. Tomasz Bulik) on 'Gravitational waves'. Period of visit: 14-15th July, 2024.

• University of Ferrara, Italy (with Prof. Jorge Rueda) on 'Magnetized compact stars'. Period of visit: 4-5th July, 2024.

• Harvard University, USA (with Prof. Ramesh Narayan) on 'Magnetized accretion disk'. Period of visit: 1st-14th June, 2024.

• Max-Planck Institute for Gravitational Physics, Albert Einstein Institute, Golm (with Prof. Lars Andersson and his group) on 'Spinors in curved spacetime'. Period of visit: 1-30th June, 2018; 7th June to 5th July, 2019.

• Department of Astronomy, Beijing Normal University, China (with Prof. He Gao) on 'Nucleosynthesis in mergernova'. Period of visit: 12-27th July, 2017.

• Department of Physics, University of Oxford, UK (with Prof. Gianluca Gregory) on 'Magnetized white dwarfs and fluid dynamics'. Period of visit: 19th-21st July, 2016.

• Institute of Astronomy, University of Cambridge, UK (with Prof. Christopher Tout) on 'Magnetized white dwarfs and nucleosynthesis'. Period of visit: 17-18th July, 2016.

• Institute of Astronomy with NAO, Bulgarian Academy of Sciences, Sofia 1784, Bulgaria (with Dr. Rumen Bachev and Dr. Anton Strigachev) on 'Chaos in compact object systems' supported by Indo-Bulgarian Bilateral Project funded by Department of Science and Technology, India for 2013-2016.

• Aston University, Non-linearity and Complexity Research Group, Engineering and Applied Science, Birmingham, UK (with Dr. Amit K. Chattopadhyay) on 'Application of statistical physics to solve turbulence problem in rotating shear flows'. Period of visit: 12-19th June, 2011.

• Institute for Theoretical Physics, J.W. Goethe-University, D-60438 Frankfurt am Main, Germany (with Prof. Armen Sedrakian) on 'Magnetized matter in compact objects'. Period of visit: 19th-22nd February, 2011.

• National Institute for Theoretical Physics, Stellenbosch, South Africa (with Prof. Frederik G. Scholtz) on 'Application of non-commutativity to astrophysics'. Period of visit: 1-10th March, 2011.

• Department of Physics, Benaras Hindu University, Varanasi, India (with Prof. Bhabani Prasad Mondal) on 'Field theory in curved space time'. Period of visit: 17-20th March, 2010.

• Department of Mathematics, Jadavpur University, Kolkata, India (with Prof. Subenoy Chakraborty) on 'Accretion of dark energy upon black holes'.

• Dipartimento di Fisica, University di Palermo (with Prof. Diego Molteni) on 'The time dependent study of threedimensional accretion flows around a compact object and the nucleosynthesis around it'. Period of visit: 19-23th July, 2008.

• Dipartimento di Fisica, University di Salerno (with Prof. Giuseppe Vitiello) on 'Spinor fields in curved spacetime'. Period of visit: 16-18th July, 2008.

• High Energy Division, Abdus Salam International Centre for Theoretical Physics, Trieste, Italy. Period of visit: 6-15th July, 2008.

• Dipartimento di Fisica e Astronomia, University di Palermo (with Prof. Diego Molteni) on 'The time dependent study of accretion flows around a compact object and the nucleosynthesis around it' in a grant *awarded by CNR, Italy.* Period of visit: 14th May to 11th June, 2000.

Refereeing papers communicated in International Journals

1. Astronomy and Astrophysics
2. Physical Review Letters
3. Physical Review D
4. Classical and Quantum Gravity
5. Monthly Notices of Royal Astronomical Society
6. Journal of Cosmology and Astroparticle Physics
7. European Physical Journal C
8. Proceedings of Royal Society, London
9. Proceedings of National Academy of Sciences, Allahabad
10. General Relativity and Gravitation
11. Modern Physics Letters A
12. International Journal of Modern Physics A
13. International Journal of Modern Physics D
14. Research in Astronomy and Astrophysics
15. Journal of Astrophysics and Astronomy
16. Pramana
17. Astrophysics and Space Science
18. The Astrophysical Journal
19. Physics Reports

Experience of Teaching

1. Lectures are given in **Workshop on Contemporary issues on Astronomy and Astrophysics**, Department of Physics, Shivaji Univerity, Kolhapur, in Collaboration with IUCAA, Pune, 13-15 September, 2024.

2. Course given on **Introductory Physics: Mechanics Waves, and Oscillations**, for the First Year Undergraduate students at Department of Physics, Indian Institute of Science, Bangalore.

3. Course given on **Basic Classical Mechanics**, for Undergraduate, Integrated Ph.D. (M.S.+Ph.D.), Post-M.Sc. students at Department of Physics, Indian Institute of Science, Bangalore.

4. Course given on **Basic Quantum Mechanics (QM I)**, for Undergraduate, Integrated Ph.D. (M.S.+Ph.D.), Post-M.Sc. students at Department of Physics, Indian Institute of Science, Bangalore.

5. Course given on **Fundamentals of Astrophysics**, for Integrated Ph.D. (M.S.+Ph.D.) and Post-M.Sc. students at Department of Physics, Indian Institute of Science, Bangalore.

6. Course given on **Cosmology**, for M.Sc. students of Physics, African University of Science and Technology, Abuja, Nigeria.

7. Course given on **General Relativity and Cosmology**, for Integrated Ph.D. (M.S.+Ph.D.) and Post-M.Sc. students at Department of Physics, Indian Institute of Science, Bangalore.

8. Lectures are given in **Introduction to Astrophysics and Cosmology**, Science College, Nagpur, India, 27-30 November, 2002.

9. Lectures are given in **Introductory School on Astronomy and Astrophysics**, NES Science College, Nanded, India, 18-21 December, 2002.

Organizing Academic/Administrative Affairs

1. Organizing conferences as a **Convener/Chair**: (1) **Accretion Processes Around Compact Objects** at IISc in July 14-16, 2010, (2) **A One-Day Symposium on Galaxies to celebrate Prof. Chanda J. Jog's 60th Birth Anniversary** at IISc on November 29, 2014, (3) **Exploring the Universe: Near Earth Space Science to Extra-Galactic Astronomy** at S. N. Bose National Centre for Basic Sciences, Kolkata, in November 14-17, 2018, (4) **Annnual Meeting of the Astronomical Society of India** at Indian Institute of Science, Bangalore, from January 31 to February 4, 2024.

2. Serving as the **DCC Chair** of the Department of Physics, IISc, from July 2021 to till date.

3. Served as the **Convener of the Astrophysics Group (and Astrophysics Faculty Search Committee)** of the Department of Physics, IISc, from 2014-2018.

4. Served as the **Organizer of Colloquium and Astrophysics Seminar** of the Department of Physics, IISc.

5. **Chair in Charge** of the Department of Physics, IISc, in multiple occasions.

Computational Skills (Selective List)

Operating System	Unix, Linux, Dos, Windows
Workstation Familiarity	SUN, IBM, DEC-ALPHA, SGI
Programming Languages	Fortran-77, Fortran-90, Fortran-95, C, HTML, Mathematica
Software Packages	LaTeX, XV, Acroread, GNUPLOT, Super Mongo

Invited seminars/colloquiums at

1. **Astronomy Group, University of Southampton**, *Magnetically arrested disks in hard spectral states: Theory and Observational implications*, on 27th June, 2025.

2. **Institute of Astronomy, University of Cambridge**, *Super-Chandrasekhar white dwarf: Its possible formation by stellar evolution and implications*, on 23rd June, 2025.

3. **Department of Physics, Indian Institute of Technology Palakkad**, *Energy extraction from a black hole accretion-jet systems by magnetized Penrose process: Observations, theory and simulation*, on 4th March, 2025.

4. **Department of Physics, Indian Institute of Science Education and Research Pune**, *Energy extraction from a black hole in accreting systems by magnetized Penrose process: Observations, theory and simulation*, on 21st January, 2025.

