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Curriculum Vitae of **S. M. RAYHANUL ISLAM**

CONTACT INFORMATION

ASSISTANT PROFESSOR
DEPARTMENT OF MATHEMATICS
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EDUCATION

- **Master of Science in Mathematics** (Physical Thesis Group) University of Rajshahi, Rajshahi, Bangladesh. Results: **First class (87.12%)**, Passing Year: 2010 (Examination held in 2011). Medium of Instruction: English.
- **Bachelor of Science with Honors in Mathematics** (Four Years), University of Rajshahi, Rajshahi, Bangladesh. Results: **First class (68.56%)**, Year of Passing: 2009 (Examination held in 2010), Medium of Instruction: English.

CAREER EXPERIENCE

- Assistant Professor (1st Sep 2015 to present), Department of Mathematics, Pabna University of Science & Technology, Pabna-6600, Bangladesh.
- Lecturer (1st Sep, 2013 - 31 Aug, 2015), Department of Mathematics, Pabna University of Science & Technology, Pabna-6600, Bangladesh.

RESEARCH INTEREST

- Investigation of optical and soliton solutions of the nonlinear PDEs and time-fractional PDEs.
- Nonlinear dynamics in optics and fluids.
- Mathematical Physics.
- Bifurcation Analysis

RESEARCH GRANTS

- **Title of the project:** Bifurcation, phase plane analysis and soliton solutions of the nonlinear evolution equations by using elegant technique; **Funding Organization**: University Grants Commission at PUST; **Amount**: TK: 2,00,000/-; **Role**: Principal investigator, **Year**: 2023-24.
- **Title of the project:** The agreement between the novel exact and numerical solutions of the nonlinear models; **Funding Organization**: Ministry of Science and Technology; **Amount**: TK: 3,00,000/-; **Role**: Co-investigator, **Year**: 2022-23.
- **Title of the project:** Diverse soliton solutions to the nonlinear models by using different techniques; **Funding Organization**: University Grants Commission at PUST; **Amount**: TK: 1,30,000/-; **Role**: Principal investigator, **Year**: 2022-23.

SUPERVISED

1. Master of Science (M. Sc., Thesis): One (01)
2. Bachelor of Science (Project): Sixteen (19)

UNDER SUPERVISION

1. Bachelor of Science (Project): Three (00)

PUBLICATIONS

44. Arafat SMY and **Islam S. M. R. (2024)**: Bifurcation analysis and soliton structures of the truncated *M*-fractional Kuralay-II equation with two analytical techniques. Alex Engr J. 105: 70-87. https://doi.org/10.1016/j.aej.2024.06.079 (**SCI, Q1, IF.: 6.2, Elsevier Publisher**)
43. **Islam S. M. R. (2024)**: Bifurcation analysis of the soliton solutions to the Doubly dispersive equation in elastic inhomogeneous Murnaghan's rod. Scientific Reports. 14(1): 11428. https://doi.org/10.1038/s41598-024-62113-z (**SCI, Q1, IF: 4.6, Springer Publisher**).

