

DR. DHRUBA JYOTI GOGOI, Ph.D.

✉ moloydhruba@yahoo.in 🐦 @Dhruba_J_Gogoi
🌐 <https://dhrubajgogoi.github.io>
🌐 <https://dibru.ac.in/userlist/welcome/profile/606>
🌐 <https://inspirehep.net/authors/1780627?ui-citation-summary=true>
🌐 <https://scholar.google.co.in/citations?user=BP85kjoAAAAJ&hl=en>
🌐 <https://www.linkedin.com/in/dhruba-jyoti-gogoi>
✉ Mobile/WhatsApp: 6002724108



Employment History

- 2023, October - till date 📌 **Assistant Professor**, Department of Physics, Moran College.
📌 **Assistant Professor (Adjunct)**, Theoretical Physics Division, Centre for Atmospheric Studies, Dibrugarh University.
- 2018, August - 2023, October 📌 **Assistant Professor**, Department of Physics, Dibrugarh University (contractual).

Education

- 2018 – 2023 📌 **Ph.D., Dibrugarh University**, Gravitational Wave Physics
Thesis title: **Nature of Gravitational Waves in Modified Theories of Gravity**
Supervisor: **Prof. Umananda Dev Goswami**, Department of Physics, Dibrugarh University.
Examiner 01: **Prof. Sayan Kar**, Indian Institute of Technology Kharagpur, Kharagpur - 721302, India.
Examiner 02: **Prof. Manjari Bagchi**, The Institute of Mathematical Sciences, Chennai 600 113, Tamil Nadu, India.
- 2020 📌 **GATE 2020** in Physics
- 2016, Dec 📌 **UGC CSIR NET LS, AIR 92** in Physics
- 2015 – 2017 📌 **M.Sc. Physics, Dibrugarh University** in High Energy Physics
Percentage 79.5% (CGPA 7.45).
- 2015 📌 **IIT JAM** in Physics
- 2012 – 2015 📌 **B.Sc. Physics, Tinsukia College**, Tinsukia, Assam
Physics (Major), Chemistry and Mathematics
First Class 5th, Percentage 84.43%
- 2009 – 2011 📌 **H.S. (science) DHSK College**, Dibrugarh, Assam
Physics, Chemistry, Mathematics, English, Assamese *First division*, Percentage 80.40%
- 2009 📌 **HSLC (10th), Lezai H. S. School**, Dibrugarh, Assam
First division with dstn., Percentage 87%

Research Interests

General Relativity, Modified theories of gravity ($f(R)$ gravity, $f(Q)$ gravity, Rastall gravity, Gauss-Bonnet gravity, Yang Mills gravity, Bumblebee gravity etc.), Theories with Lorentz violation and Energy-momentum conservation violation, Gravitational waves, Quasinormal modes of black holes and wormholes, Black hole

thermodynamics, Topology of black hole thermodynamics, Joule-Thomson expansion of black hole, Cosmology, Black hole shadow, Hawking emission of black holes, Grey-body factors, Compact objects, and Strange Stars.

