

# CURRICULUM VITAE OF S. M. RAYHANUL ISLAM

## CURRENT STATUS

PhD FELLOW, SCHOOL OF CIVIL ENGINEERING  
CENTRAL SOUTH UNIVERSITY, HUNAN, CHINA.  
AND  
ASSISTANT PROFESSOR  
DEPARTMENT OF MATHEMATICS  
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## CAREER OBJECTIVE

Now, I am Doctoral students in Central South University, Hunan, China. After finished this program, looking for a post-doctoral or research position in the field of Structural Engineering, Nonlinear Partial Differential Equations or Mathematical Physics in any reputed University or institution of the World, where I will exploit my potentiality, malleability, and skills to do something innovative and share my knowledge for the sake of mankind.

## RESEARCH INTEREST

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

## ACTIVE RESEARCH PROJECT

- [2022-2023]: the agreement between the novel exact and numerical solutions of the nonlinear models (MoST, BD).
- [2022-2023]: diverse soliton solutions to the nonlinear models by using different techniques (UGC Grand at PUST).

## PUBLICATIONS and SUBMITTED MANUSCRIPT

1. Arafat S. M. Y., Islam S. M. R., Rahman M. M., Saklayen, M. A. (2023): Diverse precise optical soliton solutions of fractional partial differential equations with beta derivative. Results Phys. (Accepted).
2. Khan K., Rajnesh K. M., Islam S.M. R. (2023): Dynamical behavior of travelling wave solutions of nonlinear evolution equations. Int J Appl Comput Math., (Accepted).
3. 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. (SCI) IF: 2.794 <https://doi.org/10.1007/s11082-022-04391-3>
4. 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, (SCI), IF.: 3.923. <https://doi.org/10.1016/j.cjph.2022.08.026>

5. 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. (SCI) **IF.:** 6.626 <https://doi.org/10.1016/j.aej.2022.06.047>
6. 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. (Scopus) <https://doi.org/10.1016/j.padiff.2022.100404>
7. **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. (SCI, **IF.:** 4.565). <https://doi.org/10.1016/j.rinp.2022.105834>
8. 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. (Scopus, ZbMath) <https://doi.org/10.1007/s40819-022-01350-0>
9. **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, (Scopus, SCIE), **IF:- 1.297**, <https://doi.org/10.31349/RevMexFis.68.061301>
10. Akbulut A, **Islam S. M. R.**, Arafat SMY, Tascan F. (2022): A novel scheme for SMCH equation with two different approaches, Computational Methods for Differential Equations, (ESCI, Scopus, Zb Math, Web of Science) <https://doi.org/10.22034/cmde.2022.50363.2093>
11. **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), **IF:-4.803**.
12. 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. 2022 <https://doi.org/10.1016/j.joes.2022.05.003> (Scopus, SCIE, ESCI), **IF:- 4.803**.
13. **Islam S.M.R. et al.** (2022). Effect of the free parameters on the Biswas-Arshad model with a unified technique. Cn j Phys. 77: 2501-2519. <https://doi.org/10.1016/j.cjph.2022.04.022> (SCI, Scopus), **IF.:** 3.923.
14. 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, zb Math)
15. **Islam S.M.R.**, Akbulut A, Arafat SMY (2022). Exact solutions of the different dimensional CBS equations in mathematical physics. Partial Differential Equations in Applied Mathematics. 5, 100320. (Scopus). <https://doi.org/10.1016/j.padiff.2022.100320>
16. Akbulut A, **Islam S.M.R.**, Reza zadeh 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), **IF:-1.219**.

17. **Islam S.M.R.**, Arafat SMY, Wang HF (2022). Abundant closed-form wave solutions to the simplified modified Camassa-Holm equation. J Ocean Engi Sci. <https://doi.org/10.1016/j.joes.2022.01.012> (Scopus, SCIE, ESCI), IF:- 4.803.
18. **Islam S. M. R.**, Bashar M. H., Noor M. (2021): Immeasurable soliton solutions and enhanced  $(G'/G)$ -expansion method, Physics Open, <https://doi.org/10.1016/j.physo.2021.100086> Scopus.
19. 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 Differential Eqs Appl Math. 4, 100040. (Scopus) <https://doi.org/10.1016/j.padiff.2021.100040>
20. 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, Physics Open, <https://doi.org/10.1016/j.physo.2020.100027> , Scopus.
21. 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.
22. **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. <https://doi.org/10.1080/17455030.2017.1342880> , SCI, SCIE, Scopus, IF-3.223.
23. **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. (Scopus) 12(11): 836-846.
24. **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, Scopus, IF-0.982.
25. 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. SCI, Scopus, IF-0.982.
26. **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>
27. **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.
28. **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.