5. **Department of Physical Sciences, Indian Institute of Science Education and Research Kolkata**, *White dwarf and type Ia supernova: Chandrasekhar limit and its violation*, on 6th November, 2024.

6. **Poornaprajna Institute of Institute of Scientific Research, Bangalore**, *Gravitational geometric phase*, on 6th July, 2023.

7. **Massive compact stars: Evidence, origin and violating their conventional limit**, *Department of Physics, Jadavpur University*, on 14th March, 2023.

8. **Manipal Centre for Natural Sciences, Manipal Academy of Higher Education**, *What is cooking around dead-stars?*, on 10th February, 2023.

9. **Department of Physics, Bar-Ilan University, Israel**, *Resolving properties of compact sources by GRMHD*, on 8th December, 2022: Webinar.

10. **Black Hole Initiative, Harvard University**, *Magnetically dominated accretion flows to probe black hole properties*, on 29th June, 2022.

11. **Department of Astronomy, California Institute of Technology**, *Super-Chandrasekhar white dwarfs as over-luminous type Ia supernova progenitors: Formation and possible direct detection*, on 22th June, 2022.

12. **Department of Physics, San Diego State University**, *Highly magnetized massive compact stars: Their formation, possible detection and consequences*, on 17th June, 2022.

13. **Department of Physics, Jadavpur University**, *Identification of black holes: Mystery, importance and Nobel prize*, on 29th March, 2022.

14. **Aryabhatta Research Institute of Observational Sciences: ARIES**, *Gravitational-magnetic effects to power ULXs and blazars*, on 28th September, 2021: Webinar.

15. **66th QASTM Zoominar**, *Super-Chandrasekhar white dwarfs*, on 4th February, 2021: Webinar.

16. **Department of Physics, Indian Institute of Science, Bangalore**, *Magneto-gravitational effects to resolve properties of black holes, white dwarfs and neutron stars* on 11th December, 2020: Webinar.

17. **Department of Physics, Indian Institute of Technology Gandhinagar**, *Nobel Prize in Physics, 2020: Identification of black holes* on 6th November, 2020: Webinar.

18. **Department of Physics, Jadavpur University**, *Is the Chandrasekhar-limit sacrosanct: quantum or classical effect?* on 19th November, 2019.

19. **Max-Planck-Institute for Gravitational Physics, Albert Einstein Institute, Potsdam-Golm, Germany**, *Plausible formation of highly magnetized, rotating white dwarfs and continuous gravitational wave from them: possible mission for LISA, DECIGO, BBO, ET* on 24th June, 2019.

20. **Physical Research Laboratory, Ahmedabad**, *Significant violation of Chandrasekhar-limit with a new mass-limit: Quantum or classical effect?* on 24th September, 2018.

21. **Max-Planck-Institute for Gravitational Physics, Albert Einstein Institute, Potsdam-Golm, Germany**, *Significantly sub- and super-Chandrasekhar limiting mass white dwarfs and peculiar type Ia supernovae: Einstein equation and beyond* on 19th June, 2018.

22. **Department of Physics, Indian Institute of Technology Jodhpur**, *Exciting developments in Gravitational Physics: From Gravitational Wave, Black Hole to White Dwarf* on 12th March, 2018.

23. **S. N. Bose National Centre for Basic Sciences**, *Gravitational "Zeeman effect" and its consequences* on 22nd September, 2017.

24. **Kavli Institute for Astronomy and Astrophysics, Peking University**, *Super- and sub-Chandrasekhar limiting mass white dwarfs: Progenitors of peculiar type Ia supernovae and multiple astrophysical implications* on 29th June, 2017.

25. **Department of Astronomy, Beijing Normal University**, *Super- and sub-Chandrasekhar limiting mass white dwarfs: Progenitors of peculiar type Ia supernovae and multiple astrophysical implications* on 22th June, 2017.

26. **Department of Physics, Jadavpur University**, *Recent exciting developments in gravitational physics* on 19th December, 2016.

27. **S. N. Bose National Centre for Basic Sciences**, *Highly magnetized super-Chandrasekhar white dwarfs and their multiple possible signatures in Universe* on 16th December, 2016.

28. **Department of Physics, University of Oxford**, *Magnetohydrodynamic and hydrodynamic origin of linear instability and turbulence in accretion disks* on 21th July, 2016.

29. **Institute of Astronomy, University of Cambridge**, *Highly magnetized super-Chandrasekhar white dwarf: its scientific evolution, current status and possible observation by Astrosat* on 18th July, 2016.

30. **Department of Physics, Indian Institute of Science Education Research Pune** *Recent exciting developments of astrophysics: compact objects to astrophysical fluids* on 5th April, 2016.

31. **Department of Instrumentation Science, Jadavpur University** *Exploring transient magnetohydrodynamics in the accretion disk to resolve its origin of turbulence* on 5th January, 2016.

32. **Department of Physics, Narendrapur Ramakrishna College, Kolkata** *Current exciting developments in black hole physics and in general dead stars* on 4th January, 2016.

33. **Department of Astrophysical Sciences, Princeton University** *Super- and sub-Chandrasekhar limiting mass white dwarfs and peculiar type Ia supernovae* on 28th May, 2015.

34. **Department of Physics and Astronomy, University of Nevada, Las Vegas** *Super- and sub-Chandrasekhar limiting mass white dwarfs as possible progenitors of peculiar over- and under-luminous type Ia supernovae* on 26th May, 2015.

35. **Department of Physics and Astronomy, University of Nevada, Las Vegas** *Alternate to MRI to explain transport in accretion disks* on 26th May, 2015.

36. **Department of Astrophysical and Planetary Sciences, University of Colorado, Boulder** *Super- and sub-Chandrasekhar limiting mass white dwarfs and peculiar type Ia supernovae* on 19th May, 2015.

37. **Department of Physics and Astronomy, Ohio University** *Super- and sub-Chandrasekhar limiting mass white dwarfs and peculiar type Ia supernovae* on 14th May, 2015.

38. **Department of Physics, Indian Institute of Science, Bangalore** *Modified Einstein's gravity as a missing link between sub- and super-Chandrasekhar type Ia supernovae* on 11th November, 2014.

39. **Institute of Astronomy, Bulgarian Academy Sciences, Bulgaria** *New mass limit for white dwarfs and its consequences* on 19th May, 2014.

40. **Institute for Theory and Computation, Harvard College Observatory, Harvard University, USA** *New mass limit of white dwarfs and its consequences* on 19th December, 2013.

41. **Department of Physics, University of Texas at El Paso, USA** *New mass limit of white dwarfs and its consequences* on 16th December, 2013.

42. **Department of Physics and Astronomy, University of Nevada, Las Vegas, USA** *New mass limit of white dwarfs and its consequences* on 6th December, 2013.

43. **National Institute of Technology Karnataka, Surathkal** *Black Hole* on 26th October, 2013.

44. **Department of Physics, Indian Institute of Science, Bangalore** *New mass limit for white dwarfs and its consequences* on 19th April, 2013.

45. **Department of Physics, Indian Institute of Technology, Kanpur** *New mass limit for white dwarfs: Need to revisit expansion history of Universe?* on 21st March, 2013.

46. **Department of Physics, University of Calcutta, Kolkata** *New mass limit for white dwarfs: Need to revisit expansion history of Universe?* on 13th March, 2013.

47. **Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore** *Violation of Chandrasekhar mass limit: Highly super-Chandrasekhar white dwarf explaining supernovae puzzle* on 13th September, 2012.

48. **Physical Research Laboratory, Ahmedabad** *Black hole's turbulent brew* on 11th November, 2011.

49. **Aston University, Birmingham, UK** *Hydrodynamic stability in astrophysical flows* on 17th June, 2011.

50. **National Institute for Theoretical Physics (NIThePP), Stellenbosch, South Africa** *Spin-1/2 particles in curved space time and its consequence to the neutrino sector* on 4th March, 2011.

51. **Max-Planck-Institut für Astrophysik, Garching, Germany** *FSRQ-BL Lac dichotomy and spin of black holes* on 24th February, 2011.

