Dr. SAMANDEEP
Assistant Professor
Department of Physics
GGDSD College, Chandigarh
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DOB: 9th December 1987

Educational Qualifications

Ph.D. in Physics
Department of Physics, Panjab University Chandigarh, India (2015) PhD Thesis: *Texture Specific Fermion Mass Matrices and SO(10),* Ph.D. Supervisor: Prof. Manmohan Gupta
Qualified U. G. C. (J. R. F.) in Physics

M.Sc. Physics (Hons. School) – Department of Physics , Panjab University Chandigarh, India (2007-2009)

Bachelor of Science – S. Govt. College of Science Education and Research, Jagraon, Distt. Ludhiana, India (2004-2007)

Teaching/Research Experience

- 02 August 2014 - till date
  Assistant Professor in Department of Physics, GGDSD College, Chandigarh
  Teaching Particle Physics, Classical Electrodynamics, Quantum Mechanics, Computational Physics to the students of M.Sc. Physics at Post-graduate level
  Teaching Quantum Mechanics, Nuclear and Particle Physics, Electricity and Magnetism, Mechanics at Undergraduate Level to the students of B.Sc. degree Programme

- 09 August 2011 - 30 March 2012
  Ad hoc Lecturer in Physics in Department of Physics, GGDSD College, Chandigarh
  Taught Electricity and Magnetism, Nuclear and Particle Physics and Quantum Mechanics at Undergraduate Level to the students of B.Sc. degree Programme.

- April 2010– August 2014
  UGC-Junior/Senior Research Fellow in Department of Physics, Panjab University, Chandigarh

Areas of Interest

- Theoretical High Energy Physics

Publications (Journal/Book Chapters)

Journal Publications:
Jayati Prabhakar and Samandeep Sharma, "Exploring the Leptonic CP Violation in Two Zero Textures", Springer Proc. Phys. 304, 1123-

1125, (2024).

Preeti, Samandeep and Neelu Mahajan, “Study of Superconductivity in Restricted Quantum Chromo-Dynamics in non-Abelian Gauge Theory”, J. Phys.: Conf. Ser. 2663 012008, (2023).

Jayati Prabhakar and Samandeep Sharma, “Exploring the lepton mixing phenomenon with sterile neutrinos”, Journal of the Maharaja Sayajirao University of Baroda, Volume-56, No.1 (I), (2022).

Samandeep Sharma, Preeti and Neelu Mahajan, “Glancing at the current experimental status of sterile neutrino searches”, AIP Conference Proceedings 2357, 070006 (2022)

Preeti, Samandeep Sharma and Neelu Mahajan, “Superconductivity As The Consequence Of Condensation Of Monopoles And Dyons In SU(2) And SU(3) Gauge Theories”, Journal of Emerging Technologies and Innovative Research, Vol. 8, Issue 9, pp 137-145 (2021).

Samandeep Sharma and Neelu Mahajan, “Flavor Mixing Patterns of Neutrinos-An Overview”, Journal of Emerging Technologies and Innovative Research, Vol. 8, Issue 9, pp 146-151 (2021).

Neelu Mahajan and Samandeep Sharma* (Corresponding Author), “An Insight into SU(5)-The Prototype GUT”, Journal of Emerging Technologies and Innovative Research, Vol. 8, Issue 9, pp 131-136 (2021).

Gulsheen Ahuja and Samandeep Sharma, “Texture zero mass matrices and CP violation”, Int. Journal of Modern Phys. A, Volume 32, No.16, 1742005 (2017).

Samandeep Sharma, “Implications of Weak Basis Transformations for the Texture Specific Quark Mass Matrices”, International Journal of Pure and Applied Physics,Volume 13, Number 1, pp 195-200 (2017).

Samandeep Sharma, Gulsheen Ahuja and Manmohan Gupta, “Implications of general lepton mass matrices in the standard model on m_ee”, Phys. Rev. D 94, 113004 (2016).