42. **Islam S. M. R. (2024)**: On the Soliton Structures of the (2+1)-Dimensional Long Wave-Short Wave Resonance Interaction Equation with Two Analytical Techniques and its Bifurcation Analysis. Ganit: Journal of Bangladesh Mathematical Scoiety. 44.1 (2024) 59–76. https://doi.org/10.3329/ganit.v44i1.73987 (**Math Sci Net, Bangladesh Mathematical Scoiety**).
41. **Islam S. M. R.**, Arafat SMY., Inc M. (**2024**): Exploring novel optical soliton solutions for the stochastic chiral nonlinear Schrödinger equation: stability analysis and impact of parameters. J Nonlinear Opt Phys Mater. 2450009. https://doi.org/10.1142/S0218863524500097 (**SCI, Q3, IF.: 2.7, World Scientific Publisher**)
40. **Islam S. M. R. (2024)**: Bifurcation analysis and exact wave solutions of the nano-ionic currents equation via two analytical techniques. Results Phys. 58, 107536. https://doi.org/10.1016/j.rinp.2024.107536 (**SCI, Q2, IF.: 5.3, Elsevier Publisher**)
39. **Islam S. M. R.**, Khan K. (**2024**): Investigating wave solutions and impact of nonlinearity: Comprehensive study of the KP-BBM model with bifurcation analysis. Plos One. 19(5): e0300435. https://doi.org/10.1371/journal.pone.0300435 (**SCI, Q1, IF.: 3.7, Public Library of Science, UK**)
38. **Islam S. M. R.**, Arafat S. M. Y., Alotaibi H. Inc M. (**2024**): Some optical soliton solutions with bifurcation analysis of the paraxial nonlinear Schrödinger equation. Opt Quant Electron. 56, 379 (2024). https://doi.org/10.1007/s11082-023-05783-9 (**SCI, Q2, IF: 2.794, Springer Publisher**)
37. Mawa HZ, **Islam S. M. R.**, Bashar MH., Roshid MM., Islam J., Akter S. (**2023**): Soliton Solutions to the BA Model and $(3+1)$-Dimensional KP Equation Using Advanced $\exp(-\phi(\xi))$ -Expansion Scheme in Mathematical Physics, Math Probl Eng. 2023: 5565509. https://doi.org/10.1155/2023/5564509 (**Scopus, zbMath, Q2, SC.: -2.6, Hindawi Publisher**)
36. Alam M.N., **Islam S. M. R.** (**2023**): The agreement between the novel exact and numerical solutions of the nonlinear models. Partial Differ Equ Appl Math. 8: 100584. https://doi.org/10.1016/j.padiff.2023.100584 (**Scopus, Q2, SC.: -3.4, Elsevier Publisher**)
35. **Islam S. M. R.**, Basak U. S. (**2023**): On traveling wave solutions with bifurcation analysis for the nonlinear potential Kadomtsev-Petviashvili and Calogero–Degasperis equations. Partial Difer Equ Appl Math. 8: 100561. https://doi.org/10.1016/j.padiff.2023.100561 (**Scopus, Q2, SC.: -3.4, Elsevier Publisher)**
34. **Islam S. M. R.**, Ahmed H, Wang H, Akbar M. A., Khan K., Awwad F. A., Ismail E. A. A. (**2023**): Stability analysis, phase plane analysis and isolated soliton solution to LGH equation in mathematical physics. Open Phys. 21(1): 20230104. https://doi.org/10.1515/phys-2023-0104 (**SCIE, Q3, IF.: 1.9, Walter de Gruyter Publisher)**

