

CURRICULUM VITAE

Name : Supratik Pal	Physics and Applied Mathematics Unit
Date of Birth : 05 December, 1977	Indian Statistical Institute
Nationality : Indian	203 B. T. Road, Kolkata 700108, India
Marital Status : Married	E-mail : <i>supratik@isical.ac.in</i>
Sex : Male	<i>supratik.physics@gmail.com</i>
Homepage : <i>http://www.isical.ac.in/~supratik</i>	Phone : +91 33 2575 3027 (Work)
Fax : +91 33 2577 3026	+91 84202 63876 (Cell)

TIMELINE

- **Professor-in-Charge**, Physics and Earth Sciences Division, Indian Statistical Institute, Kolkata, India (Sept 2024 - Present)
- **Professor**, Physics and Applied Mathematics Unit, Indian Statistical Institute, Kolkata, India (July 2021 - Present)
Head (July 2021 - June 2023)
Associate Professor (July 2013 - June 2021)
Assistant Professor (Aug 2009 - June 2013)
- **Associate Member**, Technology Innovation Hub on Data Science, Big Data Analytics and Data Curation (IDEAS-TIH), Indian Statistical Institute, Kolkata, India (Jan 2021 - Present)
- **Alexander von Humboldt Fellow**, Max-Planck-Institut für Astrophysik, Garching, Germany (July - Sept 2016)
- **Alexander von Humboldt Fellow**, Physikalisches Institut der Universität Bonn, Germany (Sept 2010 - Aug 2011)
- **Platinum Jubilee Fellow**, Physics and Applied Mathematics Unit, Indian Statistical Institute, Kolkata, India (Jan 2008 - July 2009)
- **Post-Doctoral Fellow**, Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune, India (Jan 2007 - Dec 2007)

EDUCATION

- **Ph.D.** (Physics), Jadavpur University, India (Submitted: 2006, Awarded: 2007)
Thesis title : Gravitational aspects of warped braneworld models
Supervisors : * Prof. Sayan Kar, Indian Institute of Technology Kharagpur
* Prof. Narayan Banerjee, Jadavpur University
- **M.Sc.** (Physics), Jadavpur University, India (2001)
- **B.Sc.** (Physics Hons.), Jadavpur University, India (1999)

HONOURS

- **Research Alumni Strategy Grant**, Universität Bonn, Germany (a prestigious offer to selected research alumni to contribute to graduate program on 200th convocation of the University) (2018)
- **Member of the Consortium CMBBharat** (a proposed Indian space mission for Cosmic Microwave Background observations) and Member of Scientific and Engineering team (2018 - Present)
- **Alexander von Humboldt Foundation Alumni Support Grant**, Germany (2016)
- **Member of the Executive Council and Science Sub-Committee**, SKA-India Consortium (a part of the international initiative Square Kilometer Array telescope) (2015 - Present)
- * **Review-team Member**, Scheme for Promotion of Academic and Research Collaboration (SPARC), Ministry of Human Resource Development, India (2019 - Present)
- **Proposal Reviewer**, Indo-French Centre for the Promotion of Advanced Research, New Delhi, India (2015 - Present)
- **Honorary Faculty**, Ramakrishna Mission Vidyamandira, Belur, India (2013 - Present)
- **Guest Faculty** in DST SERC Main School on Theoretical High Energy Physics, Saha Institute of Nuclear Physics, Kolkata (2012)
- **Invited Member**, VIA, AstroParticule et Cosmologie, Paris, France (2011 - Present)
- **Alexander von Humboldt Fellowship**, Germany (2010 - 2011)
- Two of my papers received **Research Highlight in “Nature India”** (2009), (2024)
- **Life Member**, Indian Association for General Relativity and Gravitation, India (2009)
- **Platinum Jubilee Fellowship**, Indian Statistical Institute, Kolkata, India (2008 - 2009)
- **National Award as Young Physicist** (Ranked 2nd in the country), Indian Physical Society, India (2005)
- **Merit Certificate for High Rank** in Higher Secondary Examination (12th standard), West Bengal Council of Higher Secondary Education, India (1996)
- **Merit Certificate for High Rank** in Madhyamik (10th standard) Examination, West Bengal Board of Secondary Education, India (1994)

SPONSORED PROJECTS

- Project Title : Cosmological Tensions and Signatures for New Physics
Funding Agency : Anusandhan National Research Foudation (ANRF), SERB, India
Period : 2024 - 2027
Funds : Rs. 55.93 Lacs
Role : Principal Investigator
Co-investigators: Profs. Somasri Sen, Md. Wali Hossain, Anjan Ananda Sen, Jamia Millia Islamia, New Delhi, India

- Project Title : Technology Innovation Hub on Data Science, Big Data Analytics and Data Curation
Funding Agency : NM-ICPS, Department of Science and Technology, India
Period : 2020 - 2025
Funds : \approx Rs. 100 Crores (INR 10 Billions)
Role : Co-Investigator
- Project Title : An improved calculation of redshift-space distortion of galaxy power spectrum and its implications
Funding Agency : Alexander von Humboldt Foundation, Germany
Period : 2016 - 2017
Funds : Euro 10,500.00 (\approx Rs. 8.00 Lacs)
Role : Principal Investigator
Host : Prof. Eiichiro Komatsu, Max-Planck-Institut für Astrophysik, Garching, Germany
- Project Title : Precision Cosmology Using Combined Dataset of CMB, Lensing and SNIa
Funding Agency : Indian Statistical Institute, Kolkata, India
Period : 2013 - 2016
Funds : Rs. 18.20 Lacs
Role : Principal Investigator
- Project Title : Cosmology with Branes and Higher Dimensions
Funding Agency : Alexander von Humboldt Foundation, Germany
Period : 2010 - 2011
Funds : Euro 38,000.00 (\approx Rs. 24.00 Lacs)
Role : Principal Investigator
Host : Prof. Hans-Peter Nilles, Universität Bonn

HIGH PERFORMANCE COMPUTING PROPOSALS

- Proposal Title : Beyond the Standard Model of Cosmology: A Synergy of Present and Upcoming Missions with Advanced Computational Method
Supporting Agency : Inter-University Centre for Astronomy & Astrophysics (IUCAA Pegasus cluster)
Period : Jul - Dec 2024
Allocated HPC Budget : 1,00,000+ Core hours
Role : Principal Investigator
- Proposal Title : Simulating the Universe via Line Intensity Maps: from Cosmic Dawn to Cosmic Noon
Supporting Agency : Inter-University Centre for Astronomy & Astrophysics, (IUCAA Pegasus cluster)
Period : Jul - Dec 2024
Allocated HPC Budget : 10,000 Core hours
Role : Co-Investigator

RESEARCH GUIDANCE

• Postdoctoral Fellows

- * Dr. Tanima Duary, formerly PhD IISER Kolkata (2025 - Present)
Jointly with: Profs. Somasri Sen, Md. Wali Hossain, Anjan Ananda Sen, JMI, New Delhi
- * Dr. Md. Rijajul Haque, formerly NPDP IIT Madras (2024 - Present)
- * Dr. Bhaswati Mandal, formerly PhD IACS Kolkata (2024 - Present), DST WISE PDF
- * Dr. Biswajit Das, formerly PhD Visva-Bharati (2024 - Present), CSIR RA
- * Dr. Purba Mukherjee, formerly PhD IISER Kolkata (2022 - 2024)
Next affiliation : NPDP, CTP-JMI, New Delhi → KASI, South Korea
- * Dr. Moumita Das, formerly PhD & Postdoc PRL Ahmedabad (2013 - 2014)

