



CURRICULUM VITAE OF DR. MD. SHARIFUL ALAM

1. Personal Information

Name : Dr. Md. Shariful Alam

Date of Birth : 28 January 1971

Place of Birth : Naogaon, Bangladesh

Nationality : Bangladeshi

Civil Status : Married with two children

Mailing Address : **Professor**
: Department of Mathematics
: Jagannath University
: Dhaka-1100
: Bangladesh
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2. Education Information

2009 : Ph. D. in Applied Mathematics
University of Dhaka, Bangladesh

Major Field of Study : Fluid Dynamics

Title of Dissertation : Convective heat and mass transfer flow with
thermophoresis

Supervisor : Prof. Dr. Mohammad Mansur Rahman

2004 : M. Phil. in Mathematics
Bangladesh University of Engineering and Technology
(BUET), Dhaka, Bangladesh

Major Courses : Fluid Dynamics-I, Fluid Dynamics-II,
Special Functions and Integral Transforms,
Partial Differential Equations, Similarity Analysis,
Perturbation and Approximation Theory,
Advanced Numerical Methods

Major Field of Study : Fluid Dynamics
Title of Dissertation : Thermal-diffusion and diffusion-thermo effects on magnetohydrodynamic heat and mass transfer

Supervisor : Prof. Dr. Md. Abdul Maleque

1994 : M. Sc. in Applied Mathematics
University of Dhaka, Bangladesh

Result : First Class, 5th Position

Major Courses : Laminar Boundary Layer Theory,
Quantum Mechanics, Differential Geometry,
Theory of Relativity, Operations Research

1993 : B. Sc. Honors in Mathematics
University of Dhaka, Bangladesh

Result : First Class, 3rd Position

Major Courses : Basic Algebra, Calculus of One Variable, Analytic
Geometry, Linear Algebra, Calculus of Several
Variables, Ordinary Differential Equations, Real
Analysis-I, Real Analysis-II, Complex Analysis,
Abstract Algebra, Differential Geometry & Tensor
Calculus, Methods of Applied Mathematics,
Mechanics, Hydrodynamics

Minor Courses : Basic Statistics, Probability, Sampling Techniques,
Sampling Distributions, Properties of Matter,
Electricity & Magnetism, Waves & Optics

Ph. D. Thesis Highlights: My Ph. D. thesis modeled convective heat and mass transfer flow along a permeable inclined surface with thermophoresis and various flow conditions. The governing non-linear partial differential equations have been reduced to a set of non-linear ordinary differential equations by introducing similarity transformations. The resulting local similarity equations for both steady and unsteady flows have been solved numerically by applying Nachtsheim–Swigert shooting iteration technique along with sixth order Runge-Kutta integration scheme. The results of these solutions were presented graphically as well as in tabulated form and discussed from the physical point of view.

M. Phil. Thesis Highlights: My M. Phil. thesis investigated thermal-diffusion and diffusion-thermo effects on magnetohydrodynamic heat and mass transfer flow along vertical flat surface for both steady and unsteady cases. Hydrogen-air mixture has been taken as the non-chemically reacting fluid pairs in the analysis. Numerical results were presented graphically as well as in tabulated form and discussed from the physical point of view. From the numerical simulation it was found that the flow, temperature, and concentration fields significantly influenced by the thermal-diffusion and diffusion-thermo effects.

3. Employment Information

(i) Teaching Experience outside Bangladesh

(Fall-2014 and Spring-2015) Visiting Faculty, Department of Mathematics and Statistics, College of Science, Sultan Qaboos University, Muscat, Sultanate of Oman

(ii) Teaching Experience inside Bangladesh

13 August 2015 - till date	Professor of Mathematics Jagannath University, Dhaka, Bangladesh
23 January 2015 - 12 August 2015	Associate Professor of Mathematics Jagannath University, Dhaka, Bangladesh
03 May 2012-20 September 2014	Associate Professor of Mathematics Jagannath University, Dhaka, Bangladesh
15 April 2010-02 May 2012	Associate Professor of Mathematics Dhaka University of Engineering and Technology of Bangladesh
01 April 2003-14 April 2010	Assistant Professor of Mathematics Dhaka University of Engineering and Technology of Bangladesh
17 May 1999-31 March 2003	Lecturer of Mathematics Dhaka University of Engineering and Technology of Bangladesh

4. Awards and Recognition

- **Deanship of Research Award for Most Active Research Group on the title “Modelling of Nanofluid Flows” from Sultan Qaboos University, Muscat, Oman, 2019.**
- Post-Doctoral Research Fellowship funded by The Research Council of Oman (From September 2015 to August 2016).
- Prime Minister Ph. D. Fellowship funded by The People’s Republic of Bangladesh (2006).
- University Grants Commission (UGC) Scholarship funded by The People’s Republic of Bangladesh (2005).

5. Teaching and Learning

I have gained **21 years of teaching experience** in **two** different Universities in Bangladesh and **one foreign University in Sultan Qaboos University, Muscat, Oman as a visiting Faculty**. My responsibilities included teaching in undergraduate and postgraduate mathematics courses, organizing seminars and conducting quality research. I have taught many courses in mathematics, ranging from the first year undergraduate to the M. Sc., M. Phil. and Ph. D. level.