33. **Islam S. M. R.**, Khan K., Akbar M. A. (**2023**): Optical soliton solutions, bifurcation, and stability analysis of the Chen-Lee-Liu model. Results Phys. 51: 106620. https://doi.org/10.1016/j.rinp.2023.106620 (**SCI, Q2, IF.: 4.565, Elsevier Publisher**)
32. Arafat S. M. Y., **Islam S. M. R.**, Rahman M. M., Saklayen, M. A. (**2023**): On nonlinear optical solitons of fractional Biswas-Arshed model with beta derivative. Results Phys. 48: 106428. https://doi.org/10.1016/j.rinp.2023.106426 (**SCI, Q2, IF.: 4.565, Elsevier Publisher**)
31. Khan K., Rajnesh K. M., **Islam S. M. R.** (**2023**): Traveling Waves in Two Distinct Equations: The (1+1)-Dimensional cKdV–mKdV Equation and the sinh-Gordon Equation. Int J Appl Comput Math., 9: 21. https://doi.org/10.1007/s40819-023-01503-9 **(Scopus, ZbMath, Q3, CS.:2.3, Springer Publisher**)
30. Arafat S.M.Y., Fatema K., **Islam S. M. R.**, Islam M.E., Akbar M.A., Osman M.S. (**2023**): The mathematical and wave profile analysis of the Maccari system in nonlinear physical phenomena, Opt. Quant. Electron. 55: 136. https://doi.org/10.1007/s11082-022-04391-3 (**SCI, Q2, IF: 2.794, Springer Publisher**)
29. **Islam S. M. R.**, Arafat SMY, Wang HF (**2023**). Abundant closed-form wave solutions to the simplified modified Camassa-Holm equation. J Ocean Engi Sci. 8(3): 238-245. https://doi.org/10.1016/j.joes.2022.01.012 (**Scopus, SCIE, ESCI, Q2, IF.: - 4.803, Elsevier Publisher**)
28. Arafat S. M. Y., Khan K, **Islam S. M. R.**, Rahman M. M. (**2022**): Parametric effects on paraxial nonlinear Schrodinger equation in Kerr media, Chinese J Phys. 83: 361-378. https://doi.org/10.1016/j.cjph.2022.08.026 (**SCI, Q2, IF.: 3.923, Elsevier Publisher**)
27. Bashar M. H, Inc M, **Islam S. M. R.**, Mahmoud K. H., Akbar M. A. (**2022**): Soliton solutions and fractional effects to the time fractional modified equal width equation, Alex Eng J. 61, 12539–12547. https://doi.org/10.1016/j.aej.2022.06.047 (**SCI, Q1, IF.: 6.626, Elsevier Publisher**)
26. Bashar M. H, Arafat S. M. Y., **Islam S. M. R.**, Islam S, Rahman M. M. (**2022**): Extraction of some optical solutions to the (2+1)-dimensional Kundu–Mukherjee–Naskar equation by two efficient approaches, Partial Differ. Equ. Appl. Math. 6: 100404. https://doi.org/10.1016/j.padiff.2022.100404 (**Scopus, Q3, CS.:2.3, Springer Publisher**)
25. **Islam S. M. R.**, Khan S., Arafat S. M. Y., Akbar M. A. (**2022**): Diverse analytical wave solutions of plasma physics and water wave equations, Results Phys., 40: 105834. https://doi.org/10.1016/j.rinp.2022.105834 (**SCI, Q2, IF.: 4.565, Elsevier Publisher**)
24. Akbulut A, **Islam S. M. R.** (**2022**): Study on the Biswas–Arshed Equation with the Beta Time Derivative, Int J Appl Comput Math. 8: 167. https://doi.org/10.1007/s40819-022-01350-0 (**Scopus, Q3, CS.:2.3, Springer Publisher**)
23. **Islam S. M. R.**, Kumar D, Fendzi-Donfack E, Inc M. (**2022**): Impacts of nonlinearity and wave

dispersion parameters on the soliton pulses of the (2+1)-dimensional Kundu-Mukherjee-Naskar equation, Revista Mexicana de Fisica. 68(6): 061301. https://doi.org/10.31349/RevMexFis.68.061301 (**Scopus, SCIE, Q3, IF: - 1.297, Sociedad Mexicana de Fisica Publisher**)

22. Akbulut A, **Islam S. M. R.**, Arafat SMY, Tascan F. (**2022**): A novel scheme for SMCH equation with two different approaches, Comput Meth Differ Equ. 11(2): 263-280. https://doi.org/10.22034/cmde.2022.50363.2093 (**ESCI, Scopus, University of Tabriz Publisher**)
21. **Islam S. M. R.**, Wang HF (**2022**). Some analytical soliton solutions of the nonlinear evolution equations. J Ocean Engi Sci. https://doi.org/10.1016/j.joes.2022.01.012 (**Scopus, SCIE, ESCI, Q2, IF.: - 4.803, Elsevier Publisher**)
20. Bashar M.H., Arafat S.M.Y., **Islam S. M. R.**, Rahman M.M. (**2022**). Wave solutions of the couple Drinfel'd-Sokolov-Wilson equation: new wave solutions and free parameters effect. J Ocean Eng Sci. https://doi.org/10.1016/j.joes.2022.05.003 (**Scopus, SCIE, ESCI, Q2, IF.: - 4.803, Elsevier Publisher**)
19. Islam S. M. R., Bashar M. H., Arafat S. M. Y., Wang H. F., Roshid M. M. (**2022**). Effect of the free parameters on the Biswas-Arshad model with a unified technique. Chinese J Phys. 77: 2501-2519. https://doi.org/10.1016/j.cjph.2022.04.022 (**SCI, Q2, IF.: 3.923, Elsevier Publisher**)
18. Arafat SMY, **Islam S. M. R.**, Bashar MH (**2022**). Influence of the Free Parameters and Obtained Wave Solutions from CBS Equation, Int J Appl Comput Math., 8; 2022: 99. https://doi.org/10.1007/s40819-022-01295-4 (**Scopus, ZbMath, Q3, CS.:2.3, Springer Publisher**)
17. **Islam S. M. R.**, Akbulut A, Arafat SMY (**2022**). Exact solutions of the different dimensional CBS equations in mathematical physics. Partial Differ Equ Appl Math. 5, 100320. https://doi.org/10.1016/j.padiff.2022.100320 (**Scopus, Q3, CS.:2.3, Springer Publisher**)
16. Akbulut A, **Islam S. M. R.**, Rezazadeh H, Tascan F (**2022**). Obtaining exact solutions of nonlinear partial differential equations via two differential methods. Int J Mod Phys B. 36(5): 2250041. https://doi.org/10.1142/S0217979222500412 (**Scopus, SCI, SCIE, Q3, IF.: -1.219, World Scientific Publisher**)
15. **Islam S. M. R.**, Bashar M. H., Noor M. (**2021**): Immeasurable soliton solutions and enhanced (G'/G) -expansion method, Phys Open. 9: 100086. https://doi.org/10.1016/j.physo.2021.100086 (**Scopus, Q3, CS.: 2.7. Elsevier Publisher**)
14. Bashar M. H., **Islam S. M. R.**, Kumar D (**2021**): Construction of traveling wave solutions of the (2+1)-dimensional Heisenberg ferromagnetic spin chain equation, Partial Differ Equ Appl Math. 4: 100040. https://doi.org/10.1016/j.padiff.2021.100040 (**Scopus, Q3, CS.:2.3,**