• Doctoral Students

- * Ankit Mandal, formerly MSc IISER Kolkata (2025 - Present)
Thesis title : TBD
Jointly with: Profs. Somasri Sen, Md. Wali Hossain, Anjan Ananda Sen, JMI, New Delhi
- * Setabuddin, formerly MSc Presidency University, Kolkata (2024 - Present)
Thesis title : TBD
Co-supervisor: Dr. Ratna Koley, Presidency University
- * Arko Bhaumik, formerly MSc IACS, Kolkata (2021 - Present)
Thesis title : *Origins, Observable Signatures, and Possible Interplay of Primordial Magnetic Fields and Primordial Non-Gaussianities*
- * Debarun Paul, formerly MSc RKMVERI, Belur (2020 - Present)
Thesis title : *Revisiting Dark Matter in the Light of Present and Upcoming Observations*
- * Rahul Shah, formerly MSc IACS, Kolkata (2020 - Present)
Thesis title : *Tensions and Anomalies in the Age of Precision Cosmology*
- * Sourav Pal, formerly MSc Jadavpur University, Kolkata (2020 - Present)
Thesis title : *Cosmological Fluid Models from Standard and Alternative Approaches*
- * Antara Dey, formerly MSc Calcutta University, Kolkata (2017 - 2024)
Thesis title : *Probing Dark Matter and Neutrinos in Reionization and Post-Reionization Epochs*
Thesis submitted: Dec 2024
Next affiliation : Postdoc, IOP Bhubaneswar
- * Debabrata Chandra, formerly MSc IIT Delhi (2013 - 2024)
Thesis title : *Exploring primordial universe using present and future observations*
Thesis submitted: Nov 2024
Next affiliation : Postdoc, IMSc Chennai
- * Dr. Tony Pinhero, formerly MSc Mahatma Gandhi University, Kerala (2013 - 2022)
Thesis title : *Cosmological Attractor Scenario in Inflation*
Next affiliation : Assistant Professor, Mar Thoma College, Kerala

- * Dr. Arnab Paul, formerly MSc Presidency University, Kolkata (2015 - 2021)
Thesis title : *Dark Matter and Neutrinos in Cosmology*
Next affiliation : Postdoc, IACS Kolkata → CEFIPRA Postdoc, IIT Madras
- * Dr. Abhishek Naskar, formerly MSc IIT Kanpur (2014 - 2021)
Thesis title : *Aspects of Primordial Perturbations from Effective Field Theory of Inflation*
Next affiliation : Postdoc, IIT Bombay → ShanghaiTech, China
- * Dr. Sayantan Choudhury, formerly MSc Calcutta University (2009 - 2014)
Thesis title : *Field theoretic approaches to early universe*
Next affiliation : Postdoc, TIFR Mumbai → IUCAA Pune → AEI-MPG, Germany → NISER → ICTS-TIFR → Assistant Professor, CCSP, SGT University, Delhi NCR
- * Dr. Barun Kumar Pal, formerly MSc Jadavpur University (2009 - 2013)
Co-supervisor: Prof. Banasri Basu, ISI Kolkata
Thesis title : *Theoretical and observational aspects of cosmological inflation*
Next affiliation : Postdoc, IUCAA Pune → Assistant Professor, Netaji Nagar College, Kolkata

• Project Guidance

- * Krishnanjan Sil, Ramakrishna Mission Vivekananda Centenary College, Internship under IDEAS-TIH, ISI (2025)
Topic: Machine Learning tools in Gravitational Waves
- * Subhankar Saha, IISER Berhampur, Long-term project (2023-2024)
Joint supervision with Dr. Amit Dutta Banik, INSPIRE Faculty, ISI
Topic: Inflationary Cosmology
Next affiliation : IISER Bhopal
- * Rahul Pratap Patel, ISI Kolkata, Course Work project (2023-2024)
Joint supervision with Dr. Amit Dutta Banik, INSPIRE Faculty, ISI
Topic: Inflationary Cosmology
Next affiliation : ISI Bangalore
- * Arijit Bhattacharjee, IIT Kharagpur, Long-term project (2022-23)
Topic: Gravitational Waves
Next affiliation : University of Maryland, Baltimore County, USA
- * Ritwik Acharyya, IIT Kharagpur, Long-term project (2022-23)
Topic: Gravitational Waves
Next affiliation : IIT Kharagpur
- * Rounak Chakraborty, IIT Kharagpur, Long-term project (2022-23)
Topic: Gravitational Waves
Next affiliation : IIT Kharagpur
- * Payal Roy, Calcutta University, Long-term project (2021-22)
Topic: Cosmology with Gravitational Waves
Next affiliation : University of Illinois Chicago, USA

- * Soumendra Kishore Roy, Presidency University, Long-term project (2018-20)
Topic: Statistical application to Cosmology
Next affiliation : State University of New York, Stony Brook, USA
- * Pratyusava Baral, Presidency University, Long-term project (2018-20)
Topic: Statistical application to Cosmology
Next affiliation : University of Wisconsin-Milwaukee, USA
- * Argha Banerjee, Presidency University, Long-term project (2015-16)
Topic: Effective field theory
Next affiliation : University of Minnesota, Twin Cities, USA
- * Shamreen Iram, IIT Kanpur, Long-term project (2014-15)
Topic: Perturbations with interacting dark sectors
Next affiliation : Case Western Reserve University, USA
- * Bakul Agarwal, IIT Kanpur, Summer Internship (2012)
Topic: Dark energy theory and observations
Next affiliation : Michigan State University, USA
- * Chandranee Das, Calcutta University, Summer Internship (2012)
Topic: Dark energy theory
- * Nilanjana Laha, ISI Kolkata, Summer Internship (2010)
Topic: Relativistic theories
- * Six students in School Students' Summer Project of IUCAA (2007)
Topic: Fun with special relativity

TEACHING

- **Advanced Level**

- * Statistical Applications to Cosmology, in Workshop on Mathematical Methods in Physical Sciences, NIT Silchar (Jan 29-31, 2016)
- * Inflation and Early Universe, in Winter School on Cosmology, ISI Kolkata (Dec 28, 2015 - Jan 06, 2016)
- * Modern Aspects of Cosmology, in Winter School in Gravitation and Cosmology, Assam University Silchar (Jan 08-11, 2015)
- * Early Universe and Inflationary Cosmology, in IUCAA-BITS Autumn School on Cosmology, BITS Pilani (Nov 05-15, 2013)
- * Astroparticle Physics, in XXVII DST SERC Main School on Theoretical High Energy Physics, Saha Institute of Nuclear Physics, Kolkata (Sept 03-22, 2012)
- * Advanced Techniques of Cosmology and Astroparticle Physics, Special Course offered to Doctoral Students, ISI Kolkata (2011-12)
- * General Relativity and Cosmology, Ph.D. Course, ISI Kolkata (2011-12), (2013-14), (2014-15), (2015-16), (2017-18), (2020-21), (2021-22), (2024-25)
- * Quantum Field Theory and Particle Physics, Ph.D. Course, ISI Kolkata (2020-21)
- * Advanced Mathematical Methods, Ph.D. Course, ISI Kolkata (2016-17)

- **Basic Level**

- * Elementary Cosmology, in Orientation cum Selection Camp for International Astronomy Olympiad 2025, BITM, Kolkata (May 01-31, 2025)
- * Quantum Physics, B.Stat.III, ISI Kolkata (2019-20)
- * Special Theory of Relativity, B.Stat.II, ISI Kolkata (2018-19)
- * Electromagnetic Theory, B.Stat.II, ISI Kolkata (2018-19)
- * Topics in Mathematical Physics, M.Stat.II, ISI Kolkata (2015-16)
- * Quantum Mechanics, B.Stat.III, ISI Kolkata (2017-18)
- * Special Theory of Relativity, B.Stat.III, ISI Kolkata (2017-18)
- * Electricity and Magnetism, B.Sc.II, Ramakrishna Mission Vidyamandira, Belur (2013-14)
- * Classical Mechanics, B.Stat.II, ISI Kolkata (2009-10), (2012-13), (2023-24)
- * Electromagnetic Theory, B.Stat.II, ISI Kolkata (2009-10), (2012-13)

PROFESSIONAL ACTIVITIES

- **Involvement in Mega-projects**

- * Member of the Consortium CMBBharat (a proposed Indian space mission for Cosmic Microwave Background observations) and Member of Scientific and Engineering team (2018 - Present)
- * Member of the Executive Council, SKA-India Consortium (a part of the Square Kilometer Array telescope) (2015 - Present)
- * Member and Co-Investigator of Technology Innovation Hub on Data Science, Big Data Analytics and Data Curation (2020 - Present)

- **Peer Reviewer**

- * Proposal Reviewer, Prime Minister's Research Fellowship (PMRF), Govt. of India
- * Proposal Reviewer, National Board for Higher Mathematics (NBHM), India
- * Review-team Member, Scheme for Promotion of Academic and Research Collaboration (SPARC), Ministry of Human Resource Development, India
- * Proposal Reviewer, National Research Foundation (NRF), South Africa
- * Proposal Reviewer, Indo-French Centre for the Promotion of Advanced Research, India
- * Proposal Reviewer, Science and Engineering Research Board (SERB), India
- * Monthly Notices of the Royal Astronomical Society, Oxford University Press, UK
- * Physics Letters B, Elsevier Publication, Netherlands
- * Annals of Physics, Elsevier Publication, Netherlands
- * Classical and Quantum Gravity, Institute of Physics Publication, UK
- * European Physical Journal C, Springer Publication, Netherlands
- * European Physical Journal Plus, Springer Publication, Netherlands
- * Physica Scripta, Institute of Physics Publication, UK