52. **Institute of Theoretical Physics, J. W. Goethe University, Frankfurt am Main, Germany** *Quasi-Periodic Oscillation of compact objects: A test of general relativity* on 22nd February, 2011.

53. **Department of Physics, Indian Institute of Science, Bangalore** *Spinning black hole: The heady brew* on 26th March, 2010.

54. **Department of Physics, Benaras Hindu University, Varanasi** *Spinning black hole: The heady brew* on 19th March, 2010.

55. **Department of Instrumentation Sciences, Jadavpur University, Kolkata** *The spinning black hole: A heady brew* on 21st December, 2009.

56. **Astrophysical Sciences Division, Bhabha Atomic Research Centre, Mumbai** *Disk-Outflow coupled dynamics around rotating black holes* on 30th June, 2009.

57. **Department of Physics, Presidency College, Kolkata** *Measuring spin of black holes in the universe: A test of General Relativity* on 6th March, 2009.

58. **Department of Chemical Engineering, Indian Institute of Science, Bangalore** *Accretion and transport around a gravitating body and determining spin of black holes* on 26th February, 2009.

59. **Raman Research Institute, Bangalore** *Quasi-Periodic Oscillation and spin of compact objects: A test of general relativity* on 18th November, 2008.

60. **Department of Astroparticle Physics and Cosmology, Bose Institute, Kolkata** *Measuring spin of black holes in the universe: A test of general relativity* on 4th November, 2008.

61. **Department of Physics, Indian Institute of Technology, Kanpur** *Measuring spin of black holes in the universe: A test of general relativity* on 30th October, 2008.

62. **Engineering Mechanics Unit, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore** *Transient growth in shear flows: Possible origin of hydrodynamic turbulence and its application to astrophysics* on 3rd October, 2007.

63. **Department of Physics and Astrophysics, Delhi University** *Neutrino under gravity and its implication to astrophysics and cosmology* on 22nd August, 2007.

64. **Indian Institute of Astrophysics, Bangalore, India** *The Accretion disk and its transport mechanism: The current status* on 16th January, 2007.

65. **Department of Astrophysics and Cosmology, S. N. Bose National Centre for Basic Sciences, Kolkata, India** *Secondary perturbation effects in Keplerian accretion disks: Elliptical instability* on 11th August, 2006.

66. **Department of Physics, Scottish Church College, University of Calcutta, India** *Neutrino under gravity* on 10th August, 2006.

67. **Relativity Group, Jadavpur University, Calcutta, India** *Leptogenesis and then Baryogenesis* on 24th January, 2006.

68. **Department of Astronomy and Astrophysics, Tata Institute of Fundamental Research, Mumbai, India** *Origin of hydrodynamic turbulence in cold accretion disks: Elliptical instability* on 10th January, 2006.

69. **Relativity Group, Jadavpur University, Calcutta, India** *Pseudo-spectrum and its application* on 15th February, 2005.

70. **Theory Division, Saha Institute of Nuclear Physics, Calcutta, India** *Transient growth in accretion process: Possible solution of hydrodynamic turbulence* on 14th February, 2005.

71. **Raman Research Institute, Bangalore, India** *Hydrodynamic induced turbulence in accretion disks: Study of energy growth* on 31st January, 2005.

72. **Department of Physics, Indian Institute of Science, Bangalore, India** *An eigenvalue analysis of hydrodynamically turbulent accretion disk: A local analysis* on 28th January, 2005.

73. **Physical Research Laboratory, Ahmedabad, India** *Hydrodynamic Turbulence in Accretion Disks* on 27th January, 2005.

74. **Inter-University Centre for Astronomy and Astrophysics, Pune, India** *Hydrodynamic induced turbulence in accretion disks: Study of energy growth* on 24th January, 2005.

75. **Inter-University Centre for Astronomy and Astrophysics, Pune, India** *Analysis of light-curve due to the hot-spot motion on the neutron star surface* on 23rd April, 2004.

76. **Relativity Group, Jadavpur University, Calcutta, India** *Gravity induced neutrino asymmetry in Universe* on 6th April, 2004.

77. **Department of Physics & Astronomy, University of Rochester** *Sonic point analysis and the effects of black holes' rotation in accretion disks* on 7th November, 2003.

78. **Astronomy Division, University of Oulu** *Sonic point analysis and the effects of black holes' rotation in accretion disks* on 29th October, 2003.

79. **Helsinki Observatory, University of Helsinki** *The chaotic behaviour of the black hole system GRS 1915+105* on 8th October, 2003.

80. **Tata Institute of Fundamental Research** *Pseudo-Newtonian potential and its application in accretion disk around rotating compact objects* on 1st October, 2002.

81. **Indian Institute of Science, Bangalore, India** *Stability of accretion disk in presence of nucleosynthesis* on 17th January, 2002.

82. **Physical Research Laboratory, Ahmedabad, India** *Instantaneous Reflection and Transmission Coefficients and a method to solve the wave equation* on 3rd July, 2001.

83. **Physical Research Laboratory, Ahmedabad, India** *Spin-1/2 particles in spinning black hole geometry* on 21st June, 2001.

84. **Kalyani University, Kalyani, India** *Nucleosynthesis in accretion disk and its stability around Compact Object* on 8th February, 2001.

85. **Jadavpur University, Calcutta, India** *Accretion disk around Compact Object and its properties* on 6th February, 2001.

86. **Physical Research Laboratory, Ahmedabad, India** *Accretion induced Nucleosynthesis around Compact Object* on 21st December, 2000.

87. **Physical Research Laboratory, Ahmedabad, India** (Colloquium as popular level lecture) *Cooking around Black Hole* on 20th November, 2000.

88. **University of Palermo (Department of Physics), Palermo, Italy** *Accretion disk around compact objects* on 8th June, 2000.

89. **CNR Institute of Palermo (Department of Physics), Palermo, Italy** *Nucleosynthesis in accretion flows around black holes* on 2nd June, 2000.

90. **Mehta Research Institute, Allahabad, India** *Nucleosynthesis around Black Hole* on 30th March, 2000.

91. **Indian Institute of Technology, Kanpur, India** *Analytical Solution of Dirac Equation in Kerr Geometry* on 11th March, 1999 **(TPSC)**.

92. **Mehta Research Institute, Allahabad, India** *Analytical Solution of Dirac Equation in Kerr Geometry* on 8th March, 1999 **(TPSC)**.

Invited talks at conferences

1. *Super-Chandrasekhar white dwarf* in **3rd Young Astrophysicists of Today's India (YATI3)** in Indian Centre for Space Physics, Kolkata, October 7-9, 2025.

2. *Plausible uncovering exotic compact objects by continuous gravitational waves* in **Workshop on Gravitational Waves & LIGO India** in SRM University AP, Amaravati, September 10-14, 2025.

3. *Non-Hermitian physics with spinors in curved spacetime and its consequences* in **POS-RST 2025 ISSP-IIS Joint Symposium on Physics of Open Systems: Resonance, Symmetry and Topology** in University of Tokyo, Kashiwa, August 4-8, 2025.

4. *Magnetically arrested advective accretion disk: Explaining highly luminous black hole sources* in **Astrophysics and Cosmology conference, CAAC 2025** in Aliah University, Kolkata, April 29-30, 2025.

5. *Super-Chandrasekhar white dwarfs and their detectability* in **Exploring the Cosmos - 2025** in High Energy & Cosmic Ray Research Centre, University of North Bengal, India, February 23, 2025.

6. *Energy Extraction from a Black Hole and Powerful Astrophysical Jets: Theory, Simulation and Observations* in **4th Symposium of the BRICS Association on Gravity, Astrophysics and Cosmology, BRICS-AGAC 2024** in SGT University, Gurugram, India, December 17-19, 2024.

7. *Accretion around a black hole: its observation, evolution and current understanding* in **International Symposium on Space-Science, Astrophysics and Cosmology – ISSAC-2024** in St. Stephen's College, Delhi, India, November 20-22, 2024.

8. *Energy extraction from black holes and its astrophysical implications* in **Symposium on Classical and Quantum Gravity: To celebrate 80th birth anniversary of Prof. Naresh Dadhich** in Department of Physics, Cochin University of Science and Technology, Kochi, November 5-7, 2024.