(a) Teaching outside Bangladesh

During my visiting Faculty position (Fall-2014 and Spring-2015) at **Sultan Qaboos University, Muscat, Oman**, I have taught the following courses:

(i) Calculus-I (MATH 2107) and (ii) Differential Equations and Applications for Engineers (MATH 4174).

(b) Teaching at Dhaka University of Engineering and Technology (DUET), Jagannath University.

●**Undergraduate(B.Sc.) level:** Engineering Mathematics, Calculus (Differential, Integral and Advanced), Differential Equations (Ordinary and Partial), 2D and 3D Geometry, Linear Algebra, Mathematical Methods, Numerical Analysis, Vector Analysis, Complex Analysis.

●**M. Sc. level:** Fluid Dynamics-I, Fluid Dynamics-II.

●**M. Phil./Ph. D. level:** Laminar Boundary Layer Theory, Advanced Numerical Methods.

6. Research Interests

- Nano-Fluidic Phenomena
- Mathematical Fluid Mechanics
- Heat and Mass Transfer
- Non-Newtonian Fluids
- Magnetohydrodynamics
- Thermophoresis
- Fourier Analysis

7. Supervision

i) Supervision of Ph. D. and M. Phil. Thesis Students at the Jagannath University, Dhaka

At present the following **one Ph. D.** student and **two M. Phil.** students are doing their research works under my direct supervision:

1. Md. Nurul Huda: Biomagnetic Fluid Flow and Heat Transfer in a Physiological Vascular System, Ph.D. research started on February, 2021.
2. Md. Mojammel Haque: Numerical Investigations of Convective Heat Transfer in an Enclosure Filled with Nanofluids, M. Phil. research started on June, 2018.
3. Sajia Sultana Keya: Numerical Simulation of Natural Convective Heat Transfer of Nanofluids inside an Enclosure, M. Phil. research started on June, 2019.

ii) Supervision of M. Sc. Thesis Students at the Jagannath University, Dhaka

From this Department, the following **12 M. Sc. students** have successfully completed their M. Sc. thesis works under my direct supervision. From their M. Sc. thesis works 06 (six) research papers have already published in the international journals.

(Student name, Thesis title, Year of degree obtained and their work place)

1. **Mst. Asiya Khatun:** Effects of variable fluid properties and thermophoresis on unsteady forced convective flow along a permeable stretching/shrinking wedge with variable Prandtl number and variable Schmidt number, Department of Mathematics, Jagannath University, Dhaka, 2014 (Working as an Assistant Professor at the Department of Mathematics, Jagannath University, Dhaka).
2. **Mohammad Mahabubur Rahman:** Unsteady MHD forced convective heat and mass transfer flow due to porous rotating disk with thermophoresis, Department of Mathematics, Jagannath University, Dhaka, 2014 (Working as a Lecturer at the Department of Electrical and Electronic Engineering, Sonargaon University, Dhaka, and he has started his PhD research work at the Department of Mathematics and Statistics, Texas Tech University, USA from Fall-2018).
3. **Farhana Sarower:** Unsteady forced convective flow of Nanofluid along a porous wedge with variable suction, Department of Mathematics, Jagannath University, Dhaka, 2014 (Working as a PhD Research Student at the Department of Mathematics, New Mexico State University, USA).
4. **Tarikul Islam:** Unsteady Forced convection flow of a micropolar fluid along a permeable wedge with convective surface boundary condition, Department of Mathematics, Jagannath University, Dhaka, 2014 (Working as a Lecturer at the Department of Mathematics, Bangabandhu Sheikh Mujibur Rahman Science and Technology University, Gopalganj).
5. **Nayan Kumar Poddar:** Magnetohydrodynamic unsteady forced convective flow due to porous rotating disk with variable fluid properties and variable Prandtl number, Department of Mathematics, Jagannath University, Dhaka, 2014 (Working as a Lecturer at the Department of Mathematics, Notre Dame College, Dhaka).
6. **Md. Mojammel Haque:** Convective flow of nanofluids along a porous wedge with second order slip, Department of Mathematics, Jagannath University, Dhaka, 2015 (Working as a Lecturer at the Department of Mathematics, Jagannath University, Dhaka).
7. **Sajia Sultana Keya:** Numerical Investigations of Natural Convection Heat Transfer in Nanofluid Filled Quarter circular Enclosure using Nonhomogeneous Dynamic Model,

Department of Mathematics, Jagannath University, Dhaka, 2017 (Miss Keya got AF Mujibur Rahman Foundation Gold medal and Prime Minister Gold Medal for her outstanding result in B. Sc. (Hons.) Level; At present She is working as a Lecturer at the Department of Civil Engineering, Dhaka International University, Dhaka).

8. **Elachi Akter:** Natural Convective Heat Transfer Enhancement in a Triangular Enclosure Filled with Nanofluid using Local Thermal Non-Equilibrium Model, Department of Mathematics, Jagannath University, Dhaka, 2017 (Miss Akter got 3.99 CGPA out of 4.00 in her M. Sc. Level and working as a part-time teacher in a private University).

9. **Md. Mehedi Hasan Sajal:** Heat Transfer Enhancement of Nanofluids in an Enclosure using One-component Thermal Equilibrium Model, Department of Mathematics, Jagannath University, Dhaka, 2017 (At present he is working as a Bank Officer in Rupali Bank, Dhaka).

