MD. ASLAM HOSSAIN

Assistant Professor
Department of Mathematics
Pabna University of Science and Technology (PUST)
Pabna-6600, Bangladesh

CONTACT DETAILS

Office Address
Room No. 217(B), 1st Floor
Academic Building-03
Dept. of Mathematics, PUST
Pabna-6600, Bangladesh

Phone
+8801747-102009

Email
aslam.math@pust.ac.bd

Links
↗ PUST Faculty Profile
↗ Google Scholar
↗ Research Gate

BIBLIOMETRICS

Google Scholar (July, 2026)

67 Citations	**5** h-index
14 Papers	**3** i10-index

Journal Distribution

- Q1 Journals: 5 articles
- Q2 Journals: 5 articles
- Peer Reviewed: 4 articles
- Submitted: 4 articles

RESEARCH INTERESTS

- Computational Fluid Dynamics
- Heat and Mass Transfer
- Non-linear Dynamics
- Mathematical Biology
- Numerical Analysis
- Machine Learning

◈ PERSONAL STATEMENT

A mathematics faculty member and researcher at Pabna University of Science and Technology (PUST), Bangladesh, with specialization in Computational Fluid Dynamics, heat and mass transfer, magneto-hydrodynamic (MHD) convection, entropy generation, and nanofluid dynamics in complex geometries. Skilled in finite element modelling using COMSOL Multiphysics, with additional experience in incorporating Artificial Intelligence and Machine Learning techniques into computational research frameworks. Have served as principal investigator on multiple nationally funded research projects under the University Grants Commission (UGC) of Bangladesh, demonstrating the capacity to lead and sustain an independent research agenda. Research findings have been published in several peer-reviewed international journals, including Q1 and Q2-indexed publications. Currently seeking a fully funded doctoral research opportunity to further develop research expertise and contribute to the advancement of applied and computational mathematical sciences.

◈ EDUCATION

2016 – 2017 M.S. (Thesis) in Mathematics. GPA: 3.88 / 4.00 (First Class Third)

University of Barishal, Barishal-8254, Bangladesh

- **Thesis:** Effects of Natural Convection on 2D Incompressible Flow in a Non-inclined and an Inclined Square Cavity of Uniformly and Non-uniformly Heated Walls
- **Key Courses:** Fluid Dynamics, Magneto-hydrodynamics, Advanced Numerical Analysis, Dynamical Systems
- **Award:** Dean's Award 2017, awarded by the faculty in recognition to the excellence result.
- **Fellowship:** NST Fellowship, awarded by the Ministry of Science and Technology, Bangladesh to support thesis work financially.

2012 – 2016 B.S. (Honours) in Mathematics. CGPA: 3.94 / 4.00 (First Class First)

University of Barishal, Barishal-8254, Bangladesh

- **Project:** A Review of Solution Techniques of Linear Fredholm Integral Equations of Second Kind
- **Key Courses:** Calculus, Basic Statistics & Probability, Linear Algebra, Real & Complex Analysis, Ordinary & Partial Differential Equations, Numerical Analysis, Mechanics, Abstract Algebra, Topology, Tensor Analysis, Mathematical Methods, Functional Analysis, Differential Geometry, Mathematical Modeling in Biology, Hydrodynamics
- **Awards:**

(i) Prime Minister Gold Medal 2018, highest academic honor awarded by the UGC, Bangladesh.

(ii) Dean's Award 2016, awarded by the faculty in recognition to the excellence result.

- **Scholarship:** UGC Merit Scholarship 2016, awarded by the Ministry of Education, Bangladesh.