- * Modern Physics Letters A, World Scientific, Singapore
- * General Relativity and Gravitation, Springer Publication, Netherlands
- * Advances in Astronomy, Hindawi, USA
- * Journal of Astrophysics and Astronomy, Springer Publication, Netherlands
- * International Journal of Theoretical Physics, Springer Publication, Netherlands
- * Pramana - Journal of Physics, Indian Academy of Sciences Publication, India

• Organizational Work

- * Organizing Committee, Cosmic Adventures: Celebrating the Life and Legacy of Prof. J. V. Narlikar (A One-Day Public Outreach Event), ISI Kolkata (Sep 22, 2025)
- * Organizing Committee, CosmoMingle: A Cosmology Working Group Meeting, ISI Kolkata (Jan 15-16, 2024)
- * Coordinator, Workshop on 21 cm Cosmology in the Square Kilometre Array Era, TIH, ISI Kolkata (jointly with SKAIC) (Oct 31 - Nov 04, 2022)
- * Coordinator, School-cum-Workshop on Data Analysis in Cosmology and Astroparticle Physics, TIH, ISI Kolkata (Aug 23 - Sept 04, 2021)
- * Joint organizer, Majorana-Raychaudhuri Seminars : Kolkata-Salerno Joint Activities, (Nov 6, 2020 onwards, twice a month)
- * Co-organizer, Astro-Scope for the Youngsters: A Space Odyssey, ISI Kolkata (Nov 11, 2019)
- * Convener (jointly with Dr. Dibakar Ghosh), School on Programming with Python: Applications to Cosmology and Nonlinear Dynamics, ISI Kolkata (March 18-23, 2019)
- * Organising Committee, 7th Topical Conference on Gravity, Cosmology and Astrophysics – Eastern Region (TCGCA-ER7), IACS Kolkata (Mar 25, 2017)
- * Local Organising Committee, Saha Theory Workshop: Aspects of Early Universe Cosmology, Saha Institute of Nuclear Physics, Kolkata (Jan 16-20, 2017)
- * Convener, 5th Topical Conference on Gravity, Cosmology, Astronomy and Astrophysics – Eastern Region (TCGCA-ER5), ISI Kolkata (Mar 19, 2016)
- * Coordinator (jointly with Prof. Pinaki Roy), ISI-sponsored Workshop on Mathematical Methods in Physical Sciences, NIT Silchar (Jan 29-31, 2016)
- * Convener (jointly with Dr. Ujjaini Alam), Winter School on Cosmology, ISI Kolkata (Dec 28, 2015 - Jan 06, 2016)
- * Coordinator (jointly with Prof. Tarun Souradeep), IUCAA-ISI Workshop on Statistical Applications to Cosmology and Astrophysics, ISI Kolkata (Feb 10-13, 2015)
- * Scientific Committee, 1st Topical Conference on Gravity and Cosmology, Saha Institute of Nuclear Physics, Kolkata (Dec 13, 2013)
- * Scientific Committee, Dark Energy Discussion Meeting, HRI Allahabad (Nov 05-07, 2012)
- * Convener (jointly with Prof. Banasri Basu), International Conference on Modern Perspectives of Cosmology and Gravitation (COSGRAV12), ISI Kolkata (Feb 07-11, 2012)
- * Organizing Committee, National Workshop on Observational Astronomy, ISI Kolkata (Aug 17-24, 2009)

• Institutional Administrative Work

- * Serving as the Professor-in-Charge of Physics and Earth Sciences Division, ISI Kolkata (2024 - Present)
- * Served as the Head of Physics and Applied Mathematics Unit, ISI Kolkata (2021- 2023)
- * Member of the Academic Council, ISI Kolkata (2016- Present)
- * Chairperson, Research Fellow Advisory Committee, Physics and Applied Mathematics, ISI Kolkata & Bangalore (2021-2024)
- * Institute Course Work Rules Fixation Committee, ISI Kolkata (2021)
- * Institute Externally Funded Research Fellow Selection Rules Fixation Committee, ISI Kolkata (2021)
- * Chairman, JRF Admission Committee, Physics and Applied Mathematics, ISI Kolkata (2015-16)
- * Research Fellow Advisory Committee, Physics and Applied Mathematics, ISI Kolkata (2014- Present)
- * Convener, JRF Admission Committee, Physics and Applied Mathematics, ISI Kolkata (2014-15), (2019-20)
- * JRF Admission Committee, Computer Science, ISI Kolkata (2014-15), (2017-18)), (2018-19), (2020-21)
- * JRF Admission Committee, Physics and Applied Mathematics, ISI Kolkata (2013-14), (2017-18), (2020-21), (2021-22), (2022-23)
- * M.Tech. Computer Science Admission Committee, ISI Kolkata (2013-14)), (2018-19)
- * Internal Moderator, 2nd Semester Examination, ISI Kolkata (2012-13), (2013-14)
- * Convener, Sub-Committee, M.Tech. Computer Science Admission, ISI Kolkata (2010-11)

• Other Professional Services

- * Faculty Selection Committee, IIT Bhubaneswar (2025)
- * PhD Viva-voce Examiner of Sanghati Saha, Amity University, Kolkata, India (2025)
- * PhD Thesis Examiner of Ronit Karmakar, Dibrugarh University, Assam, India (2025)
- * PhD Thesis Examiner of Chandrachud Bijay Vaswar Dash, BITS Pilani, India (2024)
- * PhD Thesis Examiner of Kathleen A. Sellick, UKZN, South Africa (2024)
- * PhD Thesis and Viva-voce Examiner of Urvashi, IIT-BHU, India (2024)
- * PhD Thesis Examiner of Angshuman Baruah, Assam University, India (2024)
- * External Reviewer for applications for Scientist positions, Aryabhatta Research Institute of Observational Sciences (ARIES), Nainital, India (2023)
- * Session Chair for Public Lecture, 10th International Conference on Pattern Recognition and Machine Intelligence, ISI Kolkata (Dec 12-15, 2023)
- * PhD Thesis and Viva-voce Examiner of Ankita Bera, Presidency University, India (2023)
- * PhD Thesis Examiner of Ranbir Sharma, IISER Mohali, India (2022)
- * External Expert for a meeting on setting up a Centre for Astronomy and Space Technology at Ujjain, IIT Indore (2022)

- * External Expert for Postdoctoral Fellow Selection Committee, Aryabhata Research Institute of Observational Sciences (ARIES), Nainital, India (2022-23)
- * External Examiner for Shaashank Sekhar Pandey, S.N Bose National Centre for Basic Sciences, Kolkata (2022-23)
- * External Examiner for MSc Physics project dissertations and viva-voce, IIT Kharagpur (2021-22)
- * External Expert for Postdoctoral Fellow Selection Committee, S.N Bose National Centre for Basic Sciences, Kolkata (2021-22)
- * External Expert for Postdoctoral Fellow Selection Committee, Indian Association for the Cultivation of Science, Kolkata (2021-22)
- * External Expert for 2 applications for Promotions, University of KwaZulu-Natal, Durban, South Africa (2021)
- * External Expert Committee Member for MSc/PhD thesis and viva-voce, Central University of Himachal Pradesh (2020-Present)
- * Advisory Committee, International Conference on Advanced Physics, IEM Kolkata from (Apr 1-3, 2021)
- * External Expert for two Postdoctoral Fellows, Indian Association for the Cultivation of Science, Kolkata (2020-21)
- * External Expert for Postdoctoral Fellow Selection Committee, S.N Bose National Centre for Basic Sciences, Kolkata (2020-21)
- * Session Chair, Less Travelled Path of Dark Matter: Axions and Primordial Black Holes (online), ICTS-TIFR, Bengaluru (Nov 09-13, 2020)
- * Session Chair, Physics of the Early Universe - An Online Precursor, ICTS-TIFR, Bengaluru (Aug 31 - Sept 03, 2020)
- * External Expert for Dr. Indrani Banerjee, Postdoctoral Fellow, Indian Association for the Cultivation of Science, Kolkata (2020-21)
- * Doctoral Committee of Khursid Alam, Saha Institute of Nuclear Physics, Kolkata (2019-Present)
- * External Examiner of Indranil Chatterjee, Indian Institute of Technology Kharagpur (2019-20)
- * External Expert for Postdoctoral Fellow Selection, Indian Association for the Cultivation of Science, Kolkata (2019), (2020)
- * Research Advisory Committee of three students, Indian Association for the Cultivation of Science, Kolkata (2019)
- * PhD Thesis and Viva-voce Examiner of Satadru Bag, Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune, India (2018)
- * External Expert for JRF selection, Indian Association for the Cultivation of Science, Kolkata (2018)
- * External Examiner, PhD Thesis of Suman Sarkar, Visva-Bharati University, Santiniketan (2018)
- * PhD Thesis and Viva-voce Examiner of Awanish Kumar Bajpeyi, RGIPT, Amethi, India (2018)
- * Member of Judges Panel for Scientific Creativity Test, Jagadis Bose National Science Talent Search (JBNSTS) (2014), (2015), (2017), (2019)