Research Publications

1. **D. J. Gogoi**, Ali Övgün and Durmuş Demir, *Quasinormal modes and greybody factors of symmergent black hole*, Physics of the Dark Universe **42**, 101314 (2023) [arXiv:2306.09231].
2. **D. J. Gogoi**, A. Övgün, and M. Koussour, *Quasinormal Modes of Black Holes in $f(Q)$ Gravity*, Eur. Phys. J. C **83**, 700 (2023). (impact factor 4.4) [arXiv:2303.07424].
3. **D. J. Gogoi**, J. Bora, M. Koussour and Y. Sekhmani, *Quasinormal Modes and Optical Properties of 4-D black holes in Einstein Power-Yang-Mills Gravity*, Annals of Physics **458**, 169447 (2023) [arXiv:2306.14273].
4. **D. J. Gogoi**, Y. Sekhmani, D. Kalita, N. J. Gogoi, and J. Bora, *Joule-Thomson Expansion and Optical Behaviour of Reissner-Nordström-Anti-de Sitter Black Holes in Rastall Gravity Surrounded by a Quintessence Field*, Fortschritte Der Physik **71**, 2300010 (2023). DOI: 10.1002/prop.202300010 (impact factor 5.532).
5. **D. J. Gogoi** and U. D. Goswami, *Tideless Traversable Wormholes surrounded by cloud of strings in $f(R)$ gravity*, JCAP **02**, 027 (2023). DOI: 10.1088/1475-7516/2023/02/027 (impact factor 7.280) [arXiv:2208.07055].
6. **D. J. Gogoi** and U. D. Goswami, *Quasinormal Modes and Hawking Radiation Sparsity of GUP Corrected Black Holes in Bumblebee Gravity with Topological Defects*, JCAP **06**, 029 (2022). DOI: 10.1088/1475-7516/2022/06/029 (impact factor 7.280) [arXiv:2203.07594].
7. **D. J. Gogoi**, R. Karmakar and U. D. Goswami, *Quasinormal Modes of Non-Linearly Charged Black Holes surrounded by a Cloud of Strings in Rastall Gravity*, Int. J. Geom. Methods Mod. Phys. **20**, 2350007 (2023). DOI: 10.1142/S021988782350007X (impact factor 1.873) [arXiv:2111.00854].
8. **D. J. Gogoi** and U. D. Goswami, *Cosmology with a new $f(R)$ gravity model in Palatini formalism*, International Journal of Modern Physics D **31**, 2250048, (2022) DOI:10.1142/S0218271822500481, (impact factor: 2.547) [arXiv:2108.01409].
9. **D. J. Gogoi** and U. D. Goswami, *Quasinormal Modes of Black Holes with Non-Linear-Electrodynamic sources in Rastall Gravity*, Physics of the Dark Universe **33**, 100860 (2021). DOI: 10.1016/j.dark.2021.100860 (impact factor 5.090) [arXiv:2104.13115].
10. **D. J. Gogoi** and U. D. Goswami, *Gravitational Waves in $f(R)$ Gravity Power Law Model*, Indian Journal of Physics **96**, 637 (2022). DOI: 10.1007/s12648-020-01998-8 (impact factor 1.778).
11. **D. J. Gogoi** and U. D. Goswami, *A new $f(R)$ Gravity Model and properties of Gravitational Waves in it*, Eur. Phys. J. C **80**, 1101 (2020). DOI: 10.1140/epjc/s10052-020-08684-3 (impact factor 4.4).
12. N. Parbin, **D. J. Gogoi**, and U. D. Goswami, *Weak gravitational lensing and shadow cast by rotating black holes in axionic Chern-Simons theory*, Physics of the Dark Universe (2023) (impact factor 5.5). DOI: 10.1016/j.dark.2023.1012 [arXiv:2305.09157].
13. R. Karmakar, **D. J. Gogoi** and U. D. Goswami, *Thermodynamics and Shadows of GUP-corrected Black Holes with Topological Defects in Bumblebee Gravity*, Physics of the Dark Universe **41**, 101249 (2023) (impact factor 5.5) [arXiv:2303.00297].
14. Y. Sekhmani and **D. J. Gogoi**, *Electromagnetic Quasinormal Modes of Dyonically Charged Black Holes with Quasi-Topological Electromagnetism in a Horndeski Gravity Theory Mimicking EGB Gravity at $D \rightarrow 4$* , Int. J. Geom. Methods Mod. Phys., S0219887823501608 (2023). DOI: 10.1142/S0219887823501608 (impact factor 1.873).
15. M. Koussour, S. Arora, **D. J. Gogoi**, M. Bennai, and P. K. Sahoo, *Constant Sound Speed and Its Thermodynamical Interpretation in $f(Q)$ Gravity*, Nuclear Physics B **116158** (2023). DOI:10.1016/j.nuclphysb.2023.116158 (impact factor 3.045)