9. *Black holes: Accretion, Jet and Identification* in **Workshop on Contemporary issues on Astronomy and Astrophysics** in Department of Physics, Shivaji University, Kolhapur, September 13-15, 2024.

10. *Massive white dwarfs and neutron stars* in **Workshop on Contemporary issues on Astronomy and Astrophysics** in Department of Physics, Shivaji University, Kolhapur, September 13-15, 2024.

11. *Accretion processes around compact objects* in a parallel session **Spectral and temporal properties of accretion flows and jets around compact objects and the theoretical models** of MG17 Meeting, Pescara, Italy, July 7-12, 2024.

12. *Black holes in a modified gravity: Hawking radiation and cosmological implications* in a parallel session **Black holes in alternative theories of gravity** of MG17 Meeting, Pescara, Italy, July 7-12, 2024.

13. *Nonlinear nature of black hole IGR J170913624* in a parallel session **High energy astrophysics** of MG17 Meeting, Pescara, Italy, July 7-12, 2024.

14. *Super-Chandrasekhar white dwarfs* in a parallel session **Massive white dwarfs and related phenomena** of MG17 Meeting, Pescara, Italy, July 7-12, 2024.

15. *What is the true nature of PSR J0901-4046?* in a parallel session **Slowly rotating pulsars** of MG17 Meeting, Pescara, Italy, July 7-12, 2024.

16. *Why CGW is yet to be detected from isolated magnetized rotating neutron stars?* in a parallel session **Astrophysics with gravitational waves** of MG17 Meeting, Pescara, Italy, July 7-12, 2024.

17. *Magnetically arrested advective accretion flow (MA-AAF) around a black hole, 2D-3D: Observational implications* in **The Event Horizon and Beyond - Celebrating 50 Years of Narayan** in Museum of Science, Boston, USA, June 11-13, 2024.

18. *QPOs of compact sources and measuring the spin of black hole* in **First Biennial Conference on Astronomy, Astrophysics and Space Science "Exploring the Universe: from Near to Far"** in Indian Centre for Space Physics, Kolkata, February 16-21, 2024.

19. *Special Colloquium:- My research journey: from 1997 to ...* in **International Symposium on Recent Development in Relativistic Astrophysics: Celebrating 50 Stellar Years of Prof. Banibrata Mukhopadhyay** in SRM University, Gangtok, Sikkim, December 11-13, 2023.

20. *GRMHD accretion and jets around a black hole: Observational implications* in **ONE DAY CONFERENCE on Celebration of the Birth Centenary of two eminent Calcuttan Prof. Mrinal Kumar Das Gupta and Prof. Amal Kumar Raychaudhuri** in Indian Centre for Space Physics, Kolkata, December 9, 2023.

21. *Massive compact stars and their detection possibility in gravitational wave astronomy* in **The Modern Physics of Compact Stars and Relativistic Gravity 2023** in Yerevan, Armenia, September 12-16, 2023; Attended Online.

22. *Magnetized advective accretion disks and their stability at higher accretion rate: Theory and simulation* in **The Fifth Zeldovich Meeting** in Yerevan, Armenia, June 12-16, 2023.

23. *Massive white dwarfs and neutron stars: observational evidence, origin and violating their conventional limit*, in **Frontiers in Physics 2023**, in University of Hyderabad, March 3-4, 2023.

24. *Gravitational geometric phase*, in **Department of Physics In-House Symposium in IISc** in Indian Institute of Science, Bangalore, February 24-25, 2023.

25. *Effect of Landau quantization for varying magnetic fields in degenerate electrons and its implications to astrophysics and quantum speed limit* in **6th Asia-Pacific Conference on Plasma Physics, Remote e-conference (hosted by Japan), Session: Quantum Plasma & Plasma Theory**, Presented Online, October 9-14, 2022.

26. *Highly magnetized degenerate electron gas and white dwarfs violating Chandrasekhar limit: Theory and simulation* in **2nd International Conference on Plasma Theory and Simulations (PTS)**, in Department of Physics, University of Lucknow, Presented Online, June 20-22, 2022.

27. *Advective accretion regime* in **Workshop as a part of 40th Meeting of the Astronomical Society of Indian (ASI)**, in Indian Institute of Technology Roorkee, March 24-29, 2022.

28. *Magnetized accretion flows and underlying jets around black holes* in **Emerging Trends in High Energy Astrophysics (ETHEAP)**, in Department of Applied Sciences, Tezpur University, Assam, Presented Online, March 16, 2022.

29. *Exciting development in astrophysics: From gravitational wave to black hole to white dwarf* in **Recent Advances in Astrophysics**, in Department of Physics, University of Calicut, Presented Online, February 18-19, 2022.

30. *Gravitational geometric phase* in a parallel session **Mathematical Problems of Relativistic Physics: Classical and Quantum** of MG16 Meeting, Online, July 5-10, 2021.

31. *Highly magnetized white dwarfs: implications and current status* in a parallel session **White Dwarfs, Magnetic Compact Objects, and Nuclear Astrophysics** of MG16 Meeting, Online, July 5-10, 2021.

32. *Identification of black holes* in **International Conclave on Contemporary Physics: the new paradigm shift** in Internal Quality Assurance Cell (IQAC), Rajdhani College, University of Delhi, New Delhi, India, February 27-28, 2021: Webinar.

33. *Is the Chandrasekhar-limit sacrosanct: quantum or classical effect?* in **Physics Department In-House Symposium in IISc** in Indian Institute of Science, Bangalore, November 22-23, 2019.

34. *Transient black hole and white dwarf sources as magnetically powered systems* in **Transient Astronomy: Current Trend and Upcoming New Frontiers** in URSC, ISRO, November 11-12, 2019.

35. *Origin of turbulence and viscosity in accretion disks* in **Saha Equation 100** in University of Calcutta, Kolkata, September 23-25, 2019.

36. *Gravitational waves from white dwarf sources* in **Compact white dwarf binaries: From SN Ia to gravitational wave sources** in Yerevan, Armenia, September 15-20, 2019.

37. *Power of magnetically arrested advective accretion flows to explain ULXs and blazars* in **22nd International Conference on General Relativity and Gravitation (GR22) and the 13th Amaldi Conference on Gravitational Waves (Amaldi13)** in Valencia, Spain, July 7-12, 2019.

38. *Modified Einstein gravity to unify under- and over-luminous type Ia supernovae* in **22nd International Conference on General Relativity and Gravitation (GR22) and the 13th Amaldi Conference on Gravitational Waves (Amaldi13)** in Valencia, Spain, July 7-12, 2019.

39. *Continuous gravitational waves from magnetized white dwarfs and neutron stars: Missions for LISA, DECIGO, BBO* in **22nd International Conference on General Relativity and Gravitation (GR22) and the 13th Amaldi Conference on Gravitational Waves (Amaldi13)** in Valencia, Spain, July 7-12, 2019.

40. *Magnetic compact sources: unified resolution for blazars, ULXs etc.* in **Fourth Recent Trends in the Study of Compact Objects: Theory and Observation (RETCO-IV)** in Inter-University Centre for Astronomy and Astrophysics, Pune, April 17-20, 2019.

41. *Power of magnetically arrested advective accretion flows to explain ULXs and blazars* in **Accretion in strong gravity** in Physikzentrum Bad Honnef, Germany, February 4-8, 2019.

42. *Plausible signature of noncommutativity in type Ia supernovae with super-Chandrasekhar white dwarfs* in **International Conference on "Noncommutative Geometry: Physical and Mathematical Aspects of Quantum Space-Time and Matter"** in S. N. Bose National Centre for Basic Sciences, Kolkata, November 27-30, 2018.

43. *Magnetic Universe* in **Exploring the Universe: Near Earth Space Science to Extra-Galactic Astronomy** in S. N. Bose National Centre for Basic Sciences, Kolkata, November 14-17, 2018.

44. *Powering AGN by magnetized advective accretion flows* in **One-Day Meeting on AGN Science** in Indian Institute of Astrophysics, Bangalore, October 6, 2018.