10. **Sharmin Akter:** Numerical Study of Hydromagnetic Convective Heat Transfer Flow in a Semi-circular Enclosure Filled with Nanofluids using Two-Component Model, Department of Mathematics, Jagannath University, Dhaka, 2017 (At present She is working as a Part-time Lecturer at the Department of Computer Science and Engineering, Dhaka International University, Dhaka).

11. **Jannatul Ferdousy:** Convective Heat Transfer Enhancement in a Semi-circular Solar Thermal Collector Filled with Nanofluids using Nonhomogeneous Dynamic Model, Department of Mathematics, Jagannath University, Dhaka, 2018.

12. **Toma Rani Saha:** Periodic Magnetic Field Effect on Convective Heat Transfer inside a Trapezoidal Cavity Filled with Nanofluids, Department of Mathematics, Jagannath University, Dhaka, 2019.

*** At present One MS student is doing his research work under my direct supervision on "Developing of Mathematical Model on Convective Heat Transfer with Nanofluids".**

iii) Supervision of B. Sc. Hons. Project Students at the Jagannath University, Dhaka

From this Department, the following **20 B. Sc. Hons. students** have successfully completed their Hons. Project works under my direct supervision. From their B. Sc. Hons. project works 01 (one) research paper has already published in the international journals.

1. **Md. Mojammel Haque:** Unsteady MHD free convective heat transfer flow along a porous flat plate with internal heat generation/absorption, Department of Mathematics, Jagannath University, 2014 (Working as a Lecturer at the Department of Mathematics, Jagannath University, Dhaka).
2. **Shohan Lal Hore:** Local similarity solution of unsteady free convective heat transfer flow with viscous dissipation and Joule heating, Department of Mathematics, Jagannath University, 2014
3. **Md. Fuad Miah:** Fourier series and Gibbs phenomena, Department of Mathematics, Jagannath University, 2014 (At present he is working in BCS Cadre Service).
4. **Md. Asraful Islam:** Half range Fourier sine/cosine series and application of Parseval's identity, Department of Mathematics, Jagannath University, 2014 (Working as a Lecturer at the Department of Mathematics, Jagannath University, Dhaka).
5. **Anwar Mahmud Chowdhury:** Application of Fourier series in solving differential equation, Department of Mathematics, Jagannath University, 2014.
6. **Maksuda Akter:** Analysis of Gibbs Phenomena for Half Range Fourier series of a Parabolic wave Function, Department of Mathematics, Jagannath University, 2017.
7. **Md. Maruf Hossain:** Analysis of Gibbs Phenomena for Half Range Fourier series of a Parabolic wave Function, Department of Mathematics, Jagannath University, 2017.
8. **Saidur Rahman:** Analysis of Gibbs Phenomena for Half Range Fourier series of a Parabolic wave Function, Department of Mathematics, Jagannath University, 2017.
9. **Nayeem Sarder:** Solution of Ordinary and Partial Differential Equations Using Fourier Series, Department of Mathematics, Jagannath University, 2017.
10. **Fatima Tasnim Hoque:** Solution of Ordinary and Partial Differential Equations Using Fourier Series, Department of Mathematics, Jagannath University, 2017.
11. **Mohammad Shariful Islam:** Solution of Ordinary and Partial Differential Equations Using Fourier Series, Department of Mathematics, Jagannath University, 2017.

12. **Sebak Biswas**: Gibbs Phenomena in a Fourier Series of a Square Wave Function, Department of Mathematics, Jagannath University, 2017.

13. **Shehab Uddin Mridha**: Gibbs Phenomena in a Fourier Series of a Square Wave Function, Department of Mathematics, Jagannath University, 2017.

14. **Md. Reyajul Islam** : Gibbs Phenomena in a Fourier Series of a Square Wave Function, Department of Mathematics, Jagannath University, 2017.

15. **Mitali Biswas**: Analysis of Gibbs Phenomena for Fourier Series and its Applications in Solving One-Dimensional Heat Equation, Department of Mathematics, Jagannath University, 2018.

16. **Md. Ali Reza Razu**: Analysis of Gibbs Phenomena for Fourier Series and its Applications in Solving One-Dimensional Heat Equation, Department of Mathematics, Jagannath University, 2018.

17. **Md. Ashraful Alam**: Analysis of Gibbs Phenomena for Fourier Series and its Applications in Solving One-Dimensional Heat Equation, Department of Mathematics, Jagannath University, 2018.

18. **Md. Al-Amin**: Half Range Fourier Series of Exponential Function and its Applications in Solving One-Dimensional Wave Equation,, Department of Mathematics, Jagannath University, 2018.

19. **Zarin Tasnim**: Half Range Fourier Series of Exponential Function and its Applications in Solving One-Dimensional Wave Equation,, Department of Mathematics, Jagannath University, 2018.

20. **Md. Atikur Rahman**: Half Range Fourier Series of Exponential Function and its Applications in Solving One-Dimensional Wave Equation,, Department of Mathematics, Jagannath University, 2018.