- * External Examiner of Bhaswati Mandal, Indian Association for the Cultivation of Science, Kolkata (2017-18)
- * Moderator of MSc Course, St Xaviers' College (Autonomous), Kolkata (2017), (2018)
- * PhD Thesis Viva-voce Examiner of Arpita Mitra, S.N Bose National Centre for Basic Sciences, Kolkata (2017)
- * Session Chair, 7th Topical Conference on Gravity, Cosmology and Astrophysics – Eastern Region (TCGCA-ER7), IACS Kolkata (Mar 25, 2017)
- * Session Chair, Thirty Meter Telescope's Science Meet: "Planning for science with TMT: challenges and capabilities-III", University of Tezpur (Dec 01-03, 2015)
- * Session Chair, International workshop on Advances in Astroparticle Physics and Cosmology, Saha Institute of Nuclear Physics, Kolkata (Oct 12-17, 2015)
- * Session Chair, 4th Topical Conference on Gravity and Cosmology, IISER Kolkata (Sept 19, 2015)
- * Doctoral Committee of Sukannya Bhattacharya, Saha Institute of Nuclear Physics, Kolkata (2015-19)
- * External Examiner of Suman Chatterjee, Indian Institute of Technology Kharagpur (2015-16)
- * Session Chair, Workshop on Cosmology at the Interface, Saha Institute of Nuclear Physics, Kolkata (Jan 28-30, 2015)
- * External Expert for Postdoctoral Fellow Selection Committee, S.N Bose National Centre for Basic Sciences, Kolkata (2014-15)
- * Session Chair, 2nd Topical Conference on Gravity and Cosmology, Presidency University, Kolkata (Aug 9, 2014)
- * Member of Interview Board, Kishore Vaigyanik Protsahan Yojana (KVPY) (2014)
- * Doctoral Committee of Kumar Das, Saha Institute of Nuclear Physics, Kolkata (2014-17)
- * External Examiner of Rajibul Shaikh, Indian Institute of Technology Kharagpur (2014-15)
- * Doctoral Committee of Debabrata Adak, Saha Institute of Nuclear Physics, Kolkata (2013-14)

SCIENCE POPULARIZATION/EDUCATION

- Involved in Bigyan Patrika (a popular science magazine in Bengali) in different capacities
- Regularly writing popular science articles in Bengali and English (details can be found in my homepage)
- Regularly giving popular science talks for school/college students, both in Bengali and English (details can be found in Popular Talks section)
- Member of Vigyan Samagam, a science popularization event by DST and DAE, Govt of India, Science City, Kolkata (Dec 10-14, 2019)
- Organizing science popularization events in Kolkata, suburbs and rural Bengal

SELECTED TALKS

1. **Guest lecture**, National Space Day 2025, IACS Kolkata (23 Aug 2025)
Title : Lights, Camera, Universe!
2. **Invited talk**, One-day Thematic Seminar on Perspectives in Cosmology - in Memory of Prof. Narlikar, Jadavpur University (01 Aug 2025)
Title: Scopes and Challenges in Research in Modern Cosmology
3. **Invited talk**, Meeting on Cosmic Connections: Bridging the Early and Late Universe, IMSc Chennai (28 Jul - 01 Aug 2025)
Title: Dark Matter and Neutrino Cosmology
4. **Guest lecture**, 12th Research Scholars' Day, Department of Physics, IIT Kharagpur (22 Mar 2025)
Title: Unveiling the Mysteries of the Universe through Telescopes
5. **Plenary talk**, Workshop on Tensions and Anomalies on the Sky: Quest for New Physics at Cosmological Scales, JMI, New Delhi (6-8 Mar 2025)
Title: Tensions in light of present and future observations
6. **Invited talk**, Aspects of Gravitation and Cosmology, IISER Kolkata (25 - 26 Oct 2024)
Title: The present and future of Hubble tension
7. **Public lecture**, National Space Day 2024, Visva Bharati, Santiniketan (23 Aug 2024)
Title: Hubble to James Webb: 100 Years of Space Exploration
8. **Invited talk**, Meeting on Standard Cosmology at the Threshold of Change?, Aristotle University of Thessaloniki, Greece (03 - 06 June 2024)
Title: Hubble tension in the light of future Gravitational-wave, post-reionization and galaxy surveys
9. **Invited talk**, Third Reionization in Relic Radiation (R^3) Workshop, Institut d'Astrophysique Spatiale, Université Paris-Saclay, Orsay, France (May 27-30, 2024)
Title: What can we learn about Dark Matter - Neutrino interaction from CMB, EoR, post-reionization and galaxy surveys?
10. **Invited talk**, Department of Physics, IIT Madras (Apr 3-6, 2024)
Title: The present and future of Hubble tension
11. **Invited colloquium**, Institute of Mathematical Sciences, Chennai (Mar 31 - Apr 2, 2024)
Title: How many parameters for our Universe?
12. **Invited colloquium**, IIT-BHU, Varanasi (Mar 01, 2024)
Title : Lights, Camera, Universe!
13. **Invited talk**, 17th Workshop in High Energy Physics Phenomenology (WHEPP XVII), IIT Gandhinagar (Jan 2-11, 2024)
Title: The present and future of Hubble tension

14. **Invited talk**, International Conference on Advanced Physics - IEMPHYS 2023, Institute of Engineering & Management, Kolkata (Sep 1-3, 2023)
Title: Our Universe, Dark Energy and Beyond
15. **Invited talk**, Conference on Beyond Standard Models in Particle Physics and Gravity, IACS, Kolkata (Dec 22-23, 2022)
Title: How many parameters for our Universe?
16. **Invited talk**, International Workshop on Galaxy Formation and Evolution across the Cosmic Time, Visva-Bharati, Santiniketan (Dec 13-14, 2022)
Title: How many parameters for our Universe?
17. **Invited talk as a Resource Person**, Workshop on Astronomy and Astrophysics for College Teachers, Govt. Girls' General Degree College, Kolkata (Nov 17-18, 2022)
Title : Hubble to James Webb: 100 Years of Sky Watching
18. **Invited talk**, International Conference on Neutrinos and Dark Matter 2022, Sharm El Sheik, Egypt (Sep 25-28, 2022)
Title : Constraining Dark Matter - Neutrino interaction by present and future Cosmological observations
19. **Invited talk as a Resource Person**, In-Service Training/Orientation Programme for School Teachers, Ramakrishna Mission Sikshamandira, Belur (Sep 19-24, 2022)
Title : Doing Science is fun, so is Teaching
20. **Invited talk**, C. K. Majumdar Memorial Workshop in Physics 2022, SNBNCBS, Kolkata (Jul 12-21, 2022)
Title : Scopes and Challenges in Research in Cosmology
21. **Invited talk**, Science Meet, Presidency University, Kolkata (May 10, 2022)
Title : Lights, Camera, Universe!
22. **Invited colloquium**, commemorating "75 years of India's independence: Azadi ka Amrit Mahotsav", IISER Tirupati (Mar 31, 2022)
Title : How many parameters for our Universe?
23. **Keynote lecture**, National Science Day Celebration, NIT Silchar (Feb 28, 2022)
Title : Breakthroughs in Cosmology and Astrophysics in the last 100 years
24. **Invited colloquium**, commemorating "75 years of India's independence: Azadi ka Amrit Mahotsav", Indian Institute of Astrophysics, Bengaluru (Nov 02, 2021)
Title : How many parameters for our Universe?
25. **Invited talk**, International Web Conference on the Mathematical Methods and Models in Applied Sciences, Amity University Kolkata and Calcutta Mathematical Society (Nov 6-8, 2020)
Title : *Probing Dark Energy using Physics, Mathematics and Statistics*
26. **Invited talk**, Webinar at Pabna University of Science and Technology, Bangladesh (Sept 23, 2020)
Title : *Biswa-bharaa Praan* (in Bengali)