45. *Magnetically powered compact sources: Resolving issues with black holes and white dwarfs* in **Young Astronomers' Meet** in Physical Research Laboratory, Ahmedabad, September 24-27, 2018.

46. *Magnetized advective accretion flows around black holes* in a parallel session **Black hole astrophysics: Observational evidence of theoretical models** of 42th COSPAR Scientific Assembly, Pasadena, July 14-22, 2018.

47. *Possible evolution of magnetized white dwarfs by accretion leading to highly magnetized super-Chandrasekhar white dwarfs* in a parallel session **Nova eruptions, cataclysmic variables and related systems: Observational vs. theoretical challenges** of 42th COSPAR Scientific Assembly, Pasadena, July 14-22, 2018.

48. *Plausible detection of gravitational wave from highly magnetized white dwarfs* in a parallel session **The gravitational wave universe** of 42th COSPAR Scientific Assembly, Pasadena, July 14-22, 2018.

49. *ULXs as magnetized sub-Eddington advective accretion flows around stellar mass black holes* in a parallel session **Spectral and temporal properties of black holes and neutron stars and the theoretical models** of MG15 Meeting, Rome, July 1-7, 2018.

50. *Possible formation of lowly luminous highly magnetized white dwarfs by accretion leading to SGRs/AXPs* in a parallel session **Origin and physics of soft gamma-ray repeaters and anomalous X-ray pulsars** of MG15 Meeting, Rome, July 1-7, 2018.

51. *Correlating non-linear properties of compact objects with spectral states: GRS 1915+105 A case study* in a parallel session **Accretion discs and jets** of MG15 Meeting, Rome, July 1-7, 2018.

52. *Accretion around black holes: low- to ultra-luminous sources* in **RAD@home Discovery Camp** in International Centre for Theoretical Sciences, Tata Institute of Fundamental Research, Bangalore, May 7-13, 2018.

53. *Super-Chandrasekhar white dwarf and its consequences* in **Recent Developments in Cosmology** in Department of Physics, Benaras Hindu University, Varanasi, India, April 6-8, 2018.

54. *Highly magnetized super-Chandrasekhar white dwarfs and its consequences* in **Stars with a stable magnetic field: from pre-main sequence to compact remnants** in Masaryk University, Brno, Czech Republic, August 28 to September 1, 2017.

55. *Highly magnetized super-Chandrasekhar white dwarfs and their astrophysical consequences* in **Asia-Pacific Regional IAU Meeting (APRIM2017)** in Taipei International Convention Center, July 3-7, 2017.

56. *Linear instability in accretion disks without magnetic fields* in **Third Recent Trends in the Study of Compact Objects: Theory and Observation (RETCO-III)** in Indian Institute of Space Science and Technology, Thiruvananthapuram, June 5-7, 2017.

57. *Highly magnetized super-Chandrasekhar white dwarfs and their astrophysical consequences* in **International Symposium on Nonlinear Waves in fluids and plasmas (A symposium to honor the scientific achievements of Professor Bimla Buti)** in Indian Institute of Technology Delhi, March 1-2, 2017.

58. *Recent exciting developments in gravitational physics* in **International Seminar on 'Cosmology, Relativity and Gravity Waves'** in The Asiatic Society, Kolkata, February 15-16, 2017.

59. *Recent exciting developments in gravitational physics* in **34th Annual Convention of Orissa Physical Society & UGC Sponsored National Seminar on Current Trends and Prospective of Physics** in Department of Physics, Berhampur University, February 11-12, 2017.

60. *What is cooking around dead-stars?* in **FISAT International Space Olympiad**, in Kochi, January 27-28, 2017.

61. *AR Scorpii as a possible seed of highly magnetized white dwarfs (B-WDs)* in **Wide Band Spectral and Timing Studies of Cosmic X-ray Sources**, in Tata Institute of Fundamental Research, Mumbai, January 10-13, 2017.

62. *Exploring the nature of radio-pulsar AR Scorpii: neutron star or white dwarf* in **First ASIONS, SKA Satellite Meeting**, in Goa, November 4-5, 2016.

63. *Significantly super-Chandrasekhar limiting mass white dwarfs and their consequences* in **20th European white dwarf workshop (EuroWD16)**, in University of Warwick, Coventry, July 25-29, 2016.

64. *Exciting advancement in black hole and white dwarf astrophysics* in **Advancement in Frontier Physics: from 20th Century to Present**, in Bhairab Ganguly College, Kolkata, February 26-27, 2016.

65. *Disk-jet connection: effects of spin of black holes and viscosity and magnetic fields of disk* in **Jet triggering mechanisms in black hole sources** in Tata Institute of Fundamental Research, Mumbai, January 20-23, 2016.

66. *Highly magnetized white dwarfs: its scientific evolution, current status and observation by Astrosat* in **Timing and spectroscopy: Wideband X-ray astronomy** in Tata Institute of Fundamental Research Balloon Facility, Hyderabad, January 12-14, 2016.

67. *Removal of angular momentum by strong magnetic field stresses in advective accretion flows around black holes* in a parallel session **MHD processes near compact objects** of MG14 Meeting, Rome, July 12-18, 2015.

68. *Exploring a missing link between peculiar, sub- and super-Chandrasekhar type Ia supernovae by modifying Einstein's gravity* in a parallel session **Extended Theories of Gravity and Quantum Cosmology** of MG14 Meeting, Rome, July 12-18, 2015.

69. *Soft gamma-ray repeaters and anomalous X-ray pulsars as highly magnetized white dwarfs* in a parallel session **Origin and physics of Soft Gamma-ray Repeaters and Anomalous X-ray Pulsars** of MG14 Meeting, Rome, July 12-18, 2015.

70. *A search for chaos in the blazar: W2R 1926+42 and its possible consequence* in a parallel session **New developments in Blazars research** of MG14 Meeting, Rome, July 12-18, 2015.

71. *Significantly super-Chandrasekhar limiting mass white dwarfs as progenitors for peculiar overluminous type Ia supernovae* in **Twelfth Conference on the Intersections of Particle and Nuclear Physics (CIPANP)** in Vail, Colorado, May 19-24, 2015.

72. *Searching and quantifying nonlinear signature in blazars and compact objects* in **Science with LAXPC/ASTROSAT** in Tata Institute of Fundamental Research Balloon Facility, Hyderabad, December 15-17, 2014.

73. *Super- and sub-Chandrasekhar limiting masses of white dwarfs and their consequences in nature* in **International Conference on Matters of Gravity and the Universe (In Honour of 70th Birthday of Prof. Naresh Dadhich)** in Centre for Theoretical Physics, Jamia Millia Islamia, New Delhi, October 27-29, 2014.

74. *Removal of angular momentum by large scale magnetic field in advective accretion disks around black holes* in **Hard X-ray Astronomy: Astrosat and Beyond** in International Center, Goa, September 24-26, 2014.

75. *CPTV and neutrino asymmetry in strong gravitational field and its consequences* in **Questioning Fundamental Physical Principle** in CERN, Geneva, May 6-9, 2014.

76. *Formation of spinning black holes: semi-empirical mass-spin formula* in **Symposium on Astro-Particle and Nuclear Physics, In Honour of 70th Birthday of Prof. Q.N. Usmani** in Centre for Theoretical Physics, Jamia Millia Islamia, New Delhi, January 21-22, 2014.

77. *New mass limit for white dwarfs and its consequences* in **27th Texas Symposium on Relativistic Astrophysics** in Dallas, December 8-13, 2013.

78. *Spinning black holes* in **Physics Department In-House Symposium in IISc**, Department of Physics, Indian Institute of Science, Bangalore, November 16, 2013.

79. *New mass limit of white dwarfs and its consequences* in **Frontiers of Fundamental Physics**, Birla Science Centre, Hyderabad, November 14-16, 2013.

80. *Viscosity on accretion disks* in **Accretion Onto Black Holes: A topical conference**, International Center, Goa, September 5-7, 2013.