Samandeep Sharma, Gulsheen Ahuja and Manmohan Gupta, “Constraining the lightest neutrino mass and m_ee from general lepton mass matrices”, Pramana Journal of Physics, Vol. 86, No. 2, pp. 419-424 (2016).

Samandeep Sharma and Gulsheen Ahuja, “Minimal Set of texture specific quark mass matrices”, Springer Proc. Phys. 174, pp 215-220 (2016).

Gulsheen Ahuja, Samandeep Sharma, Priyanka Fakay and Manmohan Gupta, “General lepton textures and their implications”, Modern Physics Letters A, Volume 30, No. 34, 1530025, (2015).

Manmohan Gupta, Priyanka Fakay, Samandeep Sharma and Gulsheen Ahuja, “Fermion mass matrices, textures and beyond”, Modern Physics Letters A, Volume 30, No. 33, 1530024, (2015).

Samandeep Sharma, Priyanka Fakay, Gulsheen Ahuja, Manmohan Gupta, “Finding a unique texture for quark mass matrices”, Phys. Rev. D91 5, 053004, (2015).

Samandeep Sharma, Priyanka Fakay, Gulsheen Ahuja, Manmohan Gupta, ‘Comment on “Texture Zeros and WB Transformations in the Quark Sector of the Standard Model"’, Phys. Rev. D91 3, 038301, (2015).

Samandeep Sharma, Priyanka Fakay, Gulsheen Ahuja, Manmohan Gupta, “Clues towards unified textures”, Int. Journal of Modern Phys. A, Volume 29, 1444005 (2014).

Priyanka Fakay, Samandeep Sharma, Gulsheen Ahuja and Manmohan Gupta, “Leptonic mixing angle $theta_13$ and ruling out of minimal texture for Dirac neutrinos”, Prog. The. Exp. Phys. 023B03 (2014).

Samandeep Sharma, “Dark Matter and dark energy-I”, The Bulletin of Indian Association of Physics Teachers, Volume 6, Number 9, pp 229-232 (2014).

Samandeep Sharma, “Dark Matter and dark energy-II”, The Bulletin of Indian Association of Physics Teachers, Volume 6, Number 10, pp 253-256 (2014).

Samandeep Sharma, Priyanka Fakay, Gulsheen Ahuja, Manmohan Gupta, “Implications of non minimal lepton mass textures for Dirac neutrinos”, arXiv: hep-ph/1402.0628 (2014).

Samandeep Sharma, Priyanka Fakay, Gulsheen Ahuja, Manmohan Gupta, “Majorana neutrinos and non minimal lepton mass textures”, arXiv: hep-ph/1402.1598 (2014).

Priyanka Fakay, Samandeep Sharma, “Textures and Lepton Mass Matrices”, arXiv: hep-ph/1410.7137 (2014).

Samandeep Sharma, "Weak basis transformations and texture five zero quark mass matrices", Panjab Universtity Research Journal (Science) Volume 63, pp 49-54, (2014).

Samandeep Sharma, "Revisiting texture four zero quark mass matrices", Panjab Universtity Research Journal (Science) Volume 63, pp 55-61, (2014).

Priyanka Fakay, Samandeep Sharma, Rohit Verma, Gulsheen Ahuja and Manmohan Gupta, "Implications of $theta_13$ non Fritzsch-like lepton mass matrices", Phys. Lett. B 720, 366-372 (2013).

S. K. Tripathi, Samandeep and Mamta Sharma, "Synthesis and Characterization of Lead Selenide + Polyvinyl Alcohol Nanocomposites", Published in the proceedings of National Conference on Recent Advances in Condensed Matter Physics (2009).

Book Chapters:

Environment, Road Safety Education and violence Against Women and Children, Drug Abuse (2020) ; Dr. Jasamrit Kaur, Dr Samriti Dhawan (Editors): BOOK CHAPTER - Social Issues.