27. **Invited talk**, Webinar at Jadavpur University, Kolkata (Sept 08, 2020)
Title : *Scope and challenges in dark matter and dark energy research*
28. **Invited talk**, International Webinar on Basic and Advanced Physics, Bankura University, West Bengal (Aug 24-27, 2020)
Title : *How do we know about the unknown Universe using telescopes?*
29. **Invited talk**, National Webinar on Specialized topics in Physics, AKPC Mahavidyalaya & APC College, West Bengal (Jul 27, 2020)
Title : *Unveiling the Mysteries of our Universe with Telescopes*
30. **Invited talk**, Workshop on Astronomy and Astrophysics for Women in India, Diamond Harbour Women's University, West Bengal (Jan 31 - Feb 02, 2020)
Title : *Exploring the Dark Universe with Telescopes*
31. **Invited talk**, International Conference on the Emerging Issues in Cosmology and Particle Physics, Visva Bharati University, Santiniketan (Jan 12-14, 2020)
Title : *Inflation in the light of Cosmic Microwave Background Observation*
32. **Invited talk**, National Seminar on Mathematical Sciences - 2020, Burdwan University, (Jan 9-11, 2020)
Title : *Unveiling the mysteries of the accelerating Universe*
33. **Invited talk**, National Seminar on Applications of Statistics in Natural Sciences, St Xavier's College, Kolkata (Dec 16-17, 2019)
Title : *Unveiling the mysteries of the accelerating Universe using Statistics*
34. **Invited talk**, Vigyan Samagam, an event by DST and DAE, Govt of India, Science City, Kolkata (Dec 10-14, 2019)
Title : *Dark, Darker, Darkest; And Some Light*
35. **Invited talk**, Astro-Scope for the Youngsters: A Space Odyssey, ISI Kolkata (Nov 11, 2019)
Title : *Our Universe: An Expanding Mystery*
36. **Invited talk**, Centre for Theoretical Studies, IIT Kharagpur (Sept 11, 2019)
Title : *Lambda or not too Lambda?*
37. **Invited talk**, CosmoCruise 2019: From the Early to the Late Universe, Venice, Italy (Aug 18-25, 2019)
Title : *Exploring primordial gravitational waves via tensor non-Gaussianities*
38. **Invited talk**, Conference on Gravity at Different Length Scales, IACS Kolkata (Feb 25-27, 2019)
Title : *Lambda or not too Lambda?*
39. **Invited colloquium**, Presidency University, Kolkata (Sept 19, 2018)
Title : *Lambda or not too Lambda?*
40. **Invited talk**, RGIPT, Amethi, UP (Aug 20, 2018)
Title : *What the hell do you do with telescopes?*

41. **Invited visit and talk**, Physikalisches Institut der Universität Bonn, Germany (July 11-20, 2018)
Title : *The Physics of the Cosmic Microwave Background (CMB)*
42. **Invited visit and talk**, Astrophysics and Cosmology Research Unit, University of KwaZulu-Natal, Durban, South Africa (Nov 9-25, 2017)
Title : *Inflation and Dark Energy after Planck 2015*
43. **Invited talk**, International Conference on Post-Planck Cosmology: Enigma, Challenges & Vision, IUCAA Pune (Oct 9-11, 2017)
Title : *Effective Field Theory of Inflation and Large Scale Structure*
44. **Invited talk**, National Workshop on Celebrating the Centenary of Einstein's General Relativity : Hundred Years with Λ , Burdwan University (July 26 - Aug 01, 2017)
Title : *Cosmological crossroads of theory and observations*
45. **Invited talk**, XXXV Annual Meeting of Astronomical Society of India, Jaipur (Mar 6-10, 2017)
Title : *Inflationary cosmology post-Planck 2015*
46. **Invited talk**, International Seminar on Cosmology, Relativity and Gravity Wave, The Asiatic Society Kolkata (Feb 15-16, 2017)
Title : *Inflationary cosmology post-Planck 2015*
47. **Invited talk**, Conference on Recent trends in Condensed Matter and High Energy Physics, IACS Kolkata (Jan 30 - Feb 01, 2017)
Title : *A theorist's take-home message from CMB (and other observations)*
48. **Invited talk**, Seminar on Mathematics and Mathematical Physics, Jadavpur University (Jan 11, 2017)
Title : *The Mathematical tools in Cosmology*
49. **Invited talk**, Seminar on Emerging fields of Electronics in Engineering and its Application in Modern Science, Techno India-Batanagar (Oct 20, 2016)
Title : *What the hell do you do with telescopes?*
50. **Invited talk as a Resource Person**, National Seminar on International year of light: Centenary of Einstein Equation of General Theory of Relativity, University of Burdwan (March 31, 2016)
Title : *Our Universe: An Expanding Mystery*
51. **Invited talk**, Thirty Meter Telescope's Science Meet: Planning for science with TMT: challenges and capabilities-III, University of Tezpur (Dec 01-03, 2015)
Title : *Dark Energy : Status Report and Prospects in TMT*
52. **Invited talk**, International workshop on Advances in Astroparticle Physics and Cosmology, Saha Institute of Nuclear Physics, Kolkata (Oct 12-17, 2015)
Title : *To Lambda or not to Lambda?*

53. **Invited talk**, Symposium on Space : The neighborhood we live in, Bose Institute, Kolkata (Oct 06, 2015)
Title : *Our Universe: An Expanding Mystery*
54. **Talk**, CosmoCruise 2015: At the Edge of Discovery, Barcelona, Spain (Sept 2-9, 2015)
Title : *Is dark energy phantom-like? What do the recent observations tell us?*
55. **Invited talk**, National Seminar on New Horizons of Physics: 2015, Bhairab Ganguly College, Kolkata (Feb 3, 2015)
Title : *Our Universe: An Expanding Mystery*
56. **Invited talk**, Workshop on Cosmology at the Interface, Saha Institute of Nuclear Physics, Kolkata (Jan 28-30, 2015)
57. **Invited talk as a Resource Person**, National seminar on Introductory Astronomy and Astrophysics, Ramananda College, Bishnupur (Nov 26-27,2014)
Title : *Our Universe: An Expanding Mystery*
58. **Invited talk**, 1st Topical Conference on Gravity and Cosmology, Saha Institute of Nuclear Physics, Kolkata (Dec 13, 2013)
Title : *A theorist's take-home message from CMB*
59. **Prof. Chameli Basu Memorial Lecture**, Bethune College, Kolkata (Mar 28, 2012)
Title : *Our Universe: An Expanding Mystery*
60. **Invited talk**, International workshop on Advances in Astroparticle Physics and Cosmology, organized by Saha Institute of Nuclear Physics, Darjeeling (Mar 7-12, 2012)
Title : *The haves and have-nots of brane cosmology*
61. **Invited talk as a Resource Person**, National seminar on Astronomy & Astrophysics : Birth Centenary Tribute to S Chandrashekhar, Raja Rammohun Roy College, Hooghly (Nov 24-25, 2011)
Title : *Our Universe: An Expanding Mystery*
62. **Talk**, 2nd Bethe Center Workshop : Cosmology meets Particle Physics, Bad Honnef, Germany (Oct 4-8, 2010)
Title : *Puzzles of modern cosmology : an "effective theory" approach*
63. **Invited talk**, National Seminar on Contemporary issues in Astrophysics and Cosmology, Jadavpur University, Kolkata (Mar 23, 2010)
Title : *Puzzles of modern cosmology : Some (random) steps forward*
64. **Invited talk**, National Seminar on Recent Advances in Physics & Astrophysics, North Bengal University, Siliguri (March 16-17, 2009)
Title : *Cosmology with higher dimensions : why anyway?*
65. **Invited visit and talk**, Centre for Theoretical Studies, IIT Kharagpur (Nov 17-21, 2008)
Title : *Acceleration of the universe revisited*
66. **Invited visit and talk**, Harish-Chandra Research Institute, Allahabad (Sep 15-19, 2008)
Title : *Cosmology on the 3-brane: Prospects and problems*