81. *Effects of magnetic field onto accreting compact systems* in **Recent Trends in the Study of Compact Objects: Theory and Observation (RETCO-2013)**, Indian Institute of Technology, Guwahati, March 11-13, 2013.

82. *Violation of Chandrasekhar Mass Limit: Highly Super-Chandrasekhar White Dwarf Explaining Supernovae Puzzle* in **Physics Meeting in Amazonia**, Belem, Brazil, September 24-28, 2012.

83. *Instability of neutron star matter in high magnetic field* in a parallel session **Magnetars: the Extremes of Nature** of 39th COSPAR Scientific Assembly, Mysore, July 14-22, 2012.

84. *2.5-dimensional model of disk-outflow symbiotic systems: description of FSRQ/BL Lac dichotomy based on Fermi observations* in a parallel session **Spectral and Timing Properties of Black Holes and Neutron Stars** of 39th COSPAR Scientific Assembly, Mysore, July 14-22, 2012.

85. *Stochastically driven instability in accretion flows* in a parallel session **Gravitational Effects on Physico-Chemical Processes** of 39th COSPAR Scientific Assembly, Mysore, July 14-22, 2012.

86. *Stochastically driven instability and turbulence in accretion disks* in a parallel session **Magneto-Plasma Processes in Relativistic Astrophysics** of MG13 Meeting, Stockholm, July 1-7, 2012.

87. *Model of a disk-outflow coupled system: Disk-outflow symbiosis* in a parallel session **Spectral and timing Properties of Astrophysical Black Holes** of MG13 Meeting, Stockholm, July 1-7, 2012.

88. *Does black hole spin play a key role in the FSRQ/BL Lac dichotomy?* in a parallel session **Active Galactic Nuclei at High Energies** of MG13 Meeting, Stockholm, July 1-7, 2012.

89. *Constraining the central magnetic field of magnetars* in a parallel session **Origin and physics of Soft Gamma-ray Repeaters and Anomalous X-ray Pulsars** of MG13 Meeting, Stockholm, July 1-7, 2012.

90. *Stochastically driven instability in accretion flows* in **X-ray View of Cosmos**, in Physical Research Laboratory, Ahmedabad, April 23-25, 2012.

91. *Stochastically driven instability in accretion flows* in **International Conference on Astrophysics & Cosmology (ICAC2012)**, in Tribhuvan University, Kirtipur, Nepal, March 19-21, 2012.

92. *Problems of linear instability in rotating shear flows and its astrophysical implications* in **Advanced Instability Methods**, in Indian Institute of Technology Bombay, Mumbai, January 20-22, 2012.

93. *Spinning black holes* in **Astronomy & Astrophysics: Birth Centenary Tribute to Subrahmanyan Chandrasekhar**, in Raja Rammohun Roy Mahavidyalaya, Radhanagar, Hooghly, West Bengal, November 24-25, 2011.

94. *Dark energy accretion upon black holes and formation of faster outflowing winds* in **Foundational Aspects of Cosmology**, in Universität Hamburg, DESY, Germany, February 16-18, 2011.

95. *Disk-outflow system around spinning black holes and explaining the observed FSRQ-BL Lac dichotomy* in **Wideband X-ray Astronomy: Frontiers in Timing and Spectroscopy**, in IUCAA, Pune, January 13-16, 2011.

96. *Search for chaos in black holes and neutron stars* in **3rd International Conference (Chaos2010) on Chaotic Modeling**, in Chania, Crete, Greece, July 1-4, 2010.

97. *Two temperature accretion flows around rotating black holes and determining the Kerr parameter of sources* in a parallel session **Astrophysical black holes from quasars to nano-quasars** of MG12 Meeting, Paris, July 12-18, 2009.

98. *Lorentz symmetry violation in neutrinos in curved spacetime and its consequences*, in a parallel session **Test of local Lorentz invariance** of MG12 Meeting, Paris, July 12-18, 2009.

99. *Measuring Spin of Black holes from their QPOs: A Test of General Relativity*, in **XXVII Meeting of Astronomical Society of India**, in IIA, Bangalore, February 18-20, 2009.

100. *Non-normality and transport in accretion disks around compact objects*, in **India-UK Network First Meeting**, in JNCASR, Bangalore, January 27-30, 2009.

101. *Measuring spin of black holes in the universe*, in **74th Annual Meeting of Indian Academy of Sciences**, in Indian Institute of Technology, Delhi, October 31 to November 2, 2008.

102. *Transient growth due to non-normality and its application to astrophysics in solving the turbulence problem*, in **One day meeting on non-normality in IIT-Madras**, in Department of Aerospace Engineering, Indian Institute of Technology Madras, Chennai, July 28, 2008.

103. *Possible CPT violation in the neutrino sector under gravitational field and its implication*, in **Workshop on the Origin of P, CP and T Violations**, in ICTP, Trieste, July 2-5, 2008.

104. *Estimate of black hole's spin from a model unifying black hole and neutron star QPOs*, in **Measuring Spin and Mass of Black Holes**, in Pune, December 18-20, 2007.

105. *Neutrino oscillation under gravity*, in **Physics Department In-House Symposium in IISc**, in Department of Physics, Indian Institute of Science, Bangalore, November 21, 2007.

106. *Transonic properties of the accretion disk around compact objects*, in **First Kodai-Trieste Workshop on Plasma Astrophysics** in Kodaikanal Observatory, Indian Institute of Astrophysics, Kodaikanal, India, August 27 to September 7, 2007.

107. *Possible hydrodynamic instability and turbulent viscosity in the Keplerian accretion disk*, in **Minischool on Hydrodynamics/Radiative Transfer** in Department of Astrophysics and Cosmology, S. N. Bose National Centre for Basic Sciences, Kolkata, January 31 to February 3, 2007.

108. *Possible route to hydrodynamic turbulence in rotating shear flow with a Keplerian angular momentum profile*, in **Physics Department In-House Symposium in IISc**, in Department of Physics, Indian Institute of Science, Bangalore, October 18, 2006.

109. *Possible neutrino-antineutrino oscillation under gravity and its consequences*, in a parallel session **Neutrino Masses: Experimental** of MG11 Meeting, Berlin, July 23-29, 2006.

110. *Secondary perturbation effects in Keplerian accretion disks: Elliptical instability*, in a parallel session **Astrophysical Black Holes** of MG11 Meeting, Berlin, July 23-29, 2006.

111. *Turbulence in Accretion Disks around Gravitating Stars: Similar to the Puzzle in Laminar Flow in Laboratory*, in **Workshop on Current Puzzles in Astrophysics and its Link to the Fundamental Physics** in Department of Physics, Presidency College, Kolkata, India, under the auspices of the Shyamal Sengupta Memorial Lectures Committee, January 7th-8th, 2006.

112. *Origin of Hydrodynamic Instability in Accretion Disks*, in **COSPAR Colloquium on Spectra and Timing of Compact X-ray Binaries** in Tata Institute of Fundamental Research, Mumbai, January 17-21, 2005.

113. *Black holes and their evidence*, in **Mathematical Modeling: Theory and Practice** in Department of Mathematics, Jadavpur University, Calcutta, India, March 25-26, 2004.

114. *Chaotic behaviour of micro quasar GRS 1915+105*, in **X-Ray Timing 2003: Rossi and Beyond** in Harvard-Smithsonian Center for Astrophysics, Harvard University, November 3-5, 2003.

115. *Neutrino asymmetry in presence of gravitational interaction*, in a parallel session **Neutrino Physics, Astrophysics and Cosmology**, of MG10 Meeting, Rio de Janeiro, July 20-26, 2003.

116. *Theoretical Description of kHz QPOs in accreting LMXB systems*, in a parallel session **Spectral and timing appearances of the Galactic and extragalactic Black Holes**, of MG10 Meeting, Rio de Janeiro, July 20-26, 2003.

117. *Scalar and spinor perturbation to the most generalized Kerr-NUT space-time*, in a parallel session **Exact Solutions (physical aspects)**, of MG10 Meeting, Rio de Janeiro, July 20-26, 2003.

118. *Stability of accretion disk around rotating black holes*, in a parallel session **Astrophysical Black Holes**, of MG10 Meeting, Rio de Janeiro, July 20-26, 2003.

