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Curriculum Vitae

Personal
Date of Birth: 15 Nov 1985
Gender: Male
Nationality: Indian
Civil status: Married

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Kakojan Sonari Gaon,
Kakojan, Jorhat, Assam, India
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Affiliation
Assistant Professor
Department of Physics
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OBJECTIVE

To channelize my efforts towards the attainment of organizational as well as personal goals. To deliver effectively and efficiently what is expected from me

EDUCATIONAL QUALIFICATION

Degree	Institution	Board/University	Year of Passing
HSLC (75.5%)	Jyoti Vidyapith, Jorhat, Assam, India	SEBA	2002
HSSLC (71%)	Salt Brook Academy, Dibrugarh, Assam, India	AHSEC	2004
B.Sc (71%)	Motilal Nehru College, Delhi, India	University of Delhi, Delhi, India	2007
M.Sc (56%)	Dept of Physics and Astrophysics	University of Delhi, Delhi, India	2009
Ph.D	Gauhati University, Assam	Gauhati University, Assam, India	2015

- Ph.D Thesis Title: Some Studies on Theory and Phenomenology of Long and Short Baseline Neutrino Experiments
  Thesis Supervisor : Kalpana Bora,
  Dept. Of Physics, Gauhati University, Guwahati, Assam, India.

- *Post-Doctoral Fellow*, Harish-Chandra Research Institute,
  Department of Atomic Energy, Allahabad from March 2015 to March 2018.

COMPUTING SKILLS

- Computer programming languages: C++, C and FORTRAN 90
- Software Knowledge: GLoBES (General Long Baseline Experiment Simulator) for neutrino oscillation physics, GEANT4 (GEometry ANd Tracking) for Detector simulation, Mathematica, MonteCUBES, Gnuplot and Veusz graphical interface, LaTeX and LyX for scientific writing

List of Publications

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1. Sterile neutrinos: propagation in matter and sensitivity to sterile mass ordering (Dibya S. Chattopadhyay, Moon Moon Devi, Amol Dighe, **Debajyoti Dutta**, Dipyaman Pramanik, Sushant K. Raut, **JHEP 02 (2023) 044**, e-Print: 2211.03473 [hep-ph])
IF: 6.376 (2023)

2. Imprints of scalar NSI on the CP-violation sensitivity using synergy among DUNE, T2HK and T2HKK (Abinash Medhi, **Debajyoti Dutta**, Moon Moon Devi, **JHEP 01 (2023) 079**, e-Print: 2209.05287 [hep-ph])
IF: 6.376 (2023)

3. Exploring the effects of Scalar Non Standard Interactions on the CP violation sensitivity at DUNE (Abinash Medhi, **Debajyoti Dutta**, Moon Moon Devi, **JHEP 06 (2022) 129**, e-Print: 2111.12943 [hep-ph])
IF: 6.376 (2023)

4. Invisible neutrino decay: first vs second oscillation maximum, (Kaustav Chakraborty, **Debajyoti Dutta**, Srubabati Goswami, Dipyaman Pramanik, **JHEP 05 (2021) 091**)
IF: 6.376 (2023)

5. Non-Unitarity at DUNE and T2HK with Charged and Neutral Current Measurements (**Debajyoti Dutta**, Samiran Roy, **J.Phys.G 48 (2021) 4**, 045004 • e-Print: 1901.11298 [hep-ph])
IF: 3.519 (2023)

6. Exploring fake solutions in the sterile neutrino sector at long-baseline experiments (Sandhya Choubey, **Debajyoti Dutta**, Dipyaman Pramanik, **Eur.Phys.J.C 79 (2019) 11**, 968, arXiv: 1811.08684).
IF: 4.994 (2023)

7. Invisible neutrino decay in the light of NOvA and T2K data, (Sandhya Choubey, **Debajyoti Dutta**, Dipyaman Pramanik, **JHEP 08 (2018) 141**, arXiv: 1805.01848
IF: 6.376 (2023)