- 29. Islam. S. M. R. (2015):** Applications of the  $\exp(-\Phi(\xi))$  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>
- 30. Rahman MA, Islam S. M. R. (2014):** Climate change observed in the Barind track, the experiment. 21(4): 1499-1502.
- 31. 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.
- 32. 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.
- 33. Islam S. M. R., Ahmed H, Wang H, Akbar M. A. (2023):** Stability analysis and isolated soliton solution to LGH equation in mathematical physics, (**Submitted**).
- 34. Islam S. M. R., Kumar D, Islam M. E., Akbar M. A. (2023):** Parametric effect on soliton with stability analysis on a model (nHA) in mathematical physics, (**Submitted**).
- 35. Islam S. M. R., Bashir M. H. (2023):** Soliton solutions to the (3+1)-dimensional KP and BA models using advanced  $\exp(-\varphi(\xi))$ -expansion scheme in mathematical physics, (**Submitted**).

## CONFERENCE PAPER

1. **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, 1<sup>st</sup> International Conference on Mathematics and its Applications. Mathematics Discipline, Science Engineering and Technology School, Khulna University, Khulna-9208, Bangladesh.

## EDITORIAL MEMBER IN REPUTED INTERNATIONAL JOURNALS

- Journal of Mathematical Techniques and Computational Mathematics

## REVIEWER IN REPUTED INTERNATIONAL JOURNALS

- Journal of Mathematics (Hindaw)
- Acta Mechanica et Automatica
- Applied Sciences (MDPI)
- Optical and Quantum Electronics (Elsevier)
- Symmetry (MDPI)
- Optical and Quantum Electronics (Elsevier)
- 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)

## EDUCATION QUALIFICATION

- A. Doctor of Engineering (On Going)  
School of Civil Engineering  
Central South University  
Hunan, China.
- B. Master of Science (M. Sc.) in Mathematics (One Year, Physical Thesis Group)  
University of Rajshahi, Rajshahi, Bangladesh.  
Results: First class (87.12%)  
Passing Year: 2010 (Examination held in 2011, Due to Session Jam).  
**Major Courses:** Mathematical Modeling and Population Dynamics, Aerodynamics, Water Waves Mechanics, Geophysical Fluid Dynamics, Biomathematics, Computational Fluid Dynamics, Astrophysics.  
**Medium of Instruction:** English.
- C. Bachelor of Science (B. Sc.) in Mathematics (Four Years)  
University of Rajshahi, Rajshahi, Bangladesh.  
Results: First class (68.56%)  
Year of Passing: 2009 (Examination held in 2010, Due to session Jam).  
Medium of Instruction: English.

## CAREER EXPERIENCE

- A. Assistant Professor (1<sup>st</sup> Sep 2015 to continue)  
Department of Mathematics  
Pabna University of Science & Technology (PUST)  
Pabna-6600, Bangladesh.
- B. Lecturer (1<sup>st</sup> Sep, 2013-31 Aug, 2015)  
Department of Mathematics  
Pabna University of Science & Technology (PUST)  
Pabna-6600, Bangladesh.

## 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.

## COMPUTER SKILLS

- MS Word (Word Processing), MS Power Point (Presentation preparation), MS Excel.
- FORTRAN 90, MAT LAB, SPSS, C, and MAPLE 13.

## LANGUAGE

- Bangla (Mother Tongue)
- English (Fair)

## RESEARCH AUTHOR ID (WEB BASED)

Google Scholar ID : <https://scholar.google.com/citations?hl=en&user=ZmTJjkEAAAAJ>  
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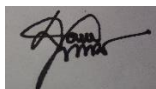
## PERSONAL INFORMATION

- Name : S. M. Rayhanul Islam
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- Mother's Name : Rabeya Sultana
- Mailing Address : Assistant Professor, Department of Mathematics  
Pabna University of Science & Technology (PUST)  
Pabna-6600, Bangladesh.
- Permanent Address : Vill-Dewlia, Thana-Badalgachi, P.O.-Badalgachi, Post  
Code- 6570, Dist.-Naogaon, Bangladesh.
- Date of Birth : 31<sup>st</sup> December, 1986.
- Sex : Male
- Passport Number : B00136658(New), BN0827261(Old)
- Marital Status : Married
- Blood Group : o(+ve)
- Nationality : Bangladeshi (by birth)
- Religion : Islam (Sunni)

## REFERENCES

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