16. R. Karmakar, **D. J. Gogoi** and U. D. Goswami, *Quasinormal modes and thermodynamic properties of GUP-corrected Schwarzschild black hole surrounded by quintessence*, Int. J. Mod. Phys. A **37**, 2250180 (2022). DOI: 10.1142/S0217751X22501809 (impact factor 1.475) [arXiv:2206.09081].
17. J. Bora, **D. J. Gogoi**, and U. D. Goswami, *Strange Stars in $f(\mathcal{R})$ Gravity Palatini Formalism and Gravitational Wave Echoes from Them*, JCAP **09**, 057 (2022). DOI: 10.1088/1475-7516/2022/09/057 (impact factor 7.280) [arXiv:2204.05473].
18. N. Myrzakulov, M. Koussour and **D. J. Gogoi**, *A new $f(Q)$ cosmological model with $H(z)$ quadratic expansion*, Physics of the Dark Universe, 101268 (2023). DOI: <https://doi.org/10.1016/j.dark.2023.101268> (impact factor 5.5) [arXiv:2306.13218].
19. N. Myrzakulov, M. Koussour and **D. J. Gogoi**, *A New $Om(z)$ Diagnostic of Dark Energy in General Relativity Theory*, EPJC (2023). (impact factor 4.4) [arXiv:2303.04640].
20. Gaetano Lambiase, Reggie C. Pantig, **D. J. Gogoi** and A. Övgün, *Investigating the Connection between Generalized Uncertainty Principle and Asymptotically Safe Gravity in Black Hole Signatures through Shadow and Quasinormal Modes*, Eur. Phys. J. C **83**, 679 (2023). (impact factor 4.4) [arXiv:2304.00183].
21. N. Parbin, **D. J. Gogoi**, J. Bora and U. D. Goswami, *Deflection angle, quasinormal modes and Optical properties of a de Sitter black hole in $f(T,B)$ gravity*, Physics of the Dark Universe **42**, 101315 (2023) [arXiv:2211.02414].
22. Y. Sekhmani, **D. J. Gogoi**, M. Baouahi and I. Dahiri, *Thermodynamic geometry of STU black holes*, Physica Scripta (2023).
23. S. Mandal, S. Das, **D. J. Gogoi**, and A. Pramanik, *Leading-Order Corrections to the Thermodynamics of Rindler Modified Schwarzschild Black Hole*, Physics of the Dark Universe **42**, 101349 (2023).

Preprints

1. J. Bora, **D. J. Gogoi**, S. K. Maurya and G. Mustafa, *Impact of energy-momentum conservation violation on the configuration of compact stars and their GW echoes*, preprint (2023) [arXiv:2306.01024].

Peer Review

1. Physica Scripta (IOP, impact factor: 3.081).
2. Classical and Quantum Gravity (IOP, impact factor: 3.853).
3. Physics of the Dark Universe (Elsevier, impact factor: 5.5).
4. European Physical Journal Plus (Springer, impact factor: 3.4)
5. New Astronomy (Elsevier, impact factor: 2.096).
6. Mathematical Reviews (American Mathematical Society).
7. Al-Bahir Journal for Engineering and Pure Sciences (ISSN 2312-5721).
8. The Second International Workshop on Automation, Control and Communication Engineering (IWACCE 2022), China.
9. Advances in Physics and its Applications, a conference series published by the Department of Physics, Duliajan College, Dibrugarh, Assam.

Papers Presented

1. Delivered a contributory talk on “Quasinormal modes from GUP corrected Black Holes in Bumblebee Gravity with Topological Defects” at An Inaugural Conference on Current Status of Cosmology during October 17-19, 2022, hosted by the Thanu Padmanabhan Center for Cosmology and Science Popularization(CCSP) SGT University, Delhi- NCR.
2. Delivered a contributory talk on “Impact of Energy-Momentum conservation violation on the Quasinormal modes of a non-linearly charged Black Hole” at an International conference on Cosmology & Gravity (CosmoGrav22) during March 23-24, 2022, hosted by ICARD, Department of Physics, Gurukul Kangri (Deemed to be University), Haridwar, Uttarakhand, India.
3. Presented titled “A modified set of Newman-Penrose quantities to study Polarization modes of Gravitational Waves” at XXIV DAE-BRNS High Energy Physics Symposium, December 14-18, 2020 hosted by National Institute of Science Education and Research (NISER), Odisha.
4. Delivered a talk on “Polarization Modes of Gravitational Waves in a New $f(R)$ Gravity Model”, at the North East Meet of Astronomers (NEMA) VI (2020), hosted and organised by the Department of Physics, IIT Guwahati, during November 10 - 13, 2020.
5. Delivered a talk on “Gravitational Waves in $f(R, L_m)$ Gravity”, at the International E-Conference on New Frontiers in Science and Technology 2020, hosted and organised by the Manipur university, during July 09 - 11, 2020.
6. Presented titled “Polarization Modes of Gravitational Waves in Hu Sawicki Model and Rastall Gravity”, at the 9th International Conference on Gravitation and Cosmology (ICGC) 2019, hosted by the Indian Institute of Science Education and Research Mohali (IISERM) and organized by the Indian Association for General Relativity and Gravitation, (10 - 13 December, 2019).
7. Presented titled “Gravitational Waves from Pure R^2 Gravity” at the 30th meeting of the Indian Association for General Relativity and Gravitation (IAGRG) 2019, BITS Pilani, Hyderabad Campus, India, (3-5 January, 2019).

