

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](#)

RESEARCH INTERESTS

- ◆ Computational Fluid Dynamics
- ◆ Heat and Mass Transfer
- ◆ Nanofluid Transport Modeling
- ◆ Non-linear Dynamics
- ◆ Mathematical Biology
- ◆ Numerical Methods for PDE
- ◆ Scientific Machine Learning

BIBLIOMETRICS

Google Scholar (Aug., 2026)

69

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

◆ 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

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

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.

◆ SELECTED JOURNAL PUBLICATIONS

[1] [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, Mahmoud M. Syam

International Journal of Thermofluids (Elsevier), (2026) · Cite Score: 11 · Q1 (SCOPUS Indexed)

TECHNICAL SKILLS

Simulation & Modeling

- ◆ COMSOL Multiphysics
- ◆ Mathematica · Maple

Programming Languages

- ◆ Python · MATLAB · R
- ◆ FORTRAN

Data & Visualization

- ◆ MAXQDA
- ◆ Tecplot
- ◆ Origin Lab

RELEVANT TRANSFERABLE SKILLS

- ◆ Porous Media Flow Modeling
- ◆ Predictive/Reduced-Order Modeling
- ◆ Physics Informed Neural Network
- ◆ High-Order Numerical Schemes
- ◆ Fluid Structure Interaction Modeling
- ◆ Open Source CFD/PDE Solver (OpenFOAM, FEniCS)

UNDERGRADUATE MATH OLYMPIAD

🏆 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

[2] [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
Physical Review E (American Physical Society), (2026). Vol. 113, 044307 · Impact Factor: 2.4 · Cite Score: 4.1 · Q2 (SCOPUS & SCIE Indexed)

[3] [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
Journal of Taibah University for Science (Taylor & Francis), (2025). Vol. 19 · Impact Factor: 3.6 · Cite Score: 6.8 · Q2 (SCOPUS & SCIE Indexed)

[4] [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
International Communications in Heat and Mass Transfer (Elsevier), (2025). 109734 · Impact Factor: 6.2. Cite Score: 8.8 · Q1 (SCOPUS & SCIE Indexed)

[5] [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
Physics Letters A (Elsevier), (2025) · Impact Factor: 2.7 · Cite Score: 4.2 · Q2 (SCOPUS & SCIE Indexed)

[6] [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
International Journal of Thermofluids (Elsevier), (2025) · Cite Score: 11 · Q1 (SCOPUS Indexed)

[7] [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 Afkuzzaman
International Journal of Ambient Energy (Taylor & Francis), (2025). Vol. 46, No. 1, 2539139 · Cite Score: 7.2 · Q2 (SCOPUS Indexed)

[8] [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
Frontiers in Energy Research (Frontiers Media SA), (2025). Vol. 13: 1602241 · Impact Factor: 2.4 · Cite Score: 6.3 · Q2

[9] [Enhanced Thermal Efficiency on Mixed Convection Flow of TiO2-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
International Journal of Thermofluids (Elsevier), (2025) · Cite Score: 11 · Q1 (SCOPUS Indexed)

[10] [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
PLOS ONE (Public Library of Science), (2024). Vol. 19(7) · Impact Factor: 2.9 · Q1 (SCOPUS & SCIE Indexed)

◆ SUBMITTED MANUSCRIPTS

[1] AI-assisted CFD framework and thermal management of magnetically controlled nanofluid systems with irreversibility analysis using multiple nanoparticles and base fluids in bio-inspired heart-shaped cavity

Md. Aslam Hossain, Muhammad Ziaul Haque, Sadia Islam, Md. Sagib, G.M. Zahidul Islam

LANGUAGES
PROFICIENCY

- ◆ Bengali: Native
- ◆ English: Fluent

AFFILIATED
SOCIETIES

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

[2] Entropy generation optimization and heatline visualization for enhanced MHD mixed convection inside a Cu-Ethylene glycol nanofluid filled truncated prismatic cone with a heated rotating cylinder

Sadia Islam, Muhammad Ziaul Haque, **Md. Aslam Hossain**, Md. Nur Alam

[3] Thermal Performance Enhancement in Wavy Enclosures Using Strategically Positioned Rectangular Blocks under Periodic Heating Conditions for Thermal Management Applications

Md Shohanur Rahman, Marzia Akter Mishu, **Md. Aslam Hossain**, Md. Azizur Rahman, G.M. Zahidul Islam, Md. Rezvi Hossain, Aftara Mehejabin

[4] Numerical Analysis for the Impacts of an Embedded Circular Heat Source on Entropy Generation Inside a Rectangular Cavity

Rukaya Parven, Sadia Islam, Ashikur Rahman, **Md. Aslam Hossain**, Md. Nur Alam

◆ RESEARCH GRANTS AWARDED

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 through PUST.
Project Value: BDT 4, 50,000 (approx. \$3639). 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 through PUST.
Project Value: BDT 1, 90,000 (approx. \$1536). 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 through PUST.
Project Value: BDT 2, 00,000 (approx. \$1617). Position in the project: Principal Investigator

◆ PROFESSIONAL & ACADEMIC EXPERIENCES

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.

◆ ADMINISTRATIVE EXPERIENCES

Oct 10, 2024 – Present Assistant Director.

Office of the Student Advisor, PUST, Pabna, Bangladesh

◆ SUPERVISION

Postgraduate (M.Sc.) Supervision

[1] **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)

[2] **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:

12 projects are completed on heat transfer analysis inside cavity using FEM implemented in COMSOL Multiphysics and 7 projects on machine learning and data science are going on.

◆ 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
- ▶ **Areas:** 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