*** At present 02(two) B. Sc. Hons. students have been doing their research works under my direct supervision on "Modeling the Human Heartbeats and Human Breathing Using Fourier Analysis".**

8. Curriculum Development at the Jagannath University, Dhaka

At the Jagannath University I fully revised the M. Sc. Mathematics course MTH 5211: Laminar Boundary Layer Theory with the new title MTH 5211: Fluid Dynamics. The course outlines as well as the course learning outcomes were developed. I also developed a new course MTH 5615: Magneto hydrodynamics along with the text books for the M. Sc. in Applied Mathematics.

9. Administration and Service

- Served as a course coordinator as well as member of different examination committees at both graduate and undergraduate levels in the Department of Mathematics, Jagannath University, Dhaka, Bangladesh (2012-till date).
- Served as a member of Deans Executive Committee at Jagannath University, Dhaka, Bangladesh (2012-till date).
- Served as a member of different examination committees at both graduate and undergraduate levels in the Department of Mathematics, Dhaka University of Engineering and Technology (DUET), Bangladesh (2009-2012).
- Served as a member of Academic Council Committee at Dhaka University of Engineering and Technology (DUET), Bangladesh (2010-2012).
- Served as a member secretary of Deans Executive Committee at Dhaka University of Engineering and Technology (DUET), Bangladesh (2010-2012).

10. Research Collaborations

I am collaborating with several researchers from Japan, USA, South Korea, Romania, Oman, Kuwait and Bangladesh. A significant number of papers have come out from my collaborative research. During my 20 years of teaching and research I have published **64 research papers** with many internationally recognized collaborators.

11. Editorial Board Member in International Journals

- I am one of the editorial board members of the "International Journal of Advanced in Applied Mathematics and Mechanics", published from India.

12. Reviewer for the Refereed International Journals

As a result of my international standing in quality research, I have been honored with reviewing significant number of papers from several international journals listed below;

- Sultan Qaboos University Journal for Science
- International Journal of Numerical Methods in Fluids
- International Journal of Numerical Methods for Heat and Fluid Flow
- Chemical Engineering Communications
- International Journal of Heat and Mass Transfer

- International Communications in Heat and Mass Transfer
- International Journal of Energy and Technology
- International Journal of Heat and Technology
- Progress in Computational Fluid Dynamics
- Journal of Naval Architecture and Marine Engineering
- Transport in Porous Media

13. Project Report/Thesis Examination

- Member of the Examination committee of a M. Phil. student in Mathematics Department of Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.
- Examined two M. Phil. Theses in Mathematics Department of Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.
- Examined **10 (Ten) M. Sc. Theses** in Mathematics in the Department of Mathematics, Jagannath University, Dhaka, Bangladesh.
- Examined **20 (Twenty) undergraduate project reports** in Mathematics in the Department of Mathematics, Jagannath University, Dhaka, Bangladesh.
- Examiner of Bangladesh Public Service Commission (BPSC), Agargaon, Dhaka.
- Examiner of National University, Gazipur, Bangladesh.
- Examiner of Mawalana Bashani University of Science and Technology, Tangail, Bangladesh.
- Examiner of Khulna University, Khulna, Bangladesh.
- Examiner of Rajshahi University, Rajshahi, Bangladesh.

14. Scholarly Achievements

My professional goals are to combine teaching and research into an effective practical experience for mathematics major students. I consider research as a tool to develop students' skills for critical thinking beyond textbooks and laboratory exercises.

I am credited with **67 journal papers**, and **6 conference papers**. In most of the papers my contributions have included the following vital components:

- (i) idea generation and exploration of new science
- (ii) construction of mathematical model
- (iii) writing the computer code
- (iv) data collection, analysis and interpretation
- (v) writing up the paper and submitting it to journal editors
- (vi) correspondence with the editors

15. Papers in Referred International Journal

[My Google Scholar Total Citation -1913, h-index-23, i 10 index-35 and Research Gate Total Citation-1546, Research Gate Reads-22269]

[1] Md. Shariful Alam, M.M. Billah, S.M.C. Hossain, S.S. Keya and M.M. Haque: MHD influence on convective heat transfer in a semi-circular cavity using

