



DR. SIDHARTHA BHOWMICK

**Associate Professor, Department of Mathematics
Jagannath University, Dhaka-1100, Bangladesh**

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Profile

Dynamic, resourceful teaching professional with a genuine interest in students' cognitive and social growth. Reliable, trustworthy, numerate and meticulous. Able to work on own initiative or as a part of a team and can deal with administrative duties competently.

Academic Qualifications

2018

PhD in Mechanics

Beijing Jiaotong University, Beijing, China

Thesis Title: Natural convection and heat transfer in a V-shaped cavity

Research Direction: Heat mass transfer

Duration: 4 years 6 months

Subjects studied: Theory and application of dimensional analysis, Turbulence and boundary layer theory, Chinese cultural society, Elementary Chinese language listening and speaking, Elementary Chinese synthesis.

Medium of Instruction was English.

2001

MS in Applied Mathematics (Thesis Group)

University of Dhaka, Dhaka, Bangladesh

Thesis Title: Unsteady mixed convection flows along a semi-infinite symmetric wedge with variable surface temperature

Research Direction: Boundary Layer Theory

Result: First Class (**first position**)

Percentage: 70.17

Examination held in 2004

Subjects studied: Analytical Dynamics, Quantum Mechanics, Laminar Boundary Layer Theory and Numerical Methods for Differential Equations.

Medium of Instruction was English.

2000

B.Sc. Honors (4 Years Integrated Course) in Mathematics

University of Dhaka, Dhaka, Bangladesh

Project Title: Bessel function and its application to boundary value problems

Result: First Class (**fifth position**)

Percentage: 65.66

Examination held in 2003

Subjects studied: Major in Mathematics and Minor in Statistics, Physics, Computer Science and English

Medium of Instruction was English.

- 1996** Higher Secondary Certificate Examination
Science Group
Dhaka Board, **Notre Dame College**, Dhaka, Bangladesh
Result: First Division
Percentage: 81.4
Medium of Instruction was Bangla.
- 1994** Secondary School Certificate Examination
Science Group
Dhaka Board, **Motijheel Model High School**, Dhaka, Bangladesh
Result: First Division
Percentage: 86.8
Medium of Instruction was Bangla.

Research Documents

Publications:

- (i) Md. Mahafujur Rahaman, **Sidhartha Bhowmick**, Rabindra Nath Mondal and Suvash C. Saha. Unsteady Natural Convection in an Initially Stratified Air-Filled Trapezoidal Enclosure Heated from Below, *Processes*, 10, 1383: 1-14, 2022. (IF: 3.352)
- (ii) Md. Mahafujur Rahaman, **Sidhartha Bhowmick**, Rabindra Nath Mondal and Suvash C. Saha. Unsteady 2D Flow in an Initially Stratified Air-filled Trapezoid, *Jagannath University Journal of Science*, 8(II): 1-6, 2022.
- (iii) **Sidhartha Bhowmick**, Feng Xu, Md Mamun Molla and Suvash C. Saha. Chaotic phenomena of natural convection for water in a V-shaped enclosure, *International Journal of Thermal Sciences*, 176: 107526 1-10, 2022. (IF: 3.744)
- (iv) Sreedham Chandra Adhikari, Ratan Kumar Chanda, **Sidhartha Bhowmick**, Rabindra Nath Mondal and Suvash Chandra Saha. Pressure-induced instability characteristics of a transient flow and energy distribution through a loosely bend square duct, *Journal of Energy Engineering*, 119(1): 429-451, 2021. (IF: 2.08)
- (v) Xingyu Wang, **Sidhartha Bhowmick**, Zhao Feng Tian, Suvash C. Saha and Feng Xu. Experimental study of natural convection in a V-shape-section cavity. *Physics of Fluids*, 33: 014104 1-13, 2021. (IF: 4.98)
- (vi) **Sidhartha Bhowmick**, Md. Mamun Molla and Rabindra Nath Mondal. Natural Convective Flow along a Vertical Flat Plate with Sinusoidal Surface Heat Flux Case, *Jagannath University Journal of Science*, 7(I): 58-62, 2020.
- (vii) Ratan Kumar Chanda, Bishnu Pada Ghosh, **Sidhartha Bhowmick** and Rabindra Nath Mondal. A Spectral Study on Transient Fluid Flow and Temperature Distribution through a Rotating Curved Rectangular Duct with Vortex Structure, *Jagannath University Journal of Science*, 7(I): 25-33, 2020.
- (viii) Md. Mafujul Haque, **Sidhartha Bhowmick** and Md. Mamun Molla. Mixed Convective Non-Newtonian Flow along an Isothermal Sphere. *Jagannath University Journal of Science*, 7(I): 1-8, 2020.
- (ix) **Sidhartha Bhowmick**, Suvash C. Saha, Manman Qiao and Feng Xu. Transition to a chaotic flow in a V-shaped triangular cavity heated from below. *International Journal of Heat and Mass Transfer*, 128: 76-86, 2019. (IF: 5.584)