2010 – 2012 HSC (Higher Secondary Certificate). GPA: 5.00 / 5.00 (A+ in all subjects)
Government Syed Hatem Ali College, Barishal, Bangladesh

2009 – 2010 SSC (Secondary School Certificate). GPA: 5.00 / 5.00 (A+ in all subjects)
Hijaltala Moulavir Hat Secondary School, Barishal, Bangladesh

TECHNICAL SKILLS

Simulation & Modeling
- COMSOL Multiphysics
- Mathematica · Maple

Programming Languages
- Python · MATLAB · R
- FORTRAN

Data & Visualization
- MAXQDA
- Tecplot
- OriginLab

LANGUAGES PROFICIENCY

- Bengali — Native
- English — Fluent

PROFESSIONAL MEMBERSHIP

Bangladesh Mathematical Society (BMS)
Life Member · ID: Aa-1268

HONOURS & AWARDS

- Prime Minister Gold Medal-2018
  UGC, Bangladesh
- NST Fellowship (2018-19)
  Ministry of Science & Tech.
- Dean's Award 2017 (M.Sc.)
  University of Barishal
- UGC Merit Scholarship-2016
  Ministry of Education
- Dean's Award 2016 (B.Sc.)
  University of Barishal
- Champion: 9th National UMO
  Regional (Khulna) Round, 2017
- 2nd Runner-Up: 8th National UMO
  Final Round, 2016
- 2nd Runner-Up: 8th National UMO
  Regional (Khulna) Round, 2016

◈ SELECTED PUBLICATIONS

[Q1] Thermal performance and entropy assessment of a nanofluid-filled wavy cavity utilizing finite-element modeling approach and artificial intelligence
Md. Nur Alam, ***Md. Aslam Hossain,*** *Shams Forruque Ahmed, Tanmoy Bairagi, Md. Rafiquzzaman Rafi, Mahmmoud M. Syam (2026).* International Journal of Thermofluids (Elsevier) · Cite Score: 11 · Q1 (SCOPUS). DOI: https://doi.org/10.1016/j.ijft.2026.101643

[Q2] Optimal Control and Evolutionary Behavior in a Two-Layer Epidemic Model with Travel Restriction and Social Distancing
M.A.H. Sajib, Md. Rajib Arefin, ***Md. Aslam Hossain****, Jun Tanimoto (2026).* Physical Review E (American Physical Society), Vol. 113, 044307 · Impact Factor: 2.4 · Cite Score: 4.1 · Q2. (SCOPUS, SCIE) DOI: 10.1103/wryv-51zm

[Q2] Finite Element Analysis of Natural Convection and Entropy Generation in a T-Shaped Cavity with an Octagonal Block
Sadia Islam, Md. Nur Alam, ***Md. Aslam Hossain****, M.K.A. Mitta, S.F. Ahmed (2025).* Journal of Taibah University for Science (Taylor & Francis), Vol. 19 · Impact Factor: 3.6 · Cite Score: 6.8 · Q2 (SCOPUS, SCIE). DOI: https://doi.org/10.1080/16583655.2025.2573594

[Q1] MHD Mixed Convection and Entropy Generation Inside a Square Wavy Cavity with a Cone Heater
Sadia Islam, Md. Nur Alam, ***Md. Aslam Hossain****, Mst. Kakoly Akter Mita, Shams Forruque Ahmed (2025).* International Communications in Heat and Mass Transfer (Elsevier), 109734 · Impact Factor: 6.2. Cite Score: 8.8 · Q1 (SCOPUS, SCIE). DOI: https://doi.org/10.1016/j.icheatmasstransfer.2025.109734

[Q2] Soliton Solutions, Bifurcation, Sensitivity and Chaotic Analysis of the Nonlinear Combined Kairat-II-X Wave Model
Reaz Hossain, Md. Sagib, ***Md. Aslam Hossain****, S.M. Rayhanul Islam (2025).* Physics Letters A (Elsevier)· Impact Factor: 2.7 · Cite Score: 4.2 · Q2 (SCOPUS, SCIE).
DOI: https://doi.org/10.1016/j.physleta.2025.131010

[Q1] Impacts of Nanoparticle Shape and Periodic Heating on Entropy Generation Inside a Tilted Nanofluid-Filled Rectangular Cavity
Md. Aslam Hossain*, Md. Rafiqul Islam, Md. Nur Alam, Md. Sagib, M.A.H. Sajib, Chinmayee Podder, Bijan Krishna Saha, Md. Jakir Hossen (2025).* International Journal of Thermofluids (Elsevier)· Cite Score: 11 · Q1 (SCOPUS). DOI: https://doi.org/10.1016/j.ijft.2025.101424