119. *Interpretation of observed kHz QPOs in accreting LMXB systems: a hydrodynamical model* in **2nd meeting of the Nordic project on High Energy Astrophysics in the INTEGRAL Era** in Stockholm Observatory, Stockholm, Sweden, June 5-7, 2003.

120. *Neutrino-Antineutrino asymmetry around rotating black hole* in **9th International Symposium on Particles, Strings and Cosmology (PASCOS)** in Tata Institute of Fundamental Research, Mumbai, India, January 3-8, 2003.

121. *Pseudo-Newtonian potentials and its application in accretion disk around rotating compact objects*, in **22nd Meeting of the Indian Association for General Relativity and Gravitation** in Inter-University Centre for Astronomy and Astrophysics, Pune, December 11-14, 2002.

122. *Behaviour of spin-half particle around charged black hole*, in **21st Meeting of the Indian Association for General Relativity and Gravitation** in Central India Research Institute, Nagpur, 30th January to 1st February, 2001.

123. *Behaviour of spin-1/2 particle in curved space-time*, in a parallel session **The Role of Spin and Rotation in General Relativity**, of MG9 Meeting, Rome, July 2-8, 2000.

124. *Nucleosynthesis around compact object*, in a parallel session **Accretion Processes Around Neutron Stars and Black Holes**, of MG9 Meeting, Rome, July 2-8, 2000.

125. *Solution of Dirac equation in curved space-time*, at **Summer School in Astroparticle Physics and Cosmology**, in ICTP, June 12-30, 2000.

126. *Nucleosynthesis around Black Holes*, at **Young Astronomer's Meet**, UPSO, Nainital, India, June 1-3, 1999.

127. *Dirac Equation in Kerr Geometry*, at **Young Astrophysicists of Today's India**, S. N. Bose National Centre for Basic Sciences, Calcutta, March 24-26, 1999.

128. *Nucleosynthesis Around Black Holes*, at **Young Astrophysicists of Today's India**, S. N. Bose National Centre for Basic Sciences, Calcutta, March 24-26, 1999.

129. *Solution of Dirac Equation in Kerr Geometry* at **Mini Workshop on Applied Mathematics**, Dhaka, Bangladesh, September 1-3, 1998.

130. *Nucleosynthesis in Advective Accretion Disk around Galactic and Extra-Galactic Black-Holes* at **International Conference on the Observational Evidences for Black Hole**, Calcutta, January 11-17, 1998.

Conferences attended

Abroad

1. POS-RST 2025 ISSP-IIS Joint Symposium on Physics of Open Systems: Resonance, Symmetry and Topology, University of Tokyo, Kashiwa, August 4-8, 2025.
2. 17th Marcel Grossmann Meeting, Pescara, Italy, July 7-12, 2024.
3. The Event Horizon and Beyond - Celebrating 50 Years of Narayan, Museum of Science, Boston, USA, June 11-13, 2024.
4. The Modern Physics of Compact Stars and Relativistic Gravity 2023, September 12-16, 2023, Yerevan, Armenia, Attended Online.
5. 5th Zeldovich Meeting, Yerevan, Armenia, June 12-16, 2013.
6. 6th Asia-Pacific Conference on Plasma Physics, Remote e-conference (hosted by Japan), October 9-14, 2022, Attended Online.
7. The Modern Physics of Compact Stars and Relativistic Gravity, Yerevan State University, Yerevan, Armenia, September 27-30, 2021, Attended Online.
8. 16th Marcel Grossmann Meeting, Online, July 5-10, 2021.

9. Compact white dwarf binaries: From SN Ia to gravitational wave sources, Yerevan, Armenia, September 15-20, 2019.

10. 22nd International Conference on General Relativity and Gravitation (GR22) and the 13th Amaldi Conference on Gravitational Waves (Amaldi13), Valencia, Spain, July 7-12, 2019.

11. Accretion in strong gravity, Physikzentrum Bad Honnef, Germany, February 4-8, 2019.

12. 42th COSPAR Scientific Assembly, Pasadena, USA, July 14-22, 2018.

13. 15th Marcel Grossmann Meeting, Rome, Italy, July 1-7, 2018.

14. Stars with a stable magnetic field: from pre-main sequence to compact remnants, Masaryk University, Brno, Czech Republic, August 28 to September 1, 2017.

15. 2017 Asia-Pacific Regional IAU Meeting (APRIM2017), Taipei International Convention Center, Taiwan, July 3-7, 2017.

16. 20th European white dwarf workshop, University of Warwick, Coventry, UK, July 25-29, 2016.

17. 14th Marcel Grossmann Meeting, Rome, Italy, July 12-18, 2015.

18. Twelfth Conference on the Intersections of Particle and Nuclear Physics (CIPANP), Vail, Colorado, USA, May 19-24, 2015.

19. Questioning Fundamental Physical Principle, CERN, Geneva, Switzerland, May 6-9, 2014.

20. 27th Texas Symposium, Dallas, USA, December 8-13, 2013.

21. Physics Meeting in Amazonia, Belem, Brazil, September 24-28, 2012.

22. 13th Marcel Grossmann Meeting, Stockholm, Sweden, July 1-7, 2012.

23. International Conference on Astrophysics & Cosmology (ICAC2012), Central Department of Physics, Tribhuvan University, Kirtipur, Nepal, March 19-21, 2012.

24. Foundational Aspects of Cosmology, Universität Hamburg, DESY, Germany, February 16-18, 2011.

25. 3rd International Conference (Chaos2010) on Chaotic Modeling, Chania, Crete, Greece, July 1-4, 2010.

26. 12th Marcel Grossmann Meeting, UNESCO, Paris, France, July 12-18, 2009.

27. 24th Texas Symposium, Vancouver, Canada, December 8-12, 2008.

28. Workshop on the Origin of P, CP and T Violations, ICTP, Trieste, Italy, July 2-5, 2008.

29. 11th Marcel Grossmann Meeting, Berlin, Germany, July 23-29, 2006.

30. 22nd Texas Symposium, Stanford, USA, December 13-17, 2004.

31. X-Ray Timing 2003: Rossi and Beyond, Harvard-Smithsonian Center for Astrophysics, Harvard, USA, November 3-5, 2003.

32. 10th Marcel Grossmann Meeting, Rio de Janeiro, Brazil, July 20-26, 2003.

33. Particle Acceleration in Astrophysical Objects, Cracow, Poland, June 24-28, 2003.

34. 2nd meeting of the Nordic project on High Energy Astrophysics in the INTEGRAL Era, Stockholm Observatory, Stockholm, Sweden, June 5-7, 2003.

35. School in High energy astrophysics, Stockholm Observatory, Stockholm, Sweden, June 2-5, 2003.
36. 9th Marcel Grossmann Meeting, Rome, Italy, July 2-8, 2000.
37. Summer School in Astroparticle Physics and Cosmology, ICTP, Italy, June 12-30, 2000.
38. Mini Workshop on Applied Mathematics, Dhaka, Bangladesh, September 1-3, 1998.