Environment, Road Safety Education and violence Against Women and Children, Drug Abuse (2018) ; Dr. Jasamrit Kaur, Dr Samriti Dhawan (Editors): BOOK CHAPTER - Social Issues, ISBN: MDER8268, 978-93-86558-26-8.

Environment, Road Safety Education and violence Against Women and Children, Drug Abuse (2017) ; Dr. Jasamrit Kaur, Dr Samriti Dhawan (Editors): BOOK CHAPTER - Social Issues, ISBN: 978-93-82068-29-7.

Samandeep Sharma, "The Standard Model Lepton Mass Matrices and Their Implications for Neutrinoless Double Beta Decay", 'Emerging Technological Insights', pp 147-152 (2017), ISBN: 978-93-85835-80-3.

Seminars/ Conferences/Symposiums (Paper Presented)

- Presented a paper titled "Synthesis and Characterization of Lead Selenide Nanocomposites in Polyvinyl Alcohol" in National Symposium on 'Biotechnology: Trends and Innovations', under the aegis of 'Star College Scheme', DBT, Govt. of India, organized by Department of Biotechnology, GGDSD College, Chandigarh February 7-8, 2020.
- Presented a paper at 4th National Seminar on 'Recent Advances in Materials Science', organized by Department of Physics, GGDSD College, Chandigarh on 1st February,2020.
- Presented a paper titled 'Peeping Deep into the Matter-

Theoretical and Experimental Advances' in Young Scientists' Conference as a part of India International Science Festival, held at Biswa Bangla Convention Center, Kolkata during November 5-8, 2019.

- Presented a paper titled 'Disentangling the Convolution of Dark Matter-An Overview' in Two Day National Science Conference, held at Government Degree College, Thannamandi, Jammu (March 19-20, 2018).
- Presented a paper titled 'Implications of Weak Basis Transformations for the Texture Specific Quark Mass Matrices' at "2 Days National Conference on Research Trends in Physics and Electronics – NPE 2016" held at S.G.G.S. Khalsa College, Mahilpur. (November 25-26, 2016).
- Presented a paper (co-authored with Ms. Priyanka Fakay, Dr. Gulsheen Ahuja and Dr. Manmohan Gupta) on 'Implications of mixing angle θ_{13} on texture five zero lepton mass matrices' in XX DAE-BRNS High Energy Physics Symposium held at Visva-Bharati, Santiniketan. (January 13-18, 2013).
- Presented a paper (co-authored with Ms. Mamta Sharma and Dr. S.K. Tripathi) titled "Synthesis and Characterization of Lead Selenide + Polyvinyl Alcohol Nanocomposites", in National Conference on Recent Advances in Condensed Matter Physics, NIT Hamirpur (23rd-24th May, 2009).

Refresher Courses/Workshops/ Training Programmes

- Online One Week Faculty Development Programme on 'National Education Policy-2020' from 20th-26th March, 2023, organized by Teaching Learning Center, Ramanujan College, University of Delhi.
- Online – 7 day FDP on Understanding Geodiversity and Geoheritage from 22nd to 28th Feb, 2022, organized by the UGC-HRDC, Panjab University, Chandigarh under RUSA grant.
- Online Two-Week Interdisciplinary Refresher Course/Faculty Development Programme for "Advanced Research Methodology Tools and Techniques" from 30th January-14th February, 2021 organized by Teaching Learning Center, Ramanujan College, University of Delhi.
- One week online Short Term Course on 'Advances in High Energy Physics' from 18th to 22nd September, 2020, organized by Department of Physics, Dr. B.R. Ambedkar National Institute of Technology.
- Faculty-cum-Student Skill Development Programme, Biological Data Analysis and Data Science from February 27th to March 4th, 2020, organized under Rashtriya Uchchatar Shiksha Abhiyan (RUSA) , Director Higher Education, Chandigarh Administration, organized by P.G. Department of Bioinformatics and Department of Biochemistry, GGDSD College, Chandigarh.