67. **Invited talk**, Workshop on Advances in High Energy Physics & Cosmology, Jamia Millia Islamia University, New Delhi (Mar 11-12, 2008)
Title : *Braneworld cosmology : The effective theory and its prospects*
68. **Invited talk**, Workshop on Physics of Warped Extra Dimensions, Indian Institute of Technology, Kharagpur (Feb 21-23, 2008)
Title : *Cosmological consequences of generalised RS II braneworlds*
69. **Talk**, Sixth International Conference on Gravitation and Cosmology, Inter-University Centre for Astronomy & Astrophysics, Pune (Dec 17-21, 2007)
Title : *Stability of branes in higher dimensional backgrounds*
70. **Invited visit and talk**, Max Planck Institute for Gravitational Physics, Potsdam, Germany (Sep 24-Oct 14, 2007)
Title : *Certain aspects of braneworld gravity*
71. **Invited talk**, Fourth Aegean Summer School, Lesvos, Greece (Sep 17-22, 2007)
Title : *Brane cosmology driven by a radiative bulk black hole*
72. **Talk**, 24th Conference of the IAGRG, Jamia Millia Islamia University, New Delhi (Feb 5-8, 2007)
Title : *Structure formation on the brane : A mimicry*
73. **Invited talk**, Fifth Meeting on Field Theoretic Aspects of Gravity, Birla Institute of Technology & Science, Goa (Dec 18-23, 2006)
Title : *Gravitational collapse in braneworld gravity*
74. **Talk**, Young Astronomers' Meet, Inter-University Centre for Astronomy and Astrophysics & National Centre for Radio Astrophysics, Pune (Nov 29-Dec 2, 2005)
Title : *Gravitational lensing in braneworlds : A test for dark matter*
75. **Talk**, Physics-2005, Indian Institute of Technology, Kanpur (Nov 2-6, 2005)
Title : *Is it dark matter or braneworld effect?*
76. **Talk**, XXIII Young Physicists' Colloquium of the Indian Physical Society, Saha Institute of Nuclear Physics, Kolkata (Aug 25-26, 2005)
Title : *An alternative to dark matter : Do braneworld effects hold the key?*
77. **Talk**, 23rd Conference of the IAGRG, Rajasthan University, Jaipur (Dec 7-10, 2004)
Title : *Extra dimensions, modified gravity and 'dark matter without dark matter'*

POPULAR TALKS (FOR SCHOOL/COLLEGE STUDENTS)

1. UEM, Kolkata (2025), B. Tech First Year Induction Programme
2. St. Xaviers College, Kolkata (Xaverian Astronomical Society) (2025)
3. ISI Tezpur Centre (2025)
4. Presidency University, Kolkata (2025)
5. Seth Ananadaram Jaipuria College, Kolkata (2024)

6. Paschim Bardhaman Zilla Vigyan Pradarshani, Durgapur (2024)
7. Ramakrishna Mission Vidyamandira, Belur (2024), Dr. Rajesh Karmakar Memorial Lecture
8. Science for All, organized by Islampur Sub-Divisional Office, North Dinajpur (2023)
9. Techno India, Kolkata (2023), WAVICLE 2023
10. Scottish Church College, Kolkata (2022)
11. Ramakrishna Mission Vidyapith, Purulia (2022), Birth Anniversary of Acharya P.C.Roy
12. NIT Silchar (2022): Keynote lecture, National Science Day
13. Chandannagar College (2022)
14. Durgapur Government College (2021)
15. La Martiniere for Girls', Kolkata (2021)
16. Physics Forum, Kolkata (2021)
17. Ramakrishna Mission Vidyamandira, Belur (2021)
18. Naihati Prayas Organization (2021)
19. Surendranath College, Kolkata (2020)
20. Jhargram Raj College (2020)
21. Contai Science Academy (2020)
22. Aghorekamini Prakashchandra Mahavidyalaya and Acharya Prafulla Chandra College (2020)
23. Vigyan Samagam (a Government of India initiative), Science City, Kolkata (2019)
24. St Michael School, Bankura (2019)
25. Kanchrapara English Medium School (2019)
26. RGIPT, Amethi, UP (2018)
27. Ramakrishna Mission Vidyapith, Purulia (2018)
28. Chakdwipa High School, Haldia (2017)
29. Bethune College, Kolkata (2016): Prof. Chameli Basu Memorial Lecture
30. Techno India, Batanagar (2016)
31. Bhairab Ganguli College, Kolkata (2015)
32. Ramananda College, Bishnupur (2014)
33. Raja Rammohan College, Hooghly (2011)
34. Badanganj High school, Hooghly (2009)

PUBLICATIONS

BOOKS/ EDITED VOLUMES

1. **S. Pal** and Banasri Basu (Editors), Proceeding of International Conference on Modern Perspectives of Cosmology and Gravitation, **Journal of Physics: Conference Series**, Volume 405 (2012); Institute of Physics Publication, UK

REFEREED JOURNALS

1. Setabuddin, Md Riajul Haque, Rajesh Karmakar and **S. Pal**, “*Axion-Photon Conversion in FLRW with Primordial Magnetic Fields: Explaining the Radio Excess*”, [arXiv: 2509.09472 [astro-ph.CO]]
2. Anish Ghoshal, Debarun Paul and **S. Pal**, “*Primordial Gravitational Waves as Complementary Probe of Dark Matter Indirect Detection*”, [arXiv:2506.17568 [hep-ph]]
3. Sourav Pal, Debanjan Sarkar, Rickmoy Samanta and **S. Pal**, “*Redshift-space bispectrum in presence of massive neutrinos: A multipole expansion approach for Euclid*”, **Monthly Notices of the Royal Astronomical Society** 542, 223–239 (2025) [arXiv:2505.01270 [astro-ph.CO]]
4. Rahul Shah, Purba Mukherjee and **S. Pal**, “*Interacting dark sectors in light of DESI DR2*”, **Monthly Notices of the Royal Astronomical Society** 542, 2936–2942 (2025) [arXiv:2503.21652 [astro-ph.CO]]
5. Debarun Paul, Md Riajul Haque and **S. Pal**, “*Gravitational Wave Signatures of Primordial Black Hole Reheating in Upcoming Interferometry Missions*”, **Journal of Cosmology and Astroparticle Physics** 08 (2025) 074(1-39) [arXiv:2503.18207 [astro-ph.CO]]
6. Rahul Shah, Purba Mukherjee, Soumadeep Saha, Utpal Garain and **S. Pal**, “*Deep Learning Based Recalibration of SDSS and DESI BAO Alleviates Hubble and Clustering Tensions*”, [arXiv:2412.14750 [astro-ph.CO]]
7. Sourav Pal, Rickmoy Samanta and **S. Pal**, “*Exploring neutrino interactions in light of present and upcoming galaxy survey*”, **Journal of Cosmology and Astroparticle Physics** 03 (2025) 047(1-33) [arXiv:2409.03712 [astro-ph.CO]]
8. Purba Mukherjee, Antara Dey and **S. Pal**, “*What can we learn about Reionization astrophysical parameters using Gaussian Process Regression?*”, accepted in **The Astrophysical Journal** [arXiv:2407.19481 [astro-ph.CO]]
9. Arko Bhaumik, Debarun Paul and **S. Pal**, “*Revisiting primordial magnetic fields through 21-cm physics: Bounds and forecasts*”, **Journal of Cosmology and Astroparticle Physics** 01 (2025) 089(1-33) [arXiv:2407.11923 [astro-ph.CO]]
10. Anish Ghoshal, Debarun Paul and **S. Pal**, “*Primordial Gravitational Waves as Probe of Dark Matter in Interferometer Missions: Fisher Forecast and MCMC*”, **Journal of High Energy Physics** 12 (2024) 150(1-42) [arXiv:2405.06741 [hep-ph]]
11. Rahul Shah, Purba Mukherjee and **S. Pal**, “*Reconciling S_8 : Insights from Interacting Dark Sectors*”, **Monthly Notices of the Royal Astronomical Society** 536, 2404–2420 (2024) [arXiv:2404.06396 [astro-ph.CO]]