- nonhomogeneous nanofluid model, International Journal of Thermofluids, 16 (100197), 2022.
- [2] S. M. C. Hossain, M. Ferdows, M. Z. I. Bangalee and **Md. Shariful Alam**: Two-phase bio-nanofluid flow through a bifurcated artery with magnetic field interaction, International Journal of Thermofluids, 15 (100194), 2022.
- [3] S. M. Chapal Hossain, M. Ferdows, [M. S. Alam](#), M.Z.I. Bangalee, K. Memon, M.S. Islam, G. Zhao: Two-phase flow model based bubble packing algorithm for optimization of multiprobe cryosurgery. International Communications in Heat and Mass Transfer [published by Elsevier], 127 (2021) 105515.
- [4] Khadija A. Al Hassani, [M. S. Alam](#) and M. M. Rahman: Numerical Simulations of Hydromagnetic Mixed Convection Flow of Nanofluids inside a Triangular Cavity on the Basis of a Two-Component Nonhomogeneous Mathematical Model, Fluid Dynamics & Material Processing, vol. 17, no. 1, pp. 1-20, 2021.
- [5] M. A. Khatun, M. M. Rahman and [M. S. Alam](#): Heat Transfer Characteristics of Nanofluid due to a permeable Rotating Disk with Slip Effect and Thermophoresis, Science and Technology Asia, Vol. no. 24(1), pp. 1-13, 2019.
- [6] M. J. Uddin, M. M. Rahman and [M. S. Alam](#): Analysis of Natural Convective Heat Transfer in Homocentric Annuli Containing Nanofluids with Oriented Magnetic Field using Nonhomogeneous Dynamic Model, Neural Computing & Applications, vol. 30, pp. 3189-3208, 2018.
- [7] K. S. Al Kalbani, M. M. Rahman, [M. S. Alam](#), N. Al-Salti and I. A. Eltayeb: Buoyancy induced heat transfer flow inside a tilted square enclosure filled with nanofluids in the presence of oriented magnetic field, Heat Transfer Engineering [published by Taylor & Francis], vol. 39, No. 6, pp. 511-525, 2018.
- [8] S. M. Al-Weheibi, M. M. Rahman, [M. S. Alam](#) and K. Vajravelu: Numerical simulation of natural convection heat transfer in a trapezoidal enclosure filled with nanoparticles, International Journal of Mechanical Sciences [published by Elsevier], vol. 131-132, pp. 599-612, 2017.
- [9] [M. S. Alam](#): Natural convective heat transfer of Cobalt-kerosene nanofluid inside a Quarter-circular enclosure with uniform and non-uniform heated bottom wall using two-component nonhomogeneous model, Thammasat International Journal of Science and Technology, vol. 22(1), pp. 45-66, 2017.
- [10] M. J. Uddin, [M. S. Alam](#) and M. M. Rahman: Natural Convective Heat Transfer Flow of Nanofluids Inside a Quarter-Circular Enclosure Using Nonhomogeneous Dynamic Model, Arab J. Sci Eng., DOI 10.1007/s13369-016-2330-0 [published by Springer], Published online on 11 November, 2016
- [11] [M. S. Alam](#): Mathematical Modelling for Natural Convective Heat Transfer of Nanofluid inside a Prismatic Enclosure with Various Thermal Boundary Conditions, Mathematical Modelling of Engineering Problems, Vol. 3(4), pp. 162-170, 2016.
- [12] [M. S. Alam](#), M. M. Rahman, S. Parvin and K. Vajravelu: Finite Element Simulation for Heatline Visualization of Natural Convective Flow and Heat Transfer inside a Prismatic Enclosure, Int. J. Heat and Technology, Vol. 34(3), pp. 391-400, 2016.

- [13] M. J. Uddin, [M. S. Alam](#), N. Al-Salti and M. M. Rahman: Investigations of Natural Convection Heat Transfer in Nanofluids Filled Horizontal Semicircular - Annulus using Nonhomogeneous Dynamic Model, American Journal of Heat and Mass Transfer, vol. 3, No. 6, pp. 425-452, 2016.
- [14] K. S. Al Kalbani, [M. S. Alam](#) and M. M. Rahman: Finite Element Analysis of Unsteady Natural Convective Heat Transfer and Fluid Flow of Nanofluids inside a Tilted Square Enclosure in the Presence of Oriented Magnetic Field, American Journal of Heat and Mass Transfer, vol. 3, No. 3, pp. 186-224, 2016.
- [15] M. J. Uddin, K. S. Kalbani, M. M. Rahman, [M. S. Alam](#), N. Al-Salti and I. A. Eltayeb: Fundamentals of Nanofluids: Evolution, Applications and New Theory, International Journal of Biomathematics and System Biology, vol. 2, No. 1, pp. 1-32, 2015.
- [16] M. M. Rahman, [M. S. Alam](#), N. Al-Salti and I. A. Eltayeb: Hydromagnetic natural convective heat transfer flow in an isosceles triangular cavity filled with nanofluid using two-component nonhomogeneous model, International Journal of Thermal Sciences [published by Elsevier], vol. 107, pp. 272-288, 2016.
- [17] [M. S. Alam](#), Tarikul Islam and M. J. Uddin: Mathematical Modelling for Heat Transfer of a Micropolar Fluid along a Permeable Stretching/Shrinking Wedge with Heat Generation/Absorption, Mathematical Modelling of Engineering Problems, Vol. 3(1), pp. 1-9, 2016.
- [18] M. M. Rahman, [M. S. Alam](#) and M. J. Uddin: Influence of magnetic field and thermophoresis on transient forced convective heat and mass transfer flow along a porous wedge with variable thermal conductivity and variable Prandtl number, International Journal of Advanced in Applied Mathematics and Mechanics, vol. 3(4), pp. 49-64, 2016.
- [19] [M. S. Alam](#), S.M. C. Hossain and M. M. Rahman: Transient thermophoretic particle deposition on forced convective heat and mass transfer flow due to a rotating disk, Ain Shams Engineering Journal [published by Elsevier], Vol. 7, pp. 441-452, 2016.
- [20] [M. S. Alam](#), M. A. Khatun, M. M. Rahman and K. Vajravelu: Effects of variable fluid properties and thermophoresis on unsteady forced convection flow along a permeable stretching/shrinking wedge with variable Prandtl number and variable Schmidt number, International Journal of Mechanical Sciences [published by Elsevier], vol. 105, pp. 191-205, 2016.
- [21] [M. S. Alam](#), N. K. Poddar, M. M. Rahman and K. Vajravelu: Transient hydromagnetic forced convective heat transfer flow due to a porous rotating disk with variable fluid properties, American Journal of Heat and Mass Transfer, vol. 2, No. 3, pp. 165-189, 2015.
- [22] [M. S. Alam](#), Farhana Sarower, M. M. Rahman and M. J. Uddin: Effects of Thermophoresis and Brownian motion on unsteady forced convective flow of a nanofluids along a porous wedge with variable suction, Bulletin of Calcutta Mathematical Society, vol. 107 (5), pp. 393-410, 2015.