- 69th Refresher Course in Information Communication Technology (ICT) (Inter Disciplinary) from 18th June to 7th July, 2018, organized by UGC HRD Center, Punjabi University, Patiala.
- 110th Orientation Course from 28th April to 25th May, 2016, organized by HRD Center, Panjab University, Chandigarh from
- One week International Skills Workshop from 27th April to 3rd May, 2015, organized by GGDSD College, Sector 32, Chandigarh.
- One Day Faculty Development Programme on 22nd November, 2014, organized by GGDSD College, Sector 32, Chandigarh.

Invited Talks

- Presented a talk on the topic "Exploring the enigmatic components of the Universe" at National Conference on Advanced Research in Engineering, Science and Technology (NCAREST 2022), organized by Faculty of Engineering and Applied Sciences, Desh Bhagat University, Mandi Gobindgarh, Punjab from 24th to 25th Feb, 2022.
- Presented a talk on the topic "Flavor Mixing Patterns of Neutrinos-An Overview" at International Conference on Trends in Science Engineering and Management (ICTSEM'21) organized by Gulzar Group of Institutions, Ludhiana (Punjab) from 17th to 18th September, 2021.
- Presented a talk on the topic "Superconductivity as the consequence of condensation of monopoles and dyons in SU(2) and SU(3) gauge theories" at International Conference on Trends in Science Engineering and Management (ICTSEM'21) organized by Gulzar Group of Institutions, Ludhiana (Punjab) from 17th to 18th September, 2021.
- Presented a talk on the topic "A Quest for Unique Texture in Quark Mass Matrices" in the International (ONLINE) Workshop on "Emerging trends in High Energy and Condensed Matter Physics" organized by GDC, Budgam, Kashmir, J&K, India, January 11-12, 2021.
- Presented a talk titled "An insight into the Msyterious Dark Energy" at India International Science Festival, organized by Ministry of Science and Technology, Ministry of Earth Sciences and Ministry of Health and Family Welfare, Government of India from 22nd to 25th December, 2020.
- Presented a talk on the topic "Mysterious Dark Matter-Past, Present and Future Perspectives" at National Seminar on Emerging Research Trends in Experimental Physics, organized by Guru Nanak College for Girls, Sri Mukatsar Sahib on 22nd February 2019.
- Presented a talk on the topic "The Standard Model lepton

mass matrices and their implications for Neutrinoless Double Beta Decay" in the International Multi Stream Conference on Research and Society held at Gujranwala Guru Nanak Institute of Management and Technology Civil Lines, Ludhiana on 29th October, 2017.

- Presented a talk on the topic "Minimal Set of Texture Specific Quark Mass" in the XXI DAE-BRNS HEP Symposium held at IIT Guwahati during December 8 - 12, 2014.

- Presented a talk on the topic "SO(10) and textures of fermion mass matrices" in XX DAE-BRNS High Energy Physics Symposium held at Visva-Bharati, Santiniketan during 13th - 18th January, 2013.

Projects

- Supervised a Dissertation of Mr. Gaurav Dhir entitled "Investigation of Texture Two Zero in Neutrino Mass Matrices" submitted for the partial fulfilment for the award of the degree of Master of Science in Physics to Gurukula Kangri(Deemed to be University), Haridwar(UK) (2023).

PhD Thesis

Currently Supervising:01

Administrative Experience

- Member, Postgraduate Board of Studies in Physics, Panjab University, Chandigarh for the term 01.04.2023 to 31.03.2025.
- Admission Incharge of B.Sc. III (Non-Med) 2016-till date at GGDSD College, Chandigarh.
- Successfully conducted University Exams (CHD-06) in December 2022 as Center Superintendent at PG Govt. College for Girls, Sector 42, Chandigarh.
- Successfully conducted University Exams (CHD-25) in December 2016 as Center Superintendent at DAV College, Sector 10, Chandigarh.

Membership of Professional Associations

- Life Membership of Chandigarh Vigyan Parishad.
- Life Membership of Panjab University Alumni Association.
- Life Membership of Alumni Association, Department of Physics, Panjab University, Chandigarh.