8. Measuring the Sterile Neutrino CP Phase at DUNE and T2HK (Sandhya Choubey, **Debajyoti Dutta**, Dipyaman Pramanik, **Eur.Phys.J.C 78 (2018) 4, 339,** arXiv: 1711.07464).
IF: 4.994 (2023)

9. Imprints of a light Sterile Neutrino at DUNE, T2HK and T2HKK (Sandhya Choubey, **Debajyoti Dutta**, Dipyaman Pramanik, **Physical Review D 96 (2017) no.5, 056026**, arXiv:1704.07269).
IF: 5.407 (2023)

10. Probing Majorana Neutrino Textures at DUNE (Kalpana Bora, Debasish Borah, **Debajyoti Dutta**, **Physical Review D 96 (2017) no.7, 075006**, arXiv:1611.01097).
IF: 5.407 (2023)

11. Octant of θ_{23} at long baseline neutrino experiments in the light of Non Unitary Leptonic mixing (**Debajyoti Dutta**, Pomita Ghoshal, Sandeep K. Sehrawat, **Physical Review D 95, 095007**, arXiv:1610.07203).
IF: 5.407 (2023)

12. Effect of Non Unitarity on Neutrino Mass Hierarchy determination at DUNE, NOνA and T2K (**Debajyoti Dutta**, Pomita Ghoshal, Samiran Roy, **Nuclear Physics B, Volume 920, July 2017,**

Pages 385-401, arXiv:1609.07094).
IF: 3.045 (2023)

13. Probing CP violation with T2K, NOνA and DUNE in the presence of non-unitarity (**Debajyoti Dutta**, Pomita Ghoshal, **JHEP 1609 (2016) 110**, arXiv:1607.02500).
IF: 6.376 (2023)

14. Capabilities of long-baseline experiments in the presence of a sterile neutrino (**Debajyoti Dutta**, Raj Gandhi, Boris Kayser, Mehedi Masud, Suprabh Prakash, **JHEP 1611 (2016) 122**, arXiv:1607.02152).
IF: 6.376 (2023)

15. Octant Degeneracy, Quadrant of leptonic CPV phase at Long Baseline Neutrino Experiments and Baryogenesis (Kalpana Bora, Gayatri Ghosh, **Debajyoti Dutta**, **Adv.High Energy Phys. 2016 (2016) 9496758**, arXiv:1606.00554).
IF: 1.771 (2023)

16. Probing CP violation at LBNE with reactor experiments (**Debajyoti Dutta**, Kalpana Bora, **Mod.Phys.Lett.A 30, 1550017 (2015)**, arXiv:1409.8248).
IF: 1.594 (2023)

17. Determining the Octant of θ_{23} at LBNE in conjunction with Reactor Experiments (Kalpana Bora, **Debajyoti Dutta**, Pomita Ghoshal, **Mod.Phys.Lett.A 30, 1550066 (2015)**, arXiv:1405.7482).
IF: 1.594 (2023)

18. Probing Sterile Neutrino Parameters with Double Dhooz, Daya Bay and RENO (Kalpana Bora, Debajyoti Dutta**Debajyoti Dutta**, Pomita Ghoshal, **JHEP 12(2012)025**, arXiv No:1206.2172).
IF: 6.376 (2023)

Publications as proceedings

19. Probing scalar Non Standard Interactions at DUNE, T2HK and T2HKK (Abinash Medhi, Dharitree Bezboruah, Debajyoti Dutta, Moon Moon Devi (2021), PoS ICHEP2022 590 • Contribution to: ICHEP 2022, doi = "10.22323/1.414.0590")

20. Probing the effects of scalar Non Standard Interactions at Long Baseline Experiments((Abinash Medhi, Debajyoti Dutta, Moon Moon Devi (2021), PoS NuFact2021 (2022) 150 • Contribution to: NuFact2021, 150, doi = "10.22323/1.402.0150")