[Q2] Modelling and Theoretical Overview of Casson Fluid Flow Through a Stretching Sheet with Variable Viscosity and Sinusoidal Boundary Conditions
Rafiqul Islam, ***Aslam Hossain****, Rajib Biswas, Mehedy Hasan, B.M. Jewel Rana, Habibullah Habibullah, Mohammad Afikuzzaman (2025).* International Journal of Ambient Energy (Taylor & Francis), Vol. 46, No. 1, 2539139 · Cite Score: 7.2 · Q2 (SCOPUS).
DOI: https://doi.org/10.1080/01430750.2025.2539139

[Q2] Thermal Performance Enhancement in a Hexagonal Cavity Filled with Hybrid Nanofluid and a Steering-Shaped Insertion
Bijan Krishna Saha, Goutam Barai, Nithan Majumdar, ***Md. Aslam Hossain****, Goutam Saha, Suvash C. Saha (2025).* Frontiers in Energy Research (Frontiers Media SA), Vol. 13: 1602241 · Impact Factor: 2.4 · Cite Score: 6.3 · Q2. DOI: https://doi.org/10.3389/fenrg.2025.1602241

[Q1] Enhanced Thermal Efficiency on Mixed Convection Flow of TiO_2-Water Nanofluid Inside a Double Lid-Driven Zigzag Cavity with and without Heated Obstacles Insertion
Md. Aslam Hossain*, M.A.H. Sajib, Md. Sagib, Md. Rafiqul Islam, Goutam Barai, Chinmayee Podder, Bijan Krishna Saha (2025).* International Journal of Thermofluids (Elsevier) · Cite Score: 11 · Q1 (SCOPUS). DOI: https://doi.org/10.1016/j.ijft.2024.101040

[Q1] On Traveling Wave Solutions with Stability and Phase Plane Analysis for the Modified Benjamin-Bona-Mahony Equation
Md. Sagib, ***Md. Aslam Hossain****, Bijan Krishna Saha, Kamruzzaman Khan (2024).* PLOS ONE (Public Library of Science), Vol. 19(7) · Impact Factor: 2.9 · Q1 (SCOPUS, SCIE).
DOI: https://doi.org/10.1371/journal.pone.0306196

◈ RESEARCH GRANTS & FUNDED PROJECTS

Fiscal Year: 2025–2026 (Completed)

Optimization of MHD Mixed Convection Heat Transfer with Entropy Generation and Heatline Visualization Inside a Nanofluid-Filled Novel Double Lid-Driven Heart-Shaped Cavity with Ring-Shaped Heat Source Using FEM along with AI Prediction

Funded by University Grants Commission (UGC) of Bangladesh · PUST. Project Value: BDT 4,50,000. Position in the project: Principal Investigator

Fiscal Year: 2024–2025 (Completed)

Finite Element Analysis of Entropy Generation Due to Mixed Convective Flow of Aluminium Oxide-Water Nanofluid Inside a Vented Cavity

Funded by University Grants Commission (UGC) of Bangladesh · PUST. Project Value: BDT 1,90,000. Position in the project: Principal Investigator

Fiscal Year: 2023–2024 (Completed)

Entropy Generation During Natural Convective Flow of Titanium Oxide-Water Nanofluid Inside an Inclined Rectangular Cavity: Non-Uniform Heating Case

Funded by University Grants Commission (UGC) of Bangladesh · PUST. Project Value: BDT 2,00,000. Position in the project: Principal Investigator

◈ PROFESSIONAL & ACADEMIC EXPERIENCES

1. Pabna University of Science and Technology (PUST), Pabna, Bangladesh

Oct 17, 2025 – Present **Assistant Professor in Mathematics**

Oct 17, 2022 – Oct 16, 2025 **Lecturer in Mathematics**

Conducted Courses: Fluid Dynamics, Geophysical Fluid Dynamics, Hydrodynamics, Mechanics, Complex Analysis, Geometry of Two Dimensions, Linear Algebra, Discrete Mathematics & Graph Theory, Differential Geometry, Ring Theory, Number Theory, Fundamentals of Mathematics.