- [23] [M. S. Alam](#), Tarikul Islam and M. M. Rahman: Unsteady hydromagnetic forced convective heat transfer flow of micropolar fluid along a porous wedge with convective surface boundary condition, *International Journal of Heat and Technology*, vol. 33(2), pp.1-8, 2015.
- [24] [M. S. Alam](#), S. M. C. Hossain and M. M. Rahman: Effects of temperature dependent fluid properties and variable Prandtl number on the transient convective flow due to a porous rotating disk, *Meccanica* [published by Springer], vol. 49(10), pp. 2439-2451, 2014.
- [25] [M. S. Alam](#) and M. M. Rahman: Thermophoretic deposition effect on transient free convection hydromagnetic flow along an accelerated inclined permeable surface with time dependent temperature and concentration, *Heat Transfer-Asian Research*, vol. 43(4), pp. 352-367, 2014.
- [26] [M. S. Alam](#): Transient thermophoretic particle deposition on MHD free convective and viscous dissipation flow along an inclined surface considering Dufour-Soret effects, *International Journal of Advanced in Applied Mathematics and Mechanics*, vol. 1(3), pp. 121-134, 2014.
- [27] [M. S. Alam](#) and S. M. C. Hossain: A new similarity approach for an unsteady two-dimensional forced convective flow of a micropolar fluid along a wedge, *International Journal of Applied Mathematics and Mechanics*, vol. 9(14), pp.75 - 89, 2013.
- [28] [M. S. Alam](#) and S. M. C. Hossain: Effects of viscous dissipation and Joule heating on hydromagnetic forced convective heat and mass transfer flow of a nanofluid along a nonlinear stretching surface with convective boundary conditions, *Journal of Engineering e-Transaction*, vol. 8(1), pp. 1-9, 2013.
- [29] [M. S. Alam](#): A similarity approach for an unsteady two-dimensional forced convection heat transfer boundary layer flow along a convergent channel, *Thammasat International Journal of Science and Technology*, vol. 18(1), pp. 1-9, 2013.
- [30] [M. S. Alam](#) and M. M. Rahman: Effect of variable wall temperature and concentration on heat and mass transfer of MHD natural convection flow past an inclined surface with thermophoresis, *International Journal of Energy and Technology*, vol. 5(15), pp. 1-11, 2013.
- [31] [M. S. Alam](#) and M. M. Rahman: On the effectiveness of variable heat and mass fluxes on hydromagnetic free convection and mass transfer flow along an inclined permeable stretching surface with thermophoresis, *International Journal of Energy and Technology*, vol. 5(1), pp. 1-10, 2013.
- [32] [M. S. Alam](#) and M. M. Rahman: Thermophoretic particle deposition on unsteady hydromagnetic radiative heat and mass transfer flow along an infinite inclined permeable surface with viscous dissipation and Joule heating, *Journal of Engineering e-Transaction*, vol. 7(2), pp. 116-126, 2012.
- [33] ATM. M. Rahman, [M. S. Alam](#) and M. K. Chowdhury: Thermophoresis particle deposition on unsteady two-dimensional forced convective heat and mass transfer flow along a wedge with variable viscosity and variable Prandtl number,

- International Communications in Heat and Mass Transfer [published by Elsevier], vol. 39, pp. 541-550, 2012.
- [34] ATM. M. Rahman, [M. S. Alam](#) and M. K. Chowdhury: Effects of variable thermal conductivity and variable Prandtl number on unsteady forced convective flow along a permeable wedge with suction/injection in the presence of thermophoresis, International Journal of Energy and Technology, vol. 4(4), pp. 1-10, 2012.
- [35] ATM. M. Rahman, [M. S. Alam](#) and M. K. Chowdhury: Local similarity solutions for unsteady two-dimensional forced convective heat and mass transfer flow along a wedge with thermophoresis, International Journal of Applied Mathematics and Mechanics, vol. 8(8), pp. 86-112, 2012.
- [36] M. M. Mia, M. A. Sattar and [M. S. Alam](#): A local similarity solutions for an unsteady two-dimensional hydrodynamic boundary layer flow in a convergent channel, International Journal of Energy and Technology, vol. 3(7), pp. 1-4, 2011.
- [37] [M. S. Alam](#) and M. U. Ahammad: Effects of variable chemical reaction and variable electric conductivity on free convective heat and mass transfer flow along an inclined stretching sheet with variable heat and mass fluxes under the influence of Dufour and Soret effects, Nonlinear Analysis; Modeling and Control, vol. 16(1), pp. 1-16, 2011.
- [38] [M. S. Alam](#), M. A. Sattar, M. M. Rahman and A. Postelnicu: Local similarity solution of an unsteady two-dimensional MHD convective flow of a micropolar fluid past a continuously moving porous plate under the influence of magnetic field, International Journal of Heat and Technology, vol. 28(2), pp.93-103, 2010.
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16. Papers in Referred National Journal