21. Exploring Invisible Neutrino Decay at Long-Baseline Experiments (Zannatun Firdowzy Dey, Debajyoti Dutta, Springer Proc.Phys. 265 (2022) 115-123 • Contribution to: TiMP 2021, 115-123)

22. Exploring Scalar NSI Effects in Long Baseline Neutrino Experiments (Abinash Medhi, Dharitree Bezboruah, Debajyoti Dutta, Moon Moon Devi (2021) •Contribution to: BSM-2021, doi = "10.31526/ACP.BSM-2021.26")

23. Scalar Non Standard Interactions at long baseline experiments (Abinash Medhi, Debajyoti Dutta, Moon Moon Devi (2021),PoS ICRC2021 (2021) 1225 • Contribution to: ICRC 2021, 1225, doi = "10.22323/1.395.1225")

24. Resolving octant degeneracy at LBL experiment by combining Daya Bay reactor setup (Kalpana Bora, **Debajyoti Dutta**, 2014 **J.Phys:Conf.Ser.481012019**, arXiv No:1209.1870).

25. CP Violation Study at LBNE in Conjunction with Reactors (**Debajyoti Dutta**, Kalpana Bora, **XXI DAE-BRNS High Energy Physics Symposium. Springer Proceedings in Physics, vol 174. Springer, ISBN 978-3-319-25617-7**).

Publications in ISBN journals

26. In search of Sterile neutrino in Double Chooz Reactor Experiment (**Debajyoti Dutta**, Kalpana Bora, INTUIT, Vol-2, ISSN:2319-2097, 2013).

27. Exploring The Potential of NOvA with $\nu_\mu \to \nu_e$ Oscillations (**Debajyoti Dutta**, INTUIT, Vol-4, ISSN:2319-2097, 2015).

28. Probing octant dependency of CP violating phase with NOvA experiment (**Debajyoti Dutta**, Exploration, ISBN: 978-81-922765-8-8).

* Presentations in conferences/ seminars/symposia

- *In search of Sterile Neutrino in Double Chooz reactor experiment*, on 57th Annual technical session, Assam science society, 13th March, 2012.
- *Probing sterile neutrino parameters in double chooz,Daya bay and RENO*, at XX-DAE- HEP Symposium,13-18 January, 2013, VISVA-Bharati, Santiniketan.
- *Resolving octant degeneracy at LBNE-like experiment by combining Daya Bay reactor setup*, at NC-HEPC, 12th-14th February, 2013, Gauhati University.
- *Probing CP Violation at LBNE with Reactor Experiments*, at XXI DAE-BRNS HEP Symposium, 8-12 December, 2014, IIT, Guwahati.
- *Exploring the Octant and CP violation at DUNE in presence of Reactor Experiments*, at AAPCOS (International Workshop on Advances in Astroparticle Physics and Cosmology) in SINP, Kolkata, 12-17 October, 2015.
- *Exploring the Octant and CP violation at DUNE in presence of Reactor Experiments*, at Current Issues in Cosmology, Astrophysics and High Energy Physics (CICAHEP), Dibrugarh University, Assam, 2-5 Nov, 2015.
- *A re-evaluation of the capabilities of the long-baseline super-beam neutrino experiments in the presence of a sterile neutrino*, at Nu HoRIzons VI, Harish-Chandra Research Institute, Allahabad, India, 17-19 March, 2016.
- *Effect of Non-Unitarity on Long Baseline Neutrino Experiments* at Nu HoRIzons VII, Harish-Chandra Research Institute, Allahabad, India, 21-23 Feb, 2018.
- *Capabilities of Long Baseline experiments in presence of Non-Unitarity* at UGC SAP (DRS III) Sponsored National Seminar at Gauhati University, Assam, 30-31 March, 2018.
- *Sterile neutrino phases at LBL experiments* at Neutrino and Dark Matter activity week at Harish-Chandra Research Institute, Allahabad, India, 21Feb -1 March, 2019.