Invited Talks

1. Acted as a resource person at 3 days Workshop on Scilab organised by Department of Physics, DDR College, Chabua during 21-23 September 2023.
2. Delivered invited guest lectures at DHSK College, Dibrugarh, Assam (India) in December 2021 on Quantum mechanics and Scilab.
3. Delivered talks as a resource person at the IQAC sponsored 3-Days workshop on “Computational Physics” held during 25th to 27th Nov’21, at Tinsukia College, Tinsukia, Assam, India.
4. Delivered two talks at UGC Sponsored National Workshop on General Relativity and Astronomy 2018, (NWGRA 2018), Department of Physics, Tinsukia College, Tinsukia, Assam, India.

Book Chapters/Books

1. N. Parbin, J. Bora and **D. J. Gogoi**, "Applications of Pseudo-Spectral Method and Matrix Numerov Method in Anharmonic Potential Problem", 73, Research Trends in Science and Technology ISBN:978-93-5570-344-6, Editors: Dr. Mukunda Madhab Borah and Dr. Kuldeep Gogoi, AkiNik Publications, DOI:<https://doi.org/10.22271/ed.book.1907>

2. **D. J. Gogoi** and J. Bora, "Comments on a Non-Lagrangian Energy Momentum Conservation Violating Theory", p19-23, *Frontiers in Basic Physics and Applications (Volume II)* ISBN:9788194871934, Editors: D. K. Banik, N. M. Nath, S. K. Banik, K. J. Nath, Knowledge Publications.
3. J. Bora and **D. J. Gogoi**, "Viable $f(R)$ gravity models", p13-18, 2021, *Frontiers in Basic Physics and Applications (Volume II)*, ISBN: 9788194871934, Editors: D. K. Banik, N. M. Nath, S. K. Banik, K. J. Nath, Knowledge Publications.
4. R. Changmai, J. Bora and **D. J. Gogoi**, *Efficient Numerical Solution of Differential Equations using Pseudo-Spectral Methods with Bernstein Basis.*, *Frontiers in Physical Sciences* ISBN: 978 – 93 – 93092 – 29 – 8, Editors: Dr. R. Changmai and Dr. T. G. Devi.

Projects

- Master's project: "A study on muons and electrons in Extensive Air Showers of energy $10^{14} - 10^{15}$ eV using CORSIKA" under guidance of Prof. Umananda Dev Goswami, Department of Physics, Dibrugarh University (2017).

Visits

- Visited IUCAA, Pune for research purposes in 2019.
- Visited and worked at GRAPES3 project, an India-Japan collaboration, Ooty, TIFR in 2017.