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17. Conference Proceedings

- [1] U. Salma, M. M. Haque, [M. S. Alam](#): Convective Heat Transfer in a Square Cavity Filled with Nanofluids under the Influence of Periodic Magnetic Field, *AIP Conference Proceedings* **2324**, 050009 (2021); <https://doi.org/10.1063/5.0040474>.
- [2] E. Akter, M. M. Haque, [M. S. Alam](#): Simulation of Natural Convection Heat Transfer Enhancement in a Triangular Enclosure Filled with Nanofluid using Local Thermal Non-Equilibrium Model, *AIP Conference Proceedings* **2324**, 050015 (2021); <https://doi.org/10.1063/5.0040478>.
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- [4] ATM. M. Rahman, [M. S. Alam](#), M. A. Alim and M. K. Chowdhury: Thermophoretic Particle Deposition on Unsteady Convective Slip Flow over a Wedge with Variable Fluid Properties and Variable Prandtl Number, *Procedia Engineering* [published by Elsevier], 10th ICME International conference on Mechanical Engineering, BUET, Dhaka, vol. 90, pp. 249-254, 2014.
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18. Conference/Seminar/Poster Presentations

- [1] M. M. Haque, [M. S. Alam](#): Natural Convective Heat Transfer Inside a Semi-Circular Enclosure Filled with Fe_3O_4 -water Nanofluid under the Influence of a Periodic Magnetic Field, 21st International Mathematics Conference 2019, Department of Applied Mathematics, University of Dhaka, 06-08 December, 2019.
- [2] U. Salma, M. M. Haque, [M. S. Alam](#): Investigation of Periodic Magnetic Field Effect for a Convective Heat Transfer Flow in a Square Cavity Filled with Nanofluids, 21st International Mathematics Conference 2019, Department of Applied Mathematics, University of Dhaka, 06-08 December, 2019.
- [3] S. S. Keya, M. M. Haque, [M. S. Alam](#): Convective Heat Transfer Enhancement within Nanofluids Filled Quarter-Circular Cavity Using Nonhomogeneous Dynamic Model”, 21st International Mathematics Conference 2019, Department of Applied Mathematics, University of Dhaka, 06-08 December, 2019.
- [4] E. Akter, M. M. Haque, [M. S. Alam](#): Analysis of Natural Convective Heat Transport in Nanofluids inside a Triangular Cavity using Local Thermal Non-Equilibrium Model”, 21st International Mathematics Conference 2019, Department of Applied Mathematics, University of Dhaka, 06-08 December, 2019.
- [5] M. M. Haque, [M. S. Alam](#), M. R. Karim: Heat transfer in a triangular cavity filled with nanofluid using Nonhomogeneous Dynamic Model, International Conference on Thermal Engineering, Bangladesh University of Engineering and Technology (BUET), December 19-21, 2018.
- [6] [M. S. Alam](#), M. M. Rahman, N. Al-Salti: Heat Transfer in a Triangular-Shaped Enclosure Filled with Alumina-Water Nanofluid Using Two-Component Model, 5th International Conference on Fluid Dynamics, 25-26 April 2016, Grand Flora Hotel, Dubai, UAE, (**Best paper awarded**).
- [7] [M. S. Alam](#), M. M. Rahman, N. Al-Salti and I. A. Eltayeb: Heat transfer in a triangular shaped solar collector filled with nanofluids using two-component model, Poster presented in the international conference on Nanotechnology for Water Treatment and Solar Energy Applications, 15-16 December 2015, Muscat, Oman.
- [8] M. M. Haque, [M. S. Alam](#): Convective flow of nanofluid along a porous wedge with second order slip, Seminar on applications of Mathematics in real life (SAMRL-2015), Department of Mathematics, Jagannath University, August 22, 2015.
- [9] [M. S. Alam](#): Convective boundary layer heat and mass transfer flow with thermophoresis, one hour presentation at the Department of Mathematics and Statistics, Sultan Qaboos University, Muscat, Oman, 04 December, 2014.
- [10] [M. S. Alam](#): Effects of variable thermal conductivity and variable Prandtl number on unsteady convective flow along a wedge with thermophoresis, Organized by Department of Mathematics, Jagannath University, Dhaka, Bangladesh, 19 December, 2012.
- [11] ATM. M. Rahman, [M. S. Alam](#), M. K. Chowdhury and M.M. Rahman: Unsteady two-dimensional convective heat and mass transfer flow along a wedge with thermophoresis, International Conference on Mechanical Engineering