- *Light Sterile Neutrino: Need of Short-Baseline (SBL) neutrino Experiments* at Trends in Modern Physics, 2020, at Assam Don Bosco University, 24-25 Feb, 2020.

- *Revisiting the Theory of Neutrino Oscillations* at Workshop on Particle Physics 2020, at Assam Don Bosco University, 17-31 August, 2020.

Posters Presented

- *Reactor experiments and parameter degeneracies in FNAL-LBNE setup*, at UGC-SAP national seminar on new frontiers in physics, Gauhati University, 11th may, 2012.

Other participated Schools and Workshops

- *Preparatory School in Theoretical High Energy Physics* organized by SERC at 12th sept-9th Oct, 2012, West Bengal University. The courses included Group Theory, Quantum Field Theory, The Standard Model of Particle Physics, General Relativity.

- *Instructional workshop on particle physics –SANGAM* at HRI, Allahabad, 25th – 30th march, 2013.

- *International summer school* from 10th-21st June, 2013, International Center of Theoretical Physics (ICTP), Italy.

- *Workshop in High Energy Physics Phenomenology (WHEPP)* at IIT, Kanpur, from 4-13th Dec, 2015.

- *Instructional Workshop in Particle Physics (SANGAM)* at HRI, Allahabad, 15-19 February 2016.

- *International Neutrino Summer School* in Vitenam, Quy Nhon, 17-29 July, 2016.

- *XVI Workshop on High Energy Physics Phenomenology 2019 (WHEPP2019)* at IIT Guwahati, 1-10 dec, 2019.

- Participated in a 10 days *International Workshop on Application of Group Theory in Physics* organised by Assam University, Silchar, Assam from 2-11 Nov, 2020

- Participated in *16 days Science Academies' Refresher Course on "Frontiers of Theoretical Physics"* held at the Physics Department, ADBU on 1st -16th Feb, 2021

Other Participated conferences

- *Nu-Horizons V, An International conference on Neutrinos in Physics, Astrophysics and Cosmology*, from 1-3rd Feb, 2012, HRI , Allahabad.

- *National Symposium on particle detector and instrumentation*, from 21-24th march, 2012, IN TATA Institute of Fundamental Research, Mumbai.

- *Higgs and beyond the standard model physics at LHC"*, from 24th -28th June, 2013, at International Center of Theoretical Physics (ICTP), Italy.

Conference/Workshop/Seminar Organized at ABDU

1. Organized a 7 Days Faculty Development Programme on "Basic Science and Research Methodology" as a Convener, from 2-8 August, 2022 at Assam Don Bosco University

2. Organized a "Symposium on Particle Physics and related topics" as a Convener, on 28-29 Oct, 2021 at Assam Don Bosco University

3. Organized a National Conference "Trends in Modern Physics, 2020" as a Convener on 24-25 Feb, 2020, at Assam Don Bosco University
   https://www.overleaf.com/project/634d545b02094e51ab410553
4. Organized a "Workshop on Particle Physics" as a Convener, on 17 -31 August, 2020 at Assam Don Bosco University

5. Organized a "workshop on Computational Physics 2019 using Python" as a Co-Convener on 1 -2 November, 2019 at Assam Don Bosco University

6. Organized a "workshop on Computational Physics 2020 using Python" as a Co-Convener on 3 -5 December, 2020 at Assam Don Bosco University

7. Organized a "workshop on LATEX document 2019" as a Co-Convener on 29-30 March, 2019 at Assam Don Bosco University

8. Organized the Springer International Conference on "Trends in Modern Physics 2021" as a Co-Convener on 26 – 27 February, 2021 at Assam Don Bosco University

PhD students supervised at ADBU

Zannatun Firdowzy Dey has been working as a research scholar under my supervision for last three years

