Dr. SHARABAN THOHURA Associate Professor Department of Mathematics Jagannath University, Dhaka, Bangladesh. Cell: 01712-623332 E-mail:sthohura@gmail.com sthohura@math.jnu.ac.bd



ACADEMIC QUALIFICATION:

Ph.D.	Major Field of Study: Computational Fluid Dynamics
in Mathematics (Awarded on 2 nd March, 2021)	Thesis Title: Numerical Study of Non-Newtonian Fluid flow and Heat Transfer in a Lid-driven Skewed Cavity using Generalized Curvilinear Co-ordinates
	Supervisor: Professor Dr. Md. Manirul Alam Sarker
	Department of Mathematics
	Bangladesh University of Engineering and Technology, Dhaka, Bangladesh.
M. Phil in Mathematics 2012	Result: CGPA: 3.94 out of 4.00 (in taught courses)
	Major Field of Study: Numerical Analysis
	Thesis Title: Study of the effect of mesh quality on stress concentration factor of plates with holes using finite element analysis. Department of Mathematics Bangladesh University of Engineering and Technology, Dhaka, Bangladesh.
	Major Courses: Fluid Dynamics I & II Optimization Technique I & II Partial Differential Equations Advanced Numerical Methods I Advanced Numerical Methods II (with Maple, Matlab, Mathematica, Techplot) Numerical Heat Transfer and Fluid Flow (with programming language FORTRAN, Fluid Solver package FLUENT)
M.S. in Applied Mathematics (Thesis Group) 2001 (held in 2004)	Subject: Applied Mathematics
	Thesis Title: On Numerical Solution of Stiff Differential Equations Result: First Class
	Position & Equivalent marks: 2 nd Position, 69.83%
	Department of Mathematics, University of Dhaka, Bangladesh.
	Major Courses: Classical Mechanics, Quantum Mechanics, Laminar Boundary Layer Theory, Numerical Methods for Differential Equations (with FORTRAN programming)

B.Sc. 2000 (held in 2003)	Subject: Mathematics (4 years integrated Course) Result: First Class Position & Equivalent marks: 7th Position, 64.94% Department of Mathematics,
	University of Dhaka, Bangladesh.
	Major Courses: Numerical Methods, FORTRAN Lab, Topology, Optimization, Hydrodynamics, Complex Variable, Differential Equation, Mathematical Methods, Calculus, Geometry,
	Algebra, Mechanics.
H.S.C.	Group: Science
1996	Result: First Division
	Marks: 78.6%
	Jessore Board, Kushtia Govt. College, Kushtia.
S.S.C.	Group: Science
1994	Result: First Division
	Marks:83.8%
	Jessore Board, Kushtia Govt. Girls High School, Kushtia

PROFESSIONAL EXPERIENCE:

August 2018-till date	Associate Professor Department of Mathematics Jagannath University, Dhaka, Bangladesh.
May 2012-August 2018	Assistant Professor Department of Mathematics Jagannath University, Dhaka, Bangladesh.
September 2011 – May 2012	Lecturer Department of Mathematics Jagannath University Dhaka, Bangladesh.
February 2005 – September 2011	Lecturer in Mathematics Department of Natural Science Stamford University Bangladesh.

M. Sc Thesis Supervision:

No. of Completed Student: 1

No. of Current Student: 1

Courses conducted in Undergraduate and Graduate program:

Advanced Numerical Methods, Fluid Dynamics, Differential & Integral Calculus, Complex Variable, Vector Analysis, Coordinate Geometry, Linear Algebra, Statistics & Probability, Differential Equations (ODE & PDE), Fourier Analysis & Laplace Transformation, Numerical Methods