Workshops/FDPs/Conferences attended

1. Workshop on Gravitational Wave Astrophysics for Early Career Scientists, 3 - 7 May 2021, (see Legacy of the First Workshop on Gravitational Wave Astrophysics for Early Career Scientists at [arXiv:2111.15596]).
2. LISA Canada Workshop, 27 Apr 2021, 07:45 - 29 Apr 2021, 11:20 Canada/Pacific, Online.
3. One Week National Level online Faculty Development Program on LaTeX+Xfig, Organised by IT Cell, H.P.B. Girls' College, Golaghat, Assam, in association with Spoken Tutorial Project, IIT Bombay-NMEICT, MHRD, August 3-8, 2020.
4. Seven days Faculty Development Program on "Basics of Python Programming" conducted by Jorhat EC of NIELIT Guwahati and in collaboration with J B College, Jorhat, Assam (22-28.07.2020).
5. Three days National Faculty Development Program on "Matlab and it's Application" organised by Bishop Cotton Women's Christian College (17-19 August, 2020).
6. One Day International Level Webinar on "A Mathematical Remedy Of Heart Attack: Artificial Intelligence As A Life Saving Kit" on 16th August ,2020 organised by Department of Physics of Shibpur Dinobundhoo Institution (College).
7. 5 DAY FDP on "Discrete Mathematics, Graph Theory and its Applications" organized by Department of Applied Sciences & Humanities in association with IQAC, Universal Engineering College Vallivattom from 17 August 2020 to 21 August 2020.
8. "An Introductory Course on Fluid Dynamics" organized by the Department of Mathematics, CHRIST (Deemed to be University), Bangalore during 17-20 August, and 24-28 August 2020.
9. Online Faculty Development Programme on Mathematica - A system for Modern Technical Computing, Organized by Mahatma Hansraj Faculty Development Center (MHRFDC) (A Centre of MHRD under PMMMNTT Scheme), Hansraj College, University of Delhi, India, August 21-26, 2020.

10. Faculty Development Program on "Artificial Intelligence and Machine Learning" , conducted from 07 to 09 Sept 2020, by Department of Computer Science Engineering, Sri Balaji College of Engineering and Technology, Jaipur.
11. "Introductory Seminar on Astrophysics and Cosmology" webinar organized by ICARD, North Bengal University on September 16, 2020.
12. 5-Day FDP on Applied Mathematics Skills for Science & Engineering using Contemporary Software tools Organized by Department of Applied Science Maulana Abul Kalam Azad University of Technology, West Bengal, India in association with Islamic University of Science and Technology, Jammu and Kashmir,INDIA (14th - 18th September, 2020).
13. SERB School on Observational Astronomy, Department of Physics, Tezpur University, Tezpur, Assam, (25 th October to 14 th November, 2017).
14. Workshop on "Emerging Trends in Online Evaluation System" organized by IQAC, P N Das college on 15-09-20.
15. Workshop on Air Pollution, Greenhouse Gases and Climate Change: Global and Regional Perspective, Centre for Atmospheric Studies and the Department of Physics, Dibrugarh University, (27-29 April, 2017).
16. Light: not a Light Matter – a Students' Symposium, Student Chapter, Department of Physics, Dibrugarh University and IIT Guwahati, (12th November, 2016).
17. National Workshop on Gravitational Wave Astronomy (NWGWA), Department of Physics, Dibrugarh University, (November 2-4, 2016).
18. Winter School on AstroParticle Physics (WAPP) 2016. CRL, TIFR, Ooty, Tamil Nadu, India.
19. National Conference on Current Issues in Cosmology, Astrophysics and High Energy Physics (CICA-HEP), Department of Physics, Dibrugarh University, (November 2-5, 2015).
20. National Workshop on The General Relativity and Astronomy - Its foundations and current trends, Department of Physics, Tinsukia College, (January 28-30, 2015).

Skills

Languages	📖	Reading, writing and speaking competencies for English, Hindi, Assamese (Mother Language).
Coding	📖	C++, C, Python, Root by CERN, Origin, GNU Plot, Mathematica, SciLab, Octave, Matlab, Fortran, \LaTeX , ...
Web Dev	📖	HTML, css.
Misc.	📖	Academic research, teaching, training, consultation, and \LaTeX typesetting.

Miscellaneous Experience

Awards and Achievements

- 2009
 - 📖 **Anundoram Borooah Award** for getting 1st div. in HSLC examination with Distinction.
 - 📖 **OIL scholarship.**
- 2020
 - 📖 **Introduced a new gravity model, known as Gogoi-Goswami $f(R)$ gravity model. The model is listed in Wikipedia at: [https://en.wikipedia.org/wiki/F\(R\)_gravity](https://en.wikipedia.org/wiki/F(R)_gravity).**
- 2022
 - 📖 **Achieved IOP (Institute of Physics) trusted Reviewer status (2022) in recognition of an exceptionally high level of peer review competency.**

Miscellaneous Experience (continued)

Certification

- 2021 ■ **Certificate Course in Python Programming.** Completed from VLSI-Embedded -AE Department, National Institute of Electronics & Information Technology, Chennai.
- **Quantum Mechanics.** Awarded by the University of Colorado Boulder through Coursera.
- **Psychological First Aid.** Awarded by Johns Hopkins University through Coursera.