- (x) **Sidhartha Bhowmick**, Feng Xu, Xun Zhang and Suvash C. Saha. Natural convection and heat transfer in a valley shaped cavity filled with initially stratified water. *International Journal of Thermal Sciences*, 128: 59-69, 2018. (IF: 3.744)
- (xi) **Sidhartha Bhowmick**, Md Mamun Molla and Lun-Shin Yao. Non-Newtonian Mixed Convection Flow along an Isothermal Horizontal Circular Cylinder. *Numerical Heat Transfer*, Part A, 66: 509-529, 2014. (IF: 2.928)
- (xii) **Sidhartha Bhowmick**, Md. Mamun Molla and Md. Anwar Hossain. Non-Newtonian Natural Convection Flow along a Horizontal Circular Cylinder with Uniform Surface Heat Flux. *Advances in Mechanical Engineering*, 2013: 194928 (1-8), 2013. (IF: 1.316)
- (xiii) **Sidhartha Bhowmick**, Md. Mamun Molla and Suvash C. Saha. Non-Newtonian Natural Convection Flow along an Isothermal Horizontal Circular Cylinder Using Modified Power-law Model. *American Journal of Fluid Dynamics*, 3(2): 20-30, 2013. (IF: 1.067)
- (xiv) **Sidhartha Bhowmick** and Md. Mamun Molla. Shear Rates Calculation on Natural Convection of Non-Newtonian Fluid over a Horizontal Circular Cylinder with Uniform Surface Heat Fluxes. *Presidency University Journal of Science Bangladesh*, Part B, 2(2): 64-77, ISSN: 2224-7610, 2013.
- (xv) **Sidhartha Bhowmick**, M. K. Jaman and M. Z. I. Khan. Two-dimensional unsteady boundary layer flow with mixed convection along a semi-infinite symmetric wedge. *Dhaka University Journal of Science*, 59(1): 47-54, 2011.
- (xvi) Md. Anwar Hossain, **Sidhartha Bhowmick** and Rama Subba Reddy Gorla. Unsteady mixed-convection boundary layer flow along a symmetric wedge with variable surface temperature. *International Journal of Engineering Science*, 44: 607-620, 2006. (IF: 8.843)

Presentations (with Proceedings):

- (i) 2D Study of the Bifurcations in a V-shaped Cavity. *13th International Conference on Mechanical Engineering*, Dhaka, Bangladesh, AIP Conference Proceedings 2324, 050021, 2021; <https://doi.org/10.1063/5.0037667>.
- (ii) Molecular Dynamics Study of Prednisolone Concentration on Cholesterol Based Lung Surfactant Monolayer. *13th International Conference on Mechanical Engineering*, Dhaka, Bangladesh, AIP Conference Proceedings 2324, 060008, 2021; <https://doi.org/10.1063/5.0037471>.
- (iii) Transition to chaos in a V-shaped cavity heated from below. *21st Australasian Fluid Mechanics Conference*, Adelaide, Australia, 21AFMC Proceedings, 2018.
- (iv) Natural convection in a V-shaped cavity. *16th International Heat Transfer Conference*, Beijing, China, IHTC16-24276, 2018.
- (v) Transient Natural Convection in a Valley Shaped Triangular Cavity Initially Filled with Stratified Water. *11th International Conference on Mechanical Engineering*, Dhaka, Bangladesh, AIP Conference Proceedings 1754, 050029, 2016.
- (vi) Non-Newtonian Mixed Convection Flow from a Horizontal Circular Cylinder with Uniform Surface Heat Flux. *10th International Conference on Mechanical Engineering*, Dhaka, Bangladesh, Procedia Engineering, 90: 510-516, 2014.