2. BAF Shaheen College Dhaka (BAFSD), Tejgaon, Dhaka, Bangladesh

Dec 10, 2019 – Oct 16, 2022 **Lecturer in Mathematics**

- Delivered college-level mathematics instruction with emphasis on analytical reasoning and problem-solving.
- Completed multiple institutional workshops on effective teaching strategies and professional skill development.

◈ ADMINISTRATIVE EXPERIENCES

Oct 10, 2024 – Present **Assistant Director**.

Office of the Student Advisor, PUST, Pabna, Bangladesh

◈ SUPERVISION

Postgraduate (M.Sc.) Supervision

- **Nawshin Afroz Sima** (ID: 190320, Session: 2022–23); Title: AI-Assisted CFD Framework and Entropy Optimization of MHD Mixed Convection Steady and Unsteady Flows for Passive Ventilation and Thermal Regulation Systems. (Ongoing, Supervisor)
- **Sadia Islam** (ID: 180325, Session: 2021–22); Title: Finite-Element Analysis of Entropy Generation and Heat Transfer in Complex Cavities with Internal Obstacles under Natural and MHD Mixed Convection. (Completed, Co-Supervisor)

Undergraduate (B.Sc.) Supervision: 9 completed on heat transfer analysis inside cavity using FEM implemented in COMSOL Multiphysics and 3 are working on machine learning.

◈ VOLUNTARY ACTIVITIES

EFAST 2026 — International Conference on Emerging Frontiers in Advanced Sciences and Technologies 2026

Jointly organized by PUST & Centre of Excellence for Advance Computing, UniMAP, Malaysia on the date of 27–28 June 2026

- Member, Transportation and Accommodation Committee
- Member, Venue Management Committee
- Secretary, Volunteer Management Committee

◈ PROFESSIONAL TRAINING

- **Training Name:** Professional Development Training for University Faculty
- **Offering Institute:** University Teachers' Training Academy (UTTA), Bangladesh
- **Supervision:** University Grants Commission (UGC), Bangladesh (HEAT Project)
- **Organization:** Bangladesh Open University (BOU), Gazipur, Bangladesh
- **Duration:** Oct 12, 2025 – Feb 5, 2026 · Trainee ID: UHFT-250032
- **Overview:** Approximately a four-month long training covering teaching, learning, assessment, research, good governance, ethics, administration, and quality assurance etc.

◈ ATTENDED CONFERENCES, WORKSHOP AND WEBINAR

- International Conference on Emerging Frontiers in Advanced Sciences and Technologies 2026 (EFAST 2026), PUST, Bangladesh, 27–28 June 2026.
- 20th International Mathematics Conference 2017, Dept. of Mathematics, University of Dhaka, 08–10 December 2017.
- Webinar on "Mathematics and its Applications", Dept. of Mathematics, CUET in collaboration with Bangladesh Mathematical Society, 3 October 2020.
- Workshop on "Effective Teaching & Professional Development", BAF Shaheen College Kurmitola, 3–5 January 2021.
- Workshop on "Effective Teaching & Professional Skill", BAF Shaheen College Kurmitola, 18–19 March 2020.

◈ REFERENCES

Dr. Md. Fazlul Hoque
Professor & Chairman
Dept. of Mathematics, PUST,
Pabna-6600, Bangladesh
✉ fazlulmath@pust.ac.bd
✆ +8801773961797

Dr. Bijan Krishna Saha
Assoc. Professor & Chairman
Dept. of Mathematics, University of Barishal, Bangladesh
✉ bksaha@bu.ac.bd
✆ +8801935-839536

Chinmayee Podder
Associate Professor
Dept. of Mathematics, University of Barishal, Bangladesh
✉ chinmayeepodder1@gmail.com
✆ +8801816-298577