- (ICME2011), Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh, 18-20 December, 2011.
- [12] [M. S. Alam](#), M. M. Rahman and M. A. Sattar: Local similarity solutions of an unsteady MHD two-dimensional convective heat transfer flow past a moving semi-infinite vertical porous flat plate with variable suction/injection, Bangladesh Mathematical Society, Sixteenth Mathematics Conference, BUET, Dhaka, Bangladesh, 17-19 December, 2009.
- [13] [M. S. Alam](#), M. M. Rahman and M. A. Sattar: Effects of Magnetic Field and Thermophoresis on Convective Darcy-Forchheimer Model along a Vertical Flat Plate, International Mechanical Engineering Conference for 12th Annual Paper Meet, IEB Dhaka, Bangladesh, 8-9 February, 2008.
- [14] [M. S. Alam](#), M. M. Rahman and M. A. Sattar: Effects of thermophoresis on MHD convective heat and mass transfer flow past an inclined permeable surface with variable wall temperature and concentration, Bangladesh Mathematical Society, Fifteenth Mathematics Conference, University of Dhaka, Bangladesh, 29-31 December, 2007.
- [15] [M. S. Alam](#): Convective heat and mass transfer flow along an inclined surface with thermophoresis, Organized by Department of Mathematics, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh, 18 December, 2006.
- [16] [M. S. Alam](#) and M. M. Rahman: Diffusion-thermo and thermal-diffusion effects on unsteady free convection and mass transfer flow in a porous medium with time dependent temperature and concentration, 5th International Mechanical Engineering Conference & 10th Annual Paper Meet, IEB Dhaka, Bangladesh, 30 September - 02 October, 2005.
- [17] [M. S. Alam](#) and M. A. Maleque: Dufour and Soret effects on steady free convection and mass transfer flow past a semi-infinite vertical porous plate in a porous medium, 4th International Mechanical Engineering Conference & 9th Annual Paper Meet, IEB Dhaka, Bangladesh, 28-31 December, 2004.
- [18] [M. S. Alam](#), M. A. Maleque and M. M. Rahman: Unsteady MHD free convection and mass transfer flow past a vertical porous plate with thermal- diffusion and diffusion-thermo effects, Bangladesh Mathematical Society, Fourteenth Mathematics Conference, University of Dhaka, Bangladesh, 27-29 December, 2003.

19. Grants and Research Support

I obtained the following Research Project as the **Principal investigator**

- Heat Transfer in a Semi-Circular Shape Solar Thermal Collector Filled with Nanofluids using Nonhomogeneous Dynamic Model, Funded by the Ministry of Science and Technology, Government of the People's Republic of Bangladesh, Bangladesh Secretariat, Dhaka-1000, Funding Year: July-2018- June- 2019, **Total amount: Five Lac Taka.**
- Theoretical and Numerical Investigations on Convective Heat Transfer in an enclosure Utilizing Nanofluids, Funded by Jagannath University, Funding Year: July-2018- June- 2019, **Total amount: One Lac Taka.**

The major objectives of the above project are as follows:

- i. Establish a **Nanofluid Research Laboratory** in order to do the research work on “Mathematical Modelling of Nanofluid Flows” for the M. Sc./M.Phil./PhD Students.
- ii. Creating an environment and spending more time for study and to do research for the Departmental researchers.

I also obtained the following grant as the **Co-principal investigator**

- Establishment of a Mathematical and Computational Research Laboratory (MCRL) for the upgradation of postgraduate research (M. Phil./Ph. D. program) in Mathematics, Dhaka University of Engineering and Technology, Bangladesh, [funded by University Grants Commission (UGC) of Bangladesh and World Bank], 2012

[Total Amount: USD 125463.41].

The major objectives of the above project were as follows:

- (i) Academic development, skills updating networking designed and easy access to global information in order to enhance teaching, learning and significant improvement of research capabilities of the departmental postgraduate students (M. Phil./Ph. D.), academic staffs and collaborators.
- (ii) Creating an environment and spending more time for study and to do research for the departmental researchers.
- (iii) Reaching the academic community of the Department of Mathematics to the international students and researchers.
- (iv) To maximize efficiency of postgraduate study and different field of research for being academic excellence and for making the postgraduate students as lifelong researchers and contributors for the nation and overall economic development in Bangladesh.

20. Group Research Activity

In addition to independent research I also work in a group to diversify my knowledge and to share experience with others. I am very keen to establish my leadership role in research in the Department. In this respect I am working with full enthusiasm. Five papers (of whom I am the first author in 4) have been published from my research collaboration with other colleagues in the Department. Recently, we established a research group on “**Modeling of Nanofluid Flows**” in the Department. I am coordinating activities of this group.

21. Mentorship of Junior Faculty

Every educational program requires leadership with a clear vision and the commitment to implement that vision with patience and persistence. I am trying to apply these qualities for

promoting mathematics education and research in the Department. I am mentoring three of my junior colleagues M. N. Huda, M. A. Khatun and M. M. Haque. To becoming an independent researcher it is very important getting constant help and guidance from the senior faculty. In this regard, I am providing full support to them. They already published 4 papers with me. I hope my mentoring activities would contribute significantly and establish my leadership role in the department.

22. Membership of Scholarly Societies

2003-date	Life Member, Bangladesh Mathematical Society
2012-date	Life Member, Mathematics Alumni, University of Dhaka, Bangladesh
2015-date	Life Member, Calcutta Mathematical Society, India
2015-date	Life Member, Biomathematical Society of India

23. Computer Knowledge

- MS Word, MS Power Point, Excel, **COMSOL Multiphysics**, **MATLAB**, **MATHEMATICA**, **FORTRAN** and **Techplot**.

24. Important links:

JnU website: <http://jnu.ac.bd/profile/portal/web/426.html>

Google Scholar: <https://scholar.google.com/citations?user=d0PI-s4AAAAJ&hl=en>

Research Gate: https://www.researchgate.net/profile/Shariful_Alam3

25. Reference

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