Memberships

- 2023 ■ **Member of Working Group 03 of action - Addressing observational tensions in cosmology with systematics and fundamental physics (CosmoVerse) of European Cooperation in Science and Technology.**
- 2021 ■ **Life Member of the Indian Mathematical Society (IMS) (Membership no. L/2021/36).**
- **Member of the International Association of Mathematical Physics (IAMP).**
- 2020 ■ **Life Member of the Indian Association for General Relativity and Gravitation (IAGRG).**
- 2019 ■ **Student Member of the American Physical Society (APS).**

Others

- 2020 ■ **Co-Convener at National Conference on Physical Sciences 2022 (NCPS-2022),** organized jointly by Manipur University, Manipur, India and DHSK College, Assam, India during 29-30 April, 2022 (Conference site: <https://ncps2022.wordpress.com>).
- 2023 ■ **Associate Editor of a book titled "Frontiers in Physical Sciences"-** a collection of research articles presented in National Conference on Physical Sciences 2022 (NCPS-2022), organized jointly by Manipur University, Manipur, India and DHSK College, Assam, India during 29-30 April, 2022 (Conference site: <https://ncps2022.wordpress.com>), ISBN: 978 – 93 – 93092 – 29 – 8.

References

Available on Request

Collaborations

1. Dr. Ali Övgün, Associate Professor, Eastern Mediterranean University, Albert Einstein Street, 99628, Gazimagusa, KKTC, via Mersin 10 TURKEY.
2. Prof. Durmuş Ali Demir, Professor, Faculty Member at Sabancı University Istanbul, Turkey.
3. Prof. Hassan Hassanabadi, Professor of Physics, Shahrood University of Technology, Shahrud, Semnan Province, Iran.
4. Dr. Mouhssine Koussour, Université Hassan II de Casablanca, Morocco.
5. Dr. Yassine Sekhmani, Département de physique, Équipe des Sciences de la matière et du rayonnement, ESMaR, Faculté des Sciences, Université Mohammed V de Rabat, Rabat, Morocco.
6. Prof. P. K. Sahoo, Department of Mathematics, BITS Pilani, Hyderabad campus, India.
7. Prof. (Dr.) Saibal Ray, FRAS, Associate Director Centre for Cosmology, Astrophysics and Space Science (CCASS), GLA University, 17th KM Mile stone, NH-2, Mathura-Delhi Highway Road, P.O. Chaumuhan, Mathura-281406, Uttar Pradesh, India.

8. Dr. Sunil Kumar Maurya, Assistant Dean for Graduate Studies & Research & Associate Professor, Dean Office, Mathematical and Physical Sciences - Mathematics Section, College of Arts and Sciences, Sultanate of Oman.
9. Dr. G. Mustafa, Department of Physics, Zhejiang Normal University, Jinhua 321004, China.
10. Dr. Amit Das, Department of Physics, Indian Institute of Engineering Science and Technology, Shibpur, Howrah 711103, West Bengal, India.
11. Dr. Jyatsnasree Bora, Department of Physics, Dibrugarh University, Dibrugarh 786 004, Assam, India.
12. Prof. Gaetano Lambiase, University of Salerno. Fisciano, Italy.
13. Dr. Reggie C. Pantig, Physics Department, Mapua University.
14. Dr. Nurgissa Myrzakulov, Eurasian National University, Astana, Kazakhstan.

Personal Details

1. Date of Birth: 17th November, 1993
2. Gender: Male
3. Religion: Hindu
4. Caste: OBC (Ahom)
5. Nationality: Indian
6. Languages known: Assamese, Hindi, English.
7. Marital status: Unmarried
8. Father's name: **Mr. Jyotish Gogoi**
9. Mother's name: **Mrs. Padmini Gogoi**
10. Permanent address: Jugipather village, PO Panitola, Tinsukia 786183, Assam, India.
11. Corresponding address: Department of Physics, Dibrugarh University, Dibrugarh 786004, Assam, India.

Declaration

I affirm that the information provided in this curriculum vitae and accompanying details are accurate and truthful to the utmost of my awareness.

Date:
Place: Tinsukia.

Dr. Dhruba Jyoti Gogoi
