

**CURRICULUM VITAE**

APRIL 2026

**MADHURJYA LALUNG**

Assistant Professor (Stage-II)  
 Department of Physics, Nagaon University  
 Date of Joining: 21/01/2020  
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<b>Research Interest:</b> Theoretical High Energy Physics, Particle Physics, Quantum Chromodynamics (QCD) Phenomenology.	<b>Google Scholar:</b> <a href="https://scholar.google.com/citations?hl=en&amp;user=ZuFVCoIAAAAJ">https://scholar.google.com/citations?hl=en&amp;user=ZuFVCoIAAAAJ</a> <b>Inspirehep:</b> <a href="https://inspirehep.net/authors/1632623">https://inspirehep.net/authors/1632623</a> <b>ResearchGate:</b> <a href="https://www.researchgate.net/profile/Madhurjya-Lalung">https://www.researchgate.net/profile/Madhurjya-Lalung</a> <b>ORCID:</b> 0000-0002-7763-5050
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**EDUCATION**

2022	<b>Tezpur University</b> <b>Doctor of Philosophy (Ph. D.) in Physics</b> <b>Thesis:</b> Studies on parton recombination inside hadrons and related nonlinear evolution equations with shadowing and antishadowing effects.
2013 - 2015	<b>Indian Institute of Technology, Guwahati</b> <b>Master of Science (M. Sc.) in Physics</b>
2010 - 2013	<b>Darrang College (under Gauhati University), Tezpur</b> <b>Bachelor of Science (B. Sc.) in Physics</b>
2008 - 2010	<b>Darrang College, Tezpur.</b> <b>Higher Secondary (AHSEC)</b>
2008	<b>Catholic Mission High School, Salona, Nagaon</b> <b>Secondary (SEBA)</b>

**NATIONAL EXAMS QUALIFIED**

2013	<b>JOINT ADMISSION TEST FOR M.SC. (JAM) IN PHYSICS</b>
2015	<b>NATIONAL ELIGIBILITY TEST (NET) IN PHYSICS</b>
2016	<b>GRADUATE APTITUDE TEST IN ENGINEERING(GATE) IN PHYSICS</b>

**AWARDS AND FELLOWSHIPS**

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- 2012**            **Summer Research Fellow at Institute of Physics, Bhubaneswar**  
Awarded jointly by three Indian Academy of Sciences (IASc, INSA and NASI)
- 2015**            **CSIR NET Junior Research Fellow (JRF)**  
Awarded by Council of Scientific and Industrial Research (CSIR), New Delhi
- 2018**            **CSIR NET Senior Research Fellow (SRF)**  
Awarded by Council of Scientific and Industrial Research (CSIR), New Delhi
- 2018**            **Second Prize in Oral Presentation**  
Awarded at XI Biennial National Conference of Physics Academy of North East (PANE), at Assam University, Diphu Campus, Assam, India

**WORKSHOPS/SCHOOLS ATTENDED**

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- 2016**            **SERC Preparatory School on Theoretical High Energy Physics**  
05 Sep-01 Oct    Indian Institute of Technology Gandhinagar, Gujarat, India
- 2017**            **Workshop on Collider Physics: Events, Analysis and QCD**  
27-31, Mar        Indian Institute of Technology Guwahati, Assam, India
- 2017**            **GIAN course on Electroweak Symmetry Breaking**  
18-22, Dec        Indian Institute of Technology Guwahati, Assam, India
- 2018**            **One day workshop cum Training on Information Access and Analysis in the Innovation and Research Value Chain**  
10 May            Intellectual Property Cell, Tezpur University, Tezpur, Assam, India
- 2019**            **SERB Preparatory School on Theoretical High Energy Physics**  
Oct-Nov            Tezpur University, Tezpur, Assam, India
- 2020**            **Two Weeks Online Faculty Development Program on “Latex and Moodle Learning Management System”**  
January            Organized at Nowgong college under Spoken Tutorial Project, IIT Bombay
- 2020**            **Faculty Induction Programme**  
June-July         Organized by TLC Ramanujan College (University of Delhi) under the aegis of  
  
Ministry Human Resource Development & Pandit Madan Mohan Malaviya, National Mission on Teachers and Teaching.

**2021 FDP Python Programming**

26, July- 6, August

Organized by Electronics and ICT Academies under the “Scheme of Financial Assistance for setting up of Electronics and ICT Academies” of the Ministry of Electronics and Information Technology (MeitY), Government of India.

**PROJECTS/GRANTS**

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**2023-2026 "ANALYSIS ON THE EVOLUTION OF DEEP INELASTIC SCATTERING STRUCTURE FUNCTIONS AT HIGH DENSE GLUON REGIME IN THE FRAMEWORK OF MODIFIED DGLAP EQUATION"**

FUNDED BY SCIENCE & ENGINEERING RESEARCH BOARD (SERB), DEPARTMENT OF SCIENCE AND TECHNOLOGY, GOVERNMENT OF INDIA.