Presentations (Only):

- (i) Unsteady Natural Convection in a Valley Shaped Trapezoidal Cavity Heated from Below, *22nd International Mathematics Conference*, Dhaka, Bangladesh, 2021.

- (ii) Transition to a 3D Unsteady Flow in a V-Shaped Cavity, *21st International Mathematics Conference*, Dhaka, Bangladesh, 2019.
- (iii) 峡谷形三角腔内的自然对流. 中国力学大会-2017, 暨庆祝中国力学学会成立 60 周年大会 2017 年 8 月 14-16 日, 北京.
- (iv) Non-Newtonian Natural Convection Flow from an Isothermal Sphere with Boger's Fluid, *18th International Mathematics Conference*, Dhaka, Bangladesh, 2013.
- (v) Non-Newtonian Natural Convection Flow along an Isothermal Horizontal Circular Cylinder. *Seventeenth International Mathematics Conference 2011*, held in Jahangirnagar University, Bangladesh from December 22-24, 2011.
- (vi) The boundary layer over an impulsively started Falkner-Skan flows with uniform surface temperature. *International Conference of Applied Mathematics and Mathematical Physics (ICAMMP)*, 2004; held in Shahjalal University of Science and Technology, Bangladesh from January 4-7, 2005.

Professional Experience

Designation : Associate Professor
Duration : December, 2018 to still now
Organization : Jagannath University, Bangladesh

Designation : Assistant Professor
Duration : July, 2012 to December, 2018
Organization : Jagannath University, Bangladesh

Designation : Assistant Professor
Duration : May, 2009 to June, 2012
Organization : Presidency University, Bangladesh

Designation : Lecturer
Duration : April, 2007 to April, 2009
Organization : Presidency University, Bangladesh

Designation : Lecturer (Part-time)
Duration : October, 2006 to April, 2007
Organization : University of Liberal Arts (ULAB), Bangladesh

Designation : Lecturer
Duration : October, 2004 to October, 2006
Organization : Primeasia University, Bangladesh

Roles & Responsibilities

At present I hold the position of an Associate Professor in the Department of Mathematics in Jagannath University with the following roles and responsibilities:

1. Teach in the graduate and undergraduate (M.Sc. and B.Sc. in Mathematics & B.Sc. in other related department as minor) programs.
2. Supervising Ph.D., M.Sc. and B.Sc. students of their Theses and Projects respectively.
3. Maintain student consulting for at least two hours per course per week.
4. Perform duties related to student advising and counseling.
5. Assist the department in revising and developing current programs.
6. Development of course materials.

Computer Literacy

Operating System : Windows 2007/XP/10/11, LINUX (Ubuntu)

Software Packages : Ansys Fluent, ICEM, Mat Lab, Mathematica, LAHEY FORTRAN, Tecplot, MS Office

Language Proficiency

Language competency in Bangla and English (both in spoken and written). A little learning in Chinese.

Hobbies and interests

Reading novels and journals, Research, Watching and playing cricket, traveling.

Personal Details

Father's Name : Ramendra Nath Bhowmick
Mother's Name : Shibani Bhowmick
Permanent Address : Magura Natun Bazar, Magura
Place & Date of Birth : Dhaka, 25th January 1979, Bangladesh
Religion : Hindu
Nationality : Bangladeshi by Birth
Marital Status : Married

References

Professor Dr. Feng Xu

Department of Mechanics
School of Civil Engineering
Beijing Jiaotong University, Beijing, China
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Dr. Suvash C. Saha

Senior Lecturer
School of Mechanical and Mechatronic Engineering,
University of Technology Sydney (UTS), Australia
Cell :+61403526512
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Declaration of Authenticity

I do hereby that all information presented have are true to my knowledge, if required & where applicable, this document can be supported by appropriate authentic certificates/papers.

Sidhartha Bhowmick

(Dr. Sidhartha Bhowmick)