12. Anish Ghoshal, Zygmunt Lalak, **S. Pal** and Shiladitya Porey, “*Post-inflationary Dark Matter production and Leptogenesis: Metric versus Palatini formalism*”, **Journal of High Energy Physics** 06 (2024) 038(1-36) [arXiv:2401.17262 [astro-ph.CO]]
13. Rahul Shah, Soumadeep Saha, Purba Mukherjee, Utpal Garain and **S. Pal**, “*LADDER: Revisiting the Cosmic Distance Ladder with Deep Learning Approaches and Exploring its Applications*”, **The Astrophysical Journal Supplement Series** 273, 27(1-11) (2024) [arXiv:2401.17029 [astro-ph.CO]]
14. Arko Bhaumik and **S. Pal**, “*Primordial magnetic non-Gaussianity with generic vacua and detection prospects in CMB spectral distortions*”, **Physical Review D** 110, 043511(1-20) (2024) [arXiv:2310.10342 [astro-ph.CO]]
15. Debarun Paul, Antara Dey, Amit Dutta Banik and **S. Pal**, “*Confronting global 21-cm signal with Z_3 symmetric dark matter models*”, **Journal of Cosmology and Astroparticle Physics** 11 (2023) 015(1-27) [arXiv:2308.04955 [astro-ph.CO]]
16. Antara Dey, Arnab Paul and **S. Pal**, “*Imprints of dark matter-massive neutrino interaction in upcoming post-reionization and galaxy surveys*”, **Monthly Notices of the Royal Astronomical Society** 527, 790-802 (2024) [arXiv:2307.00606 [astro-ph.CO]]
 - Received Research Highlight in “Nature India”: doi: <https://doi.org/10.1038/d44151-024-00042-6>
17. Sourav Pal, Rickmoy Samanta and **S. Pal**, “*Revisiting coupled CDM-massive neutrino perturbations in diverse cosmological backgrounds*”, **Journal of Cosmology and Astroparticle Physics** 12 (2023) 004(1-24) [arXiv:2305.12830 [astro-ph.CO]]
18. Rahul Shah, Ayan Mitra, Purba Mukherjee, Barun Pal and **S. Pal**, “*Role of Future SNIa Data from Rubin LSST in Reinvestigating Cosmological Models*”, **Monthly Notices of the Royal Astronomical Society** 530, 2627–2636 (2024) [arXiv:2305.08786 [astro-ph.CO]]
19. Purba Mukherjee, Rahul Shah, Arko Bhaumik and **S. Pal**, “*Reconstructing the Hubble Parameter with Future Gravitational Wave Missions Using Machine Learning*” **The Astrophysical Journal** 960, 61(1-13) (2024) [arXiv:2303.05169 [astro-ph.CO]]
20. Rahul Shah, Arko Bhaumik, Purba Mukherjee and **S. Pal**, “*A thorough investigation of the prospects of eLISA in addressing the Hubble tension: Fisher Forecast, MCMC and Machine Learning*”, **Journal of Cosmology and Astroparticle Physics** 06 (2023) 038(1-38) [arXiv:2301.12708 [astro-ph.CO]]
21. Antara Dey, Arnab Paul and **S. Pal**, “*Constraints on Dark Matter-Neutrino Interaction from 21-cm Cosmology and Forecasts on SKA1-Low*”, **Monthly Notices of the Royal Astronomical Society** 524, 100-107 (2023) [arXiv:2207.02451 [astro-ph.CO]]
22. Anish Ghoshal, Gaetano Lambiase, **S. Pal**, Arnab Paul and Shiladitya Porey, “*Inflection-point Inflation and Dark Matter Redux*”, **Journal of High Energy Physics** 09 (2022) 231(1-33) [arXiv:2206.10648 [hep-ph]]
23. Debabrata Chandra and **S. Pal**, “*Investigating the Constraints on Primordial Features with Future Cosmic Microwave Background and Galaxy Surveys*”, **Journal of Cosmology and Astroparticle Physics** 09 (2022) 024(1-53) [arXiv:2205.01164 [astro-ph.CO]]
24. Sumanta Chakraborty, **S. Pal** and Soumitra SenGupta, “*Hilltop inflation and generation of helical magnetic field*”, **Universe** 8, 26(1-20) (2022) [arXiv:1810.03478 [gr-qc]]

25. Arnab Paul, Arindam Chatterjee, Anish Ghoshal and S. Pal, “*Shedding Light on Dark Matter and Neutrino Interactions from Cosmology*”, **Journal of Cosmology and Astroparticle Physics** 10 (2021) 017(1-21) [arXiv:2104.04760 [hep-ph]]
26. Pratyusava Baral, Soumendra Kishore Roy and S. Pal, “*Prospects of Probing Dark Energy with eLISA: Standard versus Null Diagnostics*”, **Monthly Notices of the Royal Astronomical Society** 500(3), 2896-2907 (2021) [arXiv:2005.07231 [astro-ph.CO]]
27. Abhishek Naskar and S. Pal, “*Generic 3-point Statistics with Tensor Modes in Light of Swampland and TCC*”, **European Physical Journal C** 82 (2022) 900 [arXiv:2003.14066 [astro-ph.CO]]
28. Ayan Mitra, Arnab Paul, Barun Pal and S. Pal, “*Estimating weak lensing convergence correlation of Type-Ia supernovae from 5-year SNLS data by internal error estimate techniques*”, [arXiv:1911.03474 [astro-ph.CO]]
29. Archita Bhattacharyya and S. Pal, “*Constraining Dark Energy Perturbations: the Role of Early Dark Energy*”, [arXiv:1907.10946 [astro-ph.CO]]
30. Abhishek Naskar and S. Pal, “*Enhanced tensor non-Gaussianities in presence of a source*”, **European Physical Journal C** 80, 1158(1-8) (2020) [arXiv:1906.08558 [astro-ph.CO]]
31. Tony Pinhero and S. Pal, “*A New Class of Non-canonical Conformal Attractors for Multifield Inflation*”, **Journal of Cosmology and Astroparticle Physics** 03, 022(1-22) (2020) [arXiv:1810.12712 [hep-th]]
32. Tony Pinhero and S. Pal, “*Realising Mutated Hilltop Inflation in Supergravity*”, **Physics Letters B** 796 (2019) 220-224 [arXiv:1905.04737 [hep-th]]
33. Arnab Paul, Anish Ghoshal, Arindam Chatterjee and S. Pal, “*Inflation, (P)reheating and Neutrino Anomalies: Production of Sterile Neutrinos with Secret Interactions*”, **European Physical Journal C** 79, 818(1-15) (2019) [arXiv:1808.09706 [astro-ph.CO]]
34. Archita Bhattacharyya, Ujjaini Alam, Kanhaiya Lal Pandey, Subinoy Das and S. Pal, “*Are H_0 and σ_8 tensions generic to present cosmological data?*”, **The Astrophysical Journal** 876, 143(1-12) (2019) [arXiv:1805.04716 [astro-ph.CO]]
35. Abhishek Naskar and S. Pal, “*Non-Gaussian Features of Primordial Gravitational Waves*”, **Physical Review D** 98, 083520(1-6) (2018) [arXiv:1806.08178 [astro-ph.CO]]
36. Debabrata Chandra and S. Pal, “*Exploring Inflationary initial state with Large Scale Structure observations*”, [arXiv:1806.02110 [astro-ph.CO]]
37. Abhishek Naskar, Sayantan Choudhury, Argha Banerjee and S. Pal, “*EFT of Inflation: Reflections on CMB and Forecasts on LSS Surveys*”, [arXiv:1706.08051 [astro-ph.CO]]
38. Tony Pinhero and S. Pal, “*Non-canonical Conformal Attractors for Single Field Inflation*”, **International Journal of Modern Physics D** 31 (2022) 2250090(1-20) [arXiv:1703.07165 [hep-th]]
39. Debabrata Chandra and S. Pal, “*A Proposal for Constraining Initial Vacuum by CMB*”, **Classical and Quantum Gravity** 35, 015008 (2018) [arXiv: 1606.09098 [hep-th]]
40. Sayantan Choudhury and S. Pal, “*Primordial non-Gaussian features from DBI Galileon inflation*”, **European Physical Journal C** 75, 241(1-28) (2015) [arXiv: 1210.4478 [hep-th]]