Springer Publisher)

13. Bashar M. H., **Islam S. M. R.** (**2020**): Exact solutions to the (2+1)-Dimensional Heisenberg ferromagnetic spin chain equation by using modified simple equation and improve F-expansion methods, Phys Open. 5: 100037. https://doi.org/10.1016/j.physo.2020.100027 (**Scopus, Q3, CS.: 2.7. Elsevier Publisher**)
12. Bashar MH, **Islam S. M. R.**, Islam S. (**2019**): Exact travelling wave solutions of the nonlinear evolution equations in mathematical physics by using enhanced (G'/G)-expansion method, Int Res J Nature Sci Tech. 1(4): 1-12.
11. **Islam S. M. R.**, Khan K., Woadud K. M. A. A. (**2018**): Analytical Studies on the Benney-Luke Equation in Mathematical Physics, Waves Random Complex Media. 28(2): 300-309. https://doi.org/10.1080/17455030.2017.1342880 (**SCI, Q2, IF-3.223, Taylor and Francis Publisher**)
10. **Islam S. M. R. (2015)**: Application of an enhanced (G'/G)-expansion method to find exact solutions of nonlinear PDEs in particle physics, Am J Appl Sci. 12(11): 836-846. https://doi.org/10.3844/ajassp.2015.836.846 (**Scopus, Science Publications**)
9. **Islam. S. M. R.**, Khan. K., Akbar M. A. (**2015**): Exact solutions of unsteady Korteweg-de Vries and time regularized long wave equations, Springer plus 4: 124. https://doi.org/10.1186/s40064-015-0893-y (**SCI, Q1, IF-0.982, Springer Publisher**)
8. Khan. K., Akbar. M. A., **Islam. S. M. R.** (**2015**): Exact solutions for (1+1)-dimensional nonlinear dispersive modified Benjamin-Bona-Mahony equation and coupled Klein-Gordon equations, Springer plus 3:724. https://doi.org/10.1186/2193-1801-3-724 (**SCI, Q1, IF-0.982, Springer Publisher**)
7. **Islam. S. M. R.**, Khan. K., Akbar M. A. (**2014**): Study of exp (G'/G)-expansion method for solving nonlinear partial differential equations. Journal of Advances in Mathematics and Computer Science 5(3): 397-407. https://doi.org/10.9734/BJMCS/2015/13387
6. **Islam S. M. R.** (**2015**): The traveling wave solutions of the cubic nonlinear Schrodinger equation using the enhanced (G'/G)-expansion method, World Appl Sci J. 33(4): 659-667.
5. **Islam S. M. R.**, Ali M. S., Islam M. S., Khan K. (**2015**): Traveling wave solutions for the Foam Drainage equation and the enhanced (G'/G)-expansion method, Int J Sci Eng Tech., 4(8): 426-431.
4. **Islam. S. M. R.** (**2015**): Applications of the exp (-Φ(ξ)) expansion method to find exact traveling wave solutions of the Benney-Luke equation in mathematical physics, Am J Appl Math. 3(3):100-105. https://doi.org/10.11648/j.ajam.20150303.14
3. Rahman MA, **Islam S. M. R.** (**2014**): Climate change observed in the Barind track, the experiment. 21(4): 1499-1502.