MSc Project supervised at ADBU

1. "Neutrino twozero texture- A priliminary study" by Keknu Yomgam in 2019

2. "A review of neutrino oscillation on vacuum" by Romy Sangma in 2019

3. "Diagonalization of neutrino mass matrix- A comparative study" by Bikram Baruah in 2019

4. "Seesaw mass model- A review" by Syed Sarif Ullah in 2020

5. "Detectors in neutrino physics" by Rajshree Basumatary in 2020

6. "Neutrino oscillations using non-hermitian PT symmetric Hamiltonian" by Naphisabiang Sun in 2020

7. "Left- Right symmetric model- a review" by Jnana Ranjan Das in 2020

8. "Revision of Gauge Theory" by Lumjingshai Wanniang in 2021

9. "Matter- Antimatter asymmetry and baryogenesis" by Aswin Rajeev in 2021

10. "Photon axion conversion under a static magnetic field" by Shahad Hussian in 2021

11. "A complete theoretical analysis of S-matrix, its unitarity and implication" by Shubham Kumar in 2021

12. CALCULATION OF CP VIOLATION IN NEUTRINO OSCILLATIONS USING MATLAB by Mehul Madhukar

Posters Presented by MSc students under my Supervision at ADBU

- "Current Status of Neutrino Oscillation Phenomenology - A Review", B. Baruah, and D. Dutta, (2019), Trends in Modern Physics (National Conference), Assam Don Bosco University, Tapesia. 22 – 23 February, 2019.

- "Left right symmetric model and neutrino mass- A review", J. R. Das, D. Dutta, Trends in Modern Physics 2020 (TiMP 2020), Assam Don Bosco University, Assam, 24 – 25 February, 2020 (Abstract no. 12).

- "Neutrino oscillation with Hermitian and PT symmetric Non-Hermitian Hamiltonian- A comparative study", N. Sun, D. Dutta, Trends in Modern Physics 2020 (TiMP 2020), Assam Don Bosco University, Assam, 24 – 25 February, 2020 (Abstract no. 23)

- "A Preliminary study of Seesaw Mechanism", S. Sarifullah, D. Dutta, Trends in Modern Physics 2020 (TiMP 2020), Assam Don Bosco University, Assam, 24 – 25 February, 2020 (Abstract no. 36).

TEACHING and RESEARCH EXPERIENCE

- *Worked as an Assistant Professor (Contractual) in Dibrugarh University, Assam, India* (March 2014 - Feb-2015)
- *Worked as a Post-Doctoral Fellow at Harish-Chandra Research Institute, Allahabad* (March 2015 - March-2018)
- *Worked as an Assistant Professor in Assam Don Bosco University, Assam, India* (July, 2018 - January, 2024)
- *Working as an Assistant Professor in Bhattadev University, Assam, India* (January, 2024 - till date)

Administrative Responsibilities at ADBU

- Appointed as the HOD of Department of Physics, Assam Don Bosco University on 15th Feb, 2022

- Member, NAAC core committee, Assam Don Bosco University and secretary of Criterion 3 at ADBU
- Worked as the departmental co-ordinator during NAAC visit

- Chairman of Board Of Studies, Department of Physics, ADBU

- Member of Research Audit committee at ADBU

- IQAC representative of School of Fundamental and Applied Sciences, ADBU

SPECIAL ACHIEVEMENT

- Achieved the Tutorial Performance award for the **Most Prolific Answer** in the International Neutrino Summer School 2016. (The certificate received was signed by Prof. Takaaki Kajita, 2015 Nobel laureate in physics)

- Worked as the **Publicity Secretary, PANE.**

Deceleration

I, hereby, certify that the information provided is true, complete, and correct to the best of my knowledge and belief. My candidature may be removed if it is discovered that any of the information I provided was inaccurate or incorrect.

Debajyoti Dutta,
Assistant Professor (selection)
Department of Physics
Assam Don Bosco University,
Sonapur, Tepesia, Assam