41. Dhiraj Kumar Hazra, Subhabrata Majumdar, S. Pal, Sudhakar Panda and Anjan A. Sen "Post-Planck Dark Energy Constraints", **Physical Review D** 91, 083005(1-14) (2015) [arXiv:1310.6161 [astro-ph.CO]]
42. Barun Kumar Pal, Hamsa Padmanabhan and S. Pal, "Towards reconstruction of unlensed, intrinsic CMB power spectra from lensed map", **Monthly Notices of the Royal Astronomical Society** 439 (3), 3022-3032 (2014) [arXiv:1309.1827 [astro-ph.CO]]
43. Sayantan Choudhury, Trina Chakraborty and S. Pal, "Higgs inflation from new Kähler potential", **Nuclear Physics B** 880, 155-174 (2014) [arXiv:1305.0981 [hep-th]]
44. Debabrata Adak, Debasish Majumdar and S. Pal, "Generalizing thawing dark energy models: the standard vis-à-vis model independent diagnostics", **Monthly Notices of the Royal Astronomical Society** 437 (1), 831-842 (2014) [arXiv: 1210.2565 [astro-ph.CO]]
45. Sayantan Choudhury, Anupam Mazumdar and S. Pal, "Low & High scale MSSM inflation, gravitational waves and constraints from Planck", **Journal of Cosmology and Astroparticle Physics** 07, 041(1-18) (2013) [arXiv:1305.6398 [hep-ph]]
46. Sayantan Choudhury and S. Pal, "DBI Galileon inflation in background SUGRA", **Nuclear Physics B** 874, 85-114 (2013) [arXiv: 1208.4433 [hep-th]]
47. Barun Kumar Pal, S. Pal and Banasri Basu, "The Berry phase in inflationary cosmology", **Classical and Quantum Gravity** 30, 125002(1-15) (2013) [arXiv: 1108.3689 [astro-ph.CO]]
48. Sayantan Choudhury and S. Pal, "Fourth level MSSM inflation from new flat directions", **Journal of Cosmology and Astroparticle Physics** 04, 018(1-17) (2012) [arXiv: 1111.3441 [hep-ph]]
49. Barun Kumar Pal, S. Pal and Banasri Basu, "Confronting quasi-exponential inflation with WMAP seven", **Journal of Cosmology and Astroparticle Physics** 04, 009(1-13) (2012) [arXiv: 1105.6362 [astro-ph.CO]]
50. Sayantan Choudhury and S. Pal, "Reheating and leptogenesis in a SUGRA inspired brane inflation", **Nuclear Physics B** 857, 85-100 (2012) [arXiv: 1108.5676 [hep-ph]]
51. Sayantan Choudhury and S. Pal, "Brane inflation in background supergravity", **Physical Review D** 85, 043529(1-12) (2012) [arXiv: 1102.4206 [hep-th]]
52. Barun Kumar Pal, S. Pal and Banasri Basu, "A semi-analytical approach to perturbations in mutated hilltop inflation", **International Journal of Modern Physics D** 21, 1250017(1-10) (2012) [arXiv:1010.5924 [astro-ph.CO]]
53. Sudipta Das, Subir Ghosh, Jan-Willem van Holten and S. Pal, "Generalized Particle Dynamics in anti de Sitter Spaces: A source for Dark Energy", **International Journal of Modern Physics D** 20, 1235-1249 (2011) [arXiv:0906.1044 [astro-ph.CO]]
54. Barun Kumar Pal, S. Pal and Banasri Basu, "Mutated hilltop inflation: A natural choice for early universe", **Journal of Cosmology and Astroparticle Physics** 01, 029(1-18) (2010) [arXiv: 0908.2302 [hep-th]]
55. Ratna Koley, Joydip Mitra, S. Pal and Soumitra SenGupta, "Cosmological constant dependence of thermodynamic properties of anti-de Sitter black holes", Preprint [arXiv:0910.5096 [hep-th]]

56. Sudipta Mukherji and S. Pal, “*Bouncing Braneworld with Born-Infeld and Gauss-Bonnet*”, **Modern Physics Letters A** 25, 35-45 (2010) [arXiv: 0806.2507 [gr-qc]]
57. Sudipta Das, Subir Ghosh, Jan-Willem van Holten and S. Pal, “*Generalized particle dynamics: modifying the motion of particles and branes*”, **Journal of High Energy Physics** 04, 115(1-14) (2009); Erratum: *ibid.* 03, 118 (2011) [arXiv:0902.2304 [gr-qc]]
 - Received Research Highlight in “Nature India”: doi:10.1038/nindia.2009.145
58. S. Pal and Sayan Kar, “*de Sitter branes with a bulk scalar*”, **General Relativity and Gravitation** 41, 1165-1179 (2009) [arXiv: hep-th/0701266]
59. S. Pal, “*From inflation to late acceleration : A new cosmological paradigm*”, Preprint [arXiv: 0808.1630 [gr-qc]]
 - Received coverage in: <http://sci.tech-archive.net/Archive/sci.physics/2008-08/msg01561.html>
60. S. Pal, “*Brane cosmology, Weyl fluid, and density perturbations*”, **Physical Review D** 78, 043517(1-8) (2008) [arXiv: 0806.2505 [gr-qc]]
61. S. Pal and Sayan Kar, “*Gravitational lensing in braneworld gravity : formalism and applications*”, **Classical and Quantum Gravity** 25, 045003(1-14) (2008); Erratum: *ibid.* 25, 149801 (2008) [arXiv: 0707.0223 [gr-qc]]
62. S. Pal, “*Braneworld gravitational collapse from a radiative bulk*”, **Physical Review D** 74, 124019(1-7) (2006) [arXiv: gr-qc/0609065]
63. S. Pal, “*Structure formation on the brane : A mimicry*”, **Physical Review D** 74, 024005(1-6) (2006) [arXiv: gr-qc/0606085]
64. S. Pal and Sayan Kar, “*Geometry of deformations of branes in warped backgrounds*”, **Classical and Quantum Gravity** 23, 2571-2583 (2006) [arXiv: hep-th/0512224]
65. S. Pal, “*An alternative to dark matter : Do braneworld effects hold the key?*”, **Physics Teacher** 47, 144-148 (2005) [arXiv: astro-ph/0512494]
 - The paper won National Award (Second Prize) from Indian Physical Society
66. S. Pal, Somnath Bharadwaj and Sayan Kar, “*Can extra-dimensional effects replace dark matter?*”, **Physics Letters B** 609, 194-199 (2005) [arXiv: gr-qc/0409023]
67. Ratna Koley, S. Pal and Sayan Kar, “*Geodesics and geodesic deviation in a two-dimensional black hole*”, **American Journal of Physics** 71, 1037-1042 (2003) [arXiv: gr-qc/0302065]

CONFERENCE PAPERS

1. Anish Ghoshal, Gaetano Lambiase, S. Pal, Arnab Paul, Shiladitya Porey, “*Post-Inflationary Production of Dark Matter after Inflection Point Slow Roll Inflation*”, **Symmetry** 15 (2023) 2, 543
2. Anish Ghoshal, Gaetano Lambiase, S. Pal, Arnab Paul, Shiladitya Porey, “*Near-inflection point inflation and production of dark matter during reheating*”, in Proceedings of XXV Bled Workshop “What comes beyond the Standard models?”, [arXiv: 2211.15061[astro-ph.CO]]
3. Barun Kumar Pal, S. Pal and Banasri Basu, “*The role of Berry phase in inflationary cosmology*”, **Journal of Physics: Conference Series** 405, 012025(1-4) (2012)

4. Sudipta Das, Subir Ghosh, Jan-Willem van Holten and S. Pal, "*Generalized Particle Dynamics in anti de Sitter Spaces: Mimicking a Phantom Dark Energy*", **Journal of Physics: Conference Series** 405, 012012(1-4) (2012)
5. Sayantan Choudhury and S. Pal, "*Brane inflation: A field theory approach in background supergravity*", **Journal of Physics: Conference Series** 405, 012009(1-4) (2012)
6. Sudipta Das, Subir Ghosh, Jan-Willem van Holten and S. Pal, "*Generalized particle model: a possible source for Dark Energy*", **Journal of Physics: Conference Series** 222, 012022(1-10) (2010)
7. S. Pal, "*Cosmological consequences of generalised RS II braneworlds*", **IIT Kharagpur Press, India**, 137-144 (2008)
8. Sayan Kar, Somnath Bharadwaj and S. Pal, "*Can modified gravity from extra dimensions explain dark matter effects?*", **St. Kliment Ohridski University Press, Bulgaria**, 254-264 (2005)
9. S. Pal, Somnath Bharadwaj and Sayan Kar, "*Extra dimensions, modified gravity and 'dark matter without dark matter'*", **University of Rajasthan Press, India**, 127-132 (2004)