SANCTIONED GRANT: 6.06 LAKH

**PUBLICATIONS**

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1. P. Thakuria, M. Lalung, J.K. Sarma, Subleading twist-3 gluon generalized parton distributions in the light-front model, *Nuclear Physics A*, **1070**, **123392**, 2026  
<https://doi.org/10.1016/j.nuclphysa.2026.123392>
2. P. Thakuria, M. Lalung, J.K. Sarma, Twist-4 generalized parton distribution of light sea quark of spin-0 pseudoscalar mesons in light front spectator model at zero skewness ( $\xi=0$ ), *Journal of Subatomic Particles and Cosmology*, **3**, **100052**, 2025 <https://doi.org/10.1016/j.jspc.2025.100052>
3. M. Lalung, P. Phukan and J.K. Sarma, On analytical solutions of proton's structure functions in the framework of GLR–MQ–ZRS equation, *Results in Physics*, **28**, **104551**, 2021  
<https://www.sciencedirect.com/science/article/pii/S2211379721006537>
4. P. Phukan, M. Lalung, J.K. Sarma, Small x phenomenology on gluon evolution through the BFKL equation in light of a constraint in multi-Regge kinematics, *Commun. Theor. Phys.*, **72**, **025201**, 2020  
<https://doi.org/10.1088/1572-9494/ab61ee>
5. M. Lalung, P. Phukan and J.K. Sarma, Small-x analysis on the effect of gluon recombinations inside hadrons in light of the GLR-MQ-ZRS equation, *Nuclear Physics A* **992**, **121615**, 2019  
<https://doi.org/10.1016/j.nuclphysa.2019.121615>
6. P. Phukan, M. Lalung, J.K. Sarma, Studies on gluon evolution and geometrical scaling in kinematic constrained unitarized BFKL equation: application to high-precision HERA DIS data, *The European Physical Journal C* **79**: **507**, 2019 <https://doi.org/10.1140/epjc/s10052-019-7007-x>
7. M. Lalung, P. Phukan, J.K. Sarma, On phenomenological study of the solution of nonlinear GLR-MQ evolution equation beyond leading order, *Nuclear Physics A* **984**, **29-43**, 2019  
<https://doi.org/10.1016/j.nuclphysa.2019.01.006>

8. M. Lalung, P. Phukan and J.K. Sarma,  $q^2$  evolution of gluon distribution function inside the hadrons with both shadowing and antishadowing effects, *Journal of Physics: Conference Series*, **1330**, 012016, 2019 <https://doi.org/10.1088/1742-6596/1330/1/012016>
9. P. Phukan, M. Lalung, J.K. Sarma, Study of small x behaviour of unintegrated gluon distribution constraining gluon evolution in MD-BFKL equation, *Journal of Physics: Conference Series*, **1330**, 012017, 2019 <https://doi.org/10.1088/1742-6596/1330/1/012017>
10. P. Phukan, M. Lalung, J.K. Sarma, NNLO solution of nonlinear GLR–MQ evolution equation to determine gluon distribution function using Regge like ansatz, *Nuclear Physics A* **968**, 275–286, 2017 <https://doi.org/10.1016/j.nuclphysa.2017.09.003>
11. M. Lalung, P. Phukan and J.K. Sarma, Nonlinear effects in gluon distribution predicted by GLR-MQ evolution equation at next-to-leading order in LHC data, *International Journal of Theoretical Physics* **56**: 3625, 2017 <https://doi.org/10.1007/s10773-017-3527-z> .

## BOOK CHAPTERS

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1. SMALL- X PHENOLOGY ON GLUON EVOLUTION IN A UNITARIZED BFKL EQUATION, *EBH PUBLISHERS INDIA*, 2019
2. PARTON RECOMBINATION AND THE PHENOMENOLOGY OF GLR BASED NONLINEAR EVOLUTION EQUATIONS, *Current Research Progress in Physical Science*, Vol. 1, 107-126 , 2024. ISBN: 978-81-973454-5-6 <https://doi.org/10.9734/bpi/crpps/v1>
3. HADRON PRODUCTION IN d-Au, p-Pb, Pb-Pb and Xe-Xe COLLISIONS AT RHIC AND LHC: ONSET OF COLOR GLASS CONDENSATE IN LIGHT OF BK EVOLUTION. *Current Perspective to Physical Science Research*, Vol. 9, 140-154, 2024. ISBN: 978-81-972831-9-2 <https://doi.org/10.9734/bpi/cpps/v9>
4. CELESTIAL KNOWLEDGE IN ANCIENT INDIA: UNVEILING THE DEPTHS OF INDIGENOUS TRADITIONAL KNOWLEDGE, *Traditional Knowledge (Exploring the Traditional Knowledge: Bridging Past and Future)*, 275, 2024. ISBN: 978-81-19414-94-9

## PRESENTATIONS AT CONFERENCES

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1. “Nonlinear effects in gluon distribution predicted by GLR-MQ evolution equation at next-to-leading order in LHC data” presented in a *National Conference* held at Institute of Advanced Study in Science and Technology, Guwahati, Assam, India.  

**February 2017**
2. “Study of the antishadowing effect due to gluon recombination inside the hadrons in light of GLR-MQ-ZRS equation”, presented in *National Conference on Applied Sciences, Sustainable & Evolving Technologies* held at Central Institute of Technology, Kokrajhar, Assam, India

**9<sup>th</sup> to 11<sup>th</sup> March 2018**

3. “Small-x analysis of the shadowing correction on gluon distribution function at NLO and NNLO”, presented in the *National Seminar on Progresses in Nuclear and High Energy Physics* held in Department of Physics, Gauhati University, Assam, India

**30<sup>th</sup> to 31<sup>st</sup> March 2018**

4. “ $Q^2$  evolution of gluon distribution function inside the hadrons with both shadowing and antishadowing effects”, presented in *XI Biennial National Conference of Physics Academy of North East (PANE)* held at Assam University, Diphu campus, Diphu, Assam, India

**21<sup>st</sup> to 23<sup>rd</sup> November 2018**

5. “Analytical Approach in solving the GLR-MQ evolution equation at small-x and phenomenological study of its solutions”, presented in *National Conference on Materials, Condensed Matter & Theoretical Physics (NCMCTP-2018)* held in Department of Physics, ADP college, Nagaon, Assam, India

**20<sup>th</sup> to 21<sup>st</sup> December 2018**