2. Ghosh. B. C., **Islam. S. M. R.**, Mamun. M (**2015**): Empirical Evidence of Climate Change: Effects on Rice Production in Bangladesh, Intl J Geology, Agriculture Environmental Sci, 3(1): 1-6.
1. Mamun. M., Ghosh. B. C., **Islam. S. M. R.** (**2015**): Climate Change and Rice Yield in Bangladesh: A Micro Regional Analysis of Time Series Data, Int J Scientific Research Publications, 5(2): 1-8.

CONFERENCE PAPERS

1. **Islam S. M. R.,** Rahman M. M. **(2024)**: On the Soliton Solutions of the Doubly Dispersive Equation and Its Bifurcation Analysis, 23rd **international mathematics conference** on 16-17 May, 2024. Department of Mathematics, University of Rajshahi, Rajshahi, Bangladesh.
2. **Islam S. M. R.,** Arafat S. M. Y., Piyas M. H. (**2023**): On optical soliton solutions of the stochastic chiral nonlinear Schrödinger equation and its bifurcation analysis, 1st **National Conference** on Advances in Science and Technology organized by Faculty of Science, BUET on 7-8 December, 2023.
3. Asif M., Arafat SMY., **Islam S. M. R.,** Rahman MM. (**2023**): Wave profile analysis of the (3+1)-dimensional mKdV-ZK model in mathematical physics. 1st **National Conference** on Advances in Science and Technology organized by Faculty of Science, BUET on 7-8 December, 2023. (***Poster Presentation***)
4. **Islam. S. M. R.**, Khan. K., Akbar M. A. (**2015**): The enhanced (G'/G)–expansion method applied to the Coupled (1+1)-Dimensional Broer-Kaup equations, 1st **International Conference** on Mathematics and its Applications. Mathematics Discipline, Science Engineering and Technology School, Khulna University, Khulna-9208, Bangladesh.

PROFESSIONAL ACTIVITIES

❖ **REVIEWER:**

Results in Engineering (Elsevier); Scientific Reports (Springer); Nonlinear Dynamics (Springer); Journal of Mathematics (Hindaw); Acta Mechanica et Automatica; Applied Sciences (MDPI); Optical and Quantum Electronics (Elsevier); Symmetry (MDPI); Mathematics (MDPI); Heliyon (Elsevier); Journal of Ocean Engineering and Sciences (Elsevier); Waves in Random and Complex Media (Taylor and Francis); European Physical Journal Plus (Springer); Physica Scripta (IOP Science); International Journal of Applied Mathematics and Theoretical Physics (Science PG); American Journal of Applied Mathematics (Science PG); American Journal of Applied Sciences (Science Publications).

❖ **EDITOR:**

Journal of Mathematical Techniques and Computational Mathematics

MEMBERSHIPS

- Life Time Member of Bangladesh Mathematical Society, Dhaka, Bangladesh.
- Honorable Member of Badalgachi Students Welfare Association, University of Rajshahi, Rajshahi. Bangladesh.

SCHOLARSHIP & AWARD

- University Full Scholarship from the Central South University, China.
- A F Mujibur Rahman Scholarship and Gold Medal Award, A F Mujibur Rahman Foundation, Dhaka, Bangladesh.
- University of Rajshahi (RU) merit Scholarship during undergraduate studies.
- Got Shah Makhdum Hall Talent Award, Rajshahi University, Bangladesh for good result in B.Sc. (Hons).
- Achievement Award 2014, Badalgachhi Students Welfare Association (BSWA), University of Rajshahi, Rajshahi, Bangladesh.

RESEARCH AUTHOR ID (WEB BASED)

Google Scholar ID**:** https://scholar.google.com/citations?hl=en&user=ZmTJjkEAAAAJ
ResearchGate ID**:** https://www.researchgate.net/profile/S_M_Rayhanul_Islam
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REFERENCES

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