List of publications: <u>Peer Reviewed Journal Papers</u>

- **1. Sharaban Thohura,** Md. Mamun Molla & M. M. A. Sarker, Manosh C. Paul "Study of mixed convection flow of power law fluids in a skewed lid driven cavity" Heat Transfer Journal (Publisher: John Willey & Sons) 2021, DOI: 10.1002/htj.22174
- 2. Md. Mamun Molla, Preetam Nag, Sharaban Thohura & Amirul Khan "A Graphics Process Unit-Based Multiple-Relaxation-Time Lattice Boltzman Simulation of Non-Newtonian Fluid Flows in a Backward Facing Step" Computation 2020, vol. 8, No. 83; DOI:10.3390/computation8030083
- **3. Sharaban Thohura,** Md. Mamun Molla & M. M. A. Sarker "Bingham fluid flow simulation in a lid-driven skewed cavity using the finite-volume method", International Journal of Computer Mathematics, (Publisher: Taylor and Francis) Vol. 97, No. 6, pp. 1212-1233 DOI:10.1080/00207160.2019.1613527
- **4. Sharaban Thohura,** Md. Mamun Molla and Md. Manirul Alam Sarker "Numerical Simulation of Non-Newtonian Power-Law Fluid Flow in a Lid-Driven Skewed Cavity" International Journal of Applied and Computational Mathematics (2019), Vol. 5(1) Pages 14 (Publisher: Springer). DOI: 10.1007/s40819-018-0590-y
- **5.** Azad Rahman, Md. Mamun Molla, and **Sharaban Thohura** "Natural Convection Flow along a Vertical Wavy Cone with Uniform Surface Heat Flux and Temperature Dependent Viscosity" Heat and Mass Transfer Research Journal, Published by CanSRG, Vol. 2, No. 2; 201 8. Online: <u>http://cansrg.com/journals/hmtrj/</u>
- 6. Sharaban Thohura, Dr. Md. Shahidul Islam; "Study of the Effect of Finite Element Mesh quality on stress concentration Factor of Plates with holes." IJEIT (ISSN: 2277-3754) Volume 3, Issue 6, December 2013.
- **7. Sharaban Thohura**, Azad Rahman; "Numerical Approach for Solving Stiff Differential Equations: A Comparative Study" GJSFR *Volume 13 Issue 6 Version 1.0*
- **8.** Azad Rahman, M.M. Molla, M. M. A. Sarker & **Sharaban Thohura**; "Effects of Temperature Dependent Viscosity on Natural Convection Flow along a vertical Wavy Cone with Heat Flux." International Journal of Energy and Technology 3(8) (2011) 1-10
- **9. Sharaban Thohura,** Azad Rahman; "Comparison of Numerical methods for solving initial value problems for Stiff Differential Equations" GANIT, J. Bangladesh Math Soc. (ISSN 1606-3694) 30 (2010) 122-132.
- **10.** Shahadat Hossain, **Sharaban Thohura**, Salina Aktar; "The Lotka-Volterra Model: An Approach by the CAS." GANIT, J. Bangladesh Math Soc. (ISSN 1606-3694) 29 (2009) 87-98.

Conference Papers (Refereed)

- Sadia Afsana, Preetom Nag, Md. Mamun Molla, Sharaban Thohura, "Natural convection flow of nanofluids over horizontal circular cylinder with uniform surface heat flux" AIP Conference Proceedings 2324(1):050024 (2021), DOI: <u>10.1063/5.0037580</u>
- Sharaban Thohura, M.M. Molla, M. M. A. Sarker, "Natural convection of non-Newtonian shearthinning fluid flow inside a skewed cavity" AIP Conference Proceedings 2121, 030014 (2019); <u>https://doi.org/10.1063/1.5115859</u> Published Online: 18 July 2019
- **3. Sharaban Thohura,** M.M. Molla, M. M. A. Sarker; "Numerical Simulation of Bingham Fluid Flows in a Lid-Driven Skewed Cavity" AIP Conference Proceedings 1980, 040022(2018); doi:10.1063/1.5044332.