In India

1. 3rd Young Astrophysicists of Today's India (YATI3), Indian Centre for Space Physics, Kolkata, October 7-9, 2025.
2. Workshop on Gravitational Waves & LIGO India, SRM University AP, Amaravati, September 10-14, 2025.
3. Astrophysics and Cosmology conference, CAAC 2025, Aliah University, Kolkata, April 29-30, 2025.
4. Exploring the Cosmos - 2025, High Energy & Cosmic Ray Research Centre, University of North Bengal, India, February 23, 2025.
5. 4th Symposium of the BRICS Association on Gravity, Astrophysics and Cosmology, BRICS-AGAC 2024, SGT University, Gurugram, December 17-19, 2024.
6. International Symposium on Space-Science, Astrophysics and Cosmology – ISSAC-2024, St. Stephen's College, Delhi, India, November 20-22, 2024.
7. Symposium on Classical and Quantum Gravity: To celebrate 80th birth anniversary of Prof. Naresh Dadhich, Department of Physics, Cochin University of Science and Technology, Kochi, November 5-7, 2024.
8. First Biennial Conference on Astronomy, Astrophysics and Space Science "Exploring the Universe: from Near to Far", Indian Centre for Space Physics, Kolkata, February 16-21, 2024.
9. International Symposium on Recent Development in Relativistic Astrophysics: Celebrating 50 Stellar Years of Prof. Banibrata Mukhopadhyay, SRM University, Gangtok, Sikkim, December 11-13, 2023.
10. One Day Conference on Celebration of the Birth Centenary of two eminent Calcuttan Prof. Mrinal Kumar Das Gupta and Prof. Amal Kumar Raychaudhuri, Indian Centre for Space Physics, Kolkata, December 9, 2023.
11. Frontiers in Physics 2023, University of Hyderabad, March 3-4, 2023.
12. 2nd International Conference on Plasma Theory and Simulations (PTS), in Department of Physics, University of Lucknow, June 20-22, 2022 (Attended Online).
13. 40th Meeting of the Astronomical Society of Indian (ASI), Indian Institute of Technology Roorkee, March 24-29, 2022.
14. Emerging Trends in High Energy Astrophysics (ETHEAP), Department of Applied Sciences, Tezpur University, Assam, March 16, 2022 (Attended Online).
15. Recent Advances in Astrophysics, Department of Physics, University of Calicut, February 18-19, 2022 (Attended Online).

16. Transient Astronomy: Current Trend and Upcoming New Frontiers, URSC, ISRO, November 11-12, 2019.

17. Saha Equation 100, University of Calcutta, Kolkata, September 23-25, 2019.

18. Fourth Recent Trends in the Study of Compact Objects: Theory and Observation (RETCO-IV), Inter-University Centre for Astronomy and Astrophysics, Pune, April 17-20, 2019.

19. International Conference on "Noncommutative Geometry: Physical and Mathematical Aspects of Quantum Space-Time and Matter", November 27-30, 2018.

20. Exploring the Universe: Near Earth Space Science to Extra-Galactic Astronomy, November 14-17, 2018.

21. One-Day Meeting on AGN Science, Indian Institute of Astrophysics, Bangalore, October 6, 2018.

22. Recent Developments in Cosmology, Benaras Hindu University, Varanasi, April 6-8, 2018.

23. Third Recent Trends in the Study of Compact Objects: Theory and Observation (RETCO-III), Indian Institute of Space Science and Technology, Thiruvananthapuram, June 5-7, 2017.

24. International Symposium on Nonlinear Waves in fluids and plasmas, A symposium to honor the scientific achievements of Professor Bimla Buti, Indian Institute of Technology Delhi, March 1-2, 2017.

25. Wide Band Spectral and Timing Studies of Cosmic X-ray Sources, Tata Institute of Fundamental Research, Mumbai, January 10-13, 2017.

26. First ASIONS, SKA Satellite Meeting, Le Pearl Resort & Spa, Goa, November 4-5, 2016.

27. Advancement in Frontier Physics: from 20th Century to Present, Bhairab Ganguly College, Kolkata, February 26-27, 2016.

28. Jet triggering mechanisms in black hole sources, Tata Institute of Fundamental Research, Mumbai, January 20-23, 2016.

29. Timing and spectroscopy: Wideband X-ray astronomy (Science with LAXPC/ASTROSAT), Tata Institute of Fundamental Research Balloon Facility, Hyderabad, January 12-14, 2016.

30. Science with LAXPC/ASTROSAT, Tata Institute of Fundamental Research Balloon Facility, Hyderabad, December 15-17, 2014.

31. International Conference on Matters of Gravity and the Universe (In Honour of 70th Birthday of Prof. Naresh Dadhich), Centre for Theoretical Physics, Jamia Millia Islamia, New Delhi, October 27-29, 2014.

32. Hard X-ray Astronomy: Astrosat and Beyond, International Center, Goa, September 24-26, 2014.

33. Symposium on Astro-Particle and Nuclear Physics, In Honour of 70th Birthday of Prof. Q.N. Usmani, Centre for Theoretical Physics, Jamia Millia Islamia, New Delhi, January 21-22, 2014.

34. Frontiers of Fundamental Physics, Birla Science Centre, Hyderabad, November 14-16, 2013.

35. Accretion Onto Black Holes: A topical conference, International Center, Goa, September 5-7, 2013.

36. Recent Trends in the Study of Compact Objects: Theory and Observation (RETCO-2013), Indian Institute of Technology, Guwahati, March 11-13, 2013.

37. 39th COSPAR Scientific Assembly, Mysore, July 14-22, 2012.

38. X-ray View of Cosmos, Conference on Observational X-ray Astronomy, Physical Research Laboratory, Ahmedabad, April 23-25, 2012.

39. Advanced Instability Methods, Indian Institute of Technology Bombay, Mumbai, January 20-22, 2012.

40. Astronomy & Astrophysics: Birth Centenary Tribute to Subrahmanyan Chandrasekhar, Raja Rammohun Roy Mahavidyalaya, Radhanagar, Hooghly, West Bengal, November 24-25, 2011.

41. Wideband X-ray Astronomy: Frontiers in Timing and Spectroscopy, IUCAA, Pune, January 13-16, 2011.

42. Chandrasekhar Centenary Conference, IIA, Bangalore, December 7-11, 2010.

43. XXVII Meeting of Astronomical Society of India, IIA, Bangalore, February 18-20, 2009.

44. India-UK Network First Meeting, JNCASR, Bangalore, January 27-30, 2009.

45. 74th Annual Meeting of Indian Academy of Sciences, Indian Institute of Technology, Delhi, October 31 to November 2, 2008.

46. One day meeting on non-normality in IIT-Madras, Department of Aerospace Engineering, Indian Institute of Technology Madras, Chennai, July 28, 2008.

47. Measuring Spin and Mass of Black Holes, Pune, December 18-20, 2007.

48. First Kodai-Trieste Workshop on Plasma Astrophysics, Kodaikanal, India, August 27 to September 7, 2007

49. Minischool on Hydrodynamics/Radiative Transfer, S. N. Bose National Centre for Basic Sciences, Kolkata, India, January 31 to February 3, 2007.

50. Workshop on Current Puzzles in Astrophysics and its Link to the Fundamental Physics, Department of Physics, Presidency College, Kolkata, India, under the auspices of the Shyamal Sengupta Memorial Lectures Committee, January 7-8, 2006.

51. COSPAR Colloquium on Spectra and Timing of Compact X-ray Binaries, Tata Institute of Fundamental Research, Mumbai, January 17-21, 2005.

52. Mathematical Modeling: Theory and Practice, Department of Mathematics, Jadavpur University, Calcutta, India, March 25-26, 2004.

53. 9th International Symposium on Particles, Strings and Cosmology (PASCOS), Tata Institute of Fundamental Research, Mumbai, India, January 3-8, 2003.

54. 22nd Meeting of the Indian Association for General Relativity and Gravitation, Inter-University Centre for Astronomy and Astrophysics, Pune, December 11-14, 2002.

55. 21st Meeting of the Indian Association for General Relativity and Gravitation, Central India Research Institute, Nagpur, January 30 to February 1, 2001.

56. International Meeting on Perspectives in Theoretical Physics, Physical Research Laboratory, Ahmedabad, January 8-12, 2001.

57. Mini Work-Shop on Field Theory: Application to Condense Matter Physics, S.N.Bose National Centre for Basic Sciences, Calcutta, March 13-14, 2000.

58. Young Astronomer's Meet (YAM), UPSO, Nainital, India, June 1-3, 1999.

59. Young Astrophysicists of Today's India (YATI), S. N. Bose National Centre for Basic Sciences, Calcutta, March, March 24-26, 1999.

60. Statphys - Calcutta III, S. N. Bose National Centre for Basic Sciences, Calcutta, January 4-9, 1999.

61. International Conference on Scientific Computing & Modeling, S. N. Bose National Centre for Basic Sciences, Calcutta, July 9-11, 1998.

62. International Conference on the Observational Evidences for Black Hole, Calcutta, January 11-17, 1998.