- **4.** Md. Noor-A-Alam Siddiki, Md. Mamun Molla, **Sharaban Thohura** and Suvash C Saha; "Lattice Boltzmann Simulation of Non-Newtonian Power-law Fluid Flows in a Bifurcated Channel" AIP Conference Proceedings 1980, 040022(2018); doi:10.1063/1.5044332.
- **5.** Sharaban Thohura, M.M. Molla, M. M. A. Sarker; "Natural convection of Non-Newtonian fluid along a vertical thin cylinder using modified power-law model" AIP Conf. Proc. 1754, 040021(2016).
- 6. Sharaban Thohura, Azad Rahman M.M. Molla & M. M. A. Sarker "Effects of temperature dependent thermal conductivity on natural convection flow along a vertical wavy cone with heat flux" Science Direct, Proceedia Engineering 90(2014) 497-503.
- 7. Azad Rahman, Sharaban Thohura, M. M. A. Sarker & M.M. Molla "*Natural convection flow* along the wave cone in case of uniform surface heat flux where viscosity is inversely proportional to temperature" 8th International Conference on Mechanical Engineering held at BUET, 26-28 December, 2009. The reference number of the paper is ICME09-TH-09

Paper Presentation in International Conferences:

- 1. Sharaban Thohura, M.M. Molla, M. M. A. Sarker, "Natural convection of non-Newtonian shear-thinning fluid flow inside a skewed cavity" in the 8th International Conference on Thermal Engineering (ICTE) held at BUET, 19-21 December, 2018 Paper ID:118.
- 2. Sharaban Thohura, *M.M. Molla, M. M. A. Sarker*; "Numerical Simulation of non-Newtonian Fluid flow in a Lid-Driven Wavy Cavity" International Mathematics Conference at University of Dhaka, Bangladesh, 8-10 December, 2017 Paper ID:29.
- **3.** Sharaban Thohura, M.M. Molla, M. M. A. Sarker; "Numerical Simulation of Bingham Fluid Flows in a Lid-Driven Skewed Cavitye 12th International Conference on Mechanical Engineering (ICME) held at BUET, 20-22 December, 2017. The reference number of the paper is 235.
- 4. Sharaban Thohura, Azad Rahman M.M. Molla & M. M. A. Sarker "Natural convection of Non-Newtonian fluid along a vertical thin cylinder using modified power-law model" in the 11th International Conference on Mechanical Engineering held at BUET, 18-20 December 2015. The paper ID is 432.
- 5. Sharaban Thohura, Azad Rahman M.M. Molla & M. M. A. Sarker "Effects of temperature dependent thermal conductivity on natural convection flow along a vertical wavy cone with heat flux" in the 10th International Conference on Mechanical Engineering held at BUET, 20-21 June 2014. The paper ID is 185.
- 6. Azad Rahman, Sharaban Thohura, M. M. A. Sarker & M.M. Molla "Natural convection flow along the wave cone in case of uniform surface heat flux where viscosity is inversely proportional to temperature" in the 8th International Conference on Mechanical Engineering held at BUET, 26-28 December, 2009. The reference number of the paper is ICME09-TH-09

Thesis and Project work:

P. hD. (2021): Numerical Study of Non-Newtonian Fluid flow and Heat Transfer in a Lid-driven Skewed Cavity using Generalized Curvilinear Co-ordinates. A dissertation submitted to the Department of Mathematics Bangladesh University of Engineering & Technology in partial fulfillment of the requirement for the award of the degree of Doctor of Philosophy in Mathematics.

M. Phil (2012): Study of the effect of mesh quality on stress concentration factor of plates with holes using finite element analysis. A dissertation submitted to the Department of Mathematics Bangladesh University of Engineering & Technology in partial fulfillment of the requirement for the award of the degree of Master of Philosophy in Mathematics.

M.S. (2004): On Numerical Solution of Stiff Differential Equations. Unpublished *M.S. thesis (equivalent to 1.5 unit courses)*, Department of Mathematics, University of Dhaka, Dhaka – 1000, Bangladesh.

B. Sc. (Honours) (2003): Solving Boundary Value Problems by Shooting Methods. Unpublished Honors Project (*equivalent to 1 unit courses*), Department of Mathematics, University of Dhaka, Dhaka – 1000, Bangladesh.

Membership:

Life member – Bangladesh **Mathematical Society**. Life member- Association of Bangladeshi Women in Mathematics.

Computer Skills:

- Programming Languages : FORTRAN, C++
- Mathematical Packages : Mathematica, Maple, Gambit, Fluent, Techplot.
 - Operating Systems : DOS, WINDOWS, INTERNET
- Application Package : Microsoft Office

PERSONAL INFORMATION:

Date of Birth	: 10 th October, 1979
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Marital Status : Married