Dr. Mohebujjaman

CONTACT INFORMATION

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EDUCATION

- ***Ph.D., Mathematical Sciences, Clemson University***, *August 2017*
  Dissertation: Efficient Numerical Methods for Magnetohydrodynamics Flow.
- ***M.S., Mathematical Sciences, Clemson University***, *August, 2015*
  Project: Linear Solvers for Saddle Point Problems Arising in Navier-Stokes Simulations.
- ***M.S., Applied Mathematics, University of Dhaka,*** *First class (ranked 1st out of 11 students) 2009*
  Thesis: MHD Heat and Mass Transfer Flow Along a Stretching Sheet with Heat Generation/Absorption.
- ***B.S., Mathematics, University of Dhaka,*** *First class (ranked 1st out of 64 students) 2006*
  Minor: Computer Science, Physics and Statistics, Project: Perturbation Methods in Aerofluid-dynamics

SKILLS, QUALIFICATIONS, AND EXPERTISE

Programming:

- C, C++ with MPI, FreeFem++, Matlab, R
- Python, Fortran 77/90, Mathematica, SAS
- MySql, Perl, Java, Maple, CUDA

Software Packages:

- Large scale implementation of deal.ii library
- CPLEX, Lindo, LaTeX, Beamer, Sage, VisIt
- Paraview, Techplot.

Platforms:

- Linux/Unix, Ubuntu and Windows
- CFD simulations on Clusters

Operation Research:

- Advanced Linear Programming
- Network Flow Programming

Physics & Engineering:

- Electricity & magnetism, Mechanics & waves
- Optics, Astronomy, Aerodynamics, MHD
- Hydrodynamics, Mathematical Hydrology
- Fluid Dynamics, Navier Stokes equations
- Modeling and simulation
- Magnetohydrodynamics

Statistics:

- Basic Statistics, Probability, Data Analysis
- Principle of Statistics, Mathematical Statistics
- Practical Machine Learning, Statistical Method
- Machine Learning: A Case Study Approach
- Stochastic

Computational Mathematics:

- Scientific Computing, Sparse Matrix Algorithms
- Finite element method, Finite difference method
- Numerical linear algebra, Data Structures
- Numerical Methods for Fluids Flow
- Numerical methods for differential equations
- Stabilization schemes, Programming Methodology

Applied Analysis and Others

- Linear Analysis, Dynamical Systems
- Measure and Integration, Functional Analysis
- Ordinary and Partial Differential Equations
- Topology, Complex Analysis, Fuzzy Mathematics
- Mathematical Modeling in Biology
- Methods of Applied Mathematics
- Differential Geometry, Tensor Analysis
- Analytic and Vector Geometry

WORKSHOPS

- *High Performance Computing with Spatial Data using R, Clemson University, Clemson, SC*
- **Mathematical Problems to Industry (MPI) 2016*, Duke University, Durham, NC
- **Graduate Student Mathematical Modeling Camp (GSMMC) 2016*, RPI, Troy, NY
- *COMSOL Multi-physics & Application Builder Workshop Clemson, 2015*, Clemson University, SC
- *Intel Xeon Phi Training Workshop on Stampede supercomputer, 2014*, Clemson University, SC

(* = received travel support)

RESEARCH INTERESTS

Data analysis, large scale simulation of fluid flow problems including Newtonian Navier-Stokes equations, Magnetohydrodynamics, fast algorithms, large scale parallel implementation of fluid flow problem using deal.II (massively parallel).

EMPLOYMENT AND EXPERIENCE

- *Patricia Ann Caldwell Post-Doctoral Fellow and Visiting Assistant*, Virginia Tech *2017-present*
- *Graduate Teacher of Record*, Clemson University, Clemson, SC *2012-2017*
  - MATH 1040: Pre-Calculus and Introductory Differential Calculus (Fall 2015)
  - MATH 1080: Calculus of One Variable II (Spring 2016)
  - MATH 1060: Calculus of One Variable I (Fall 2016)
  - MATH 2060: Calculus of Several Variable (Spring 2017)
- *Graduate Research Assistant*, Clemson University, Funded by NSF, Award No. 1112593 *2014*
  - Analysis of a family of optimally accurate regularization methods for Navier-Stokes equations
- *Lecturer*, Bangladesh University of Engineering and Technology(BUET) *2010 - 2012*
  - FALL 2011: Calculus in Single Variable, Vector Calculus, Geometry in 3D
  - SPRING 2011: Ordinary Differential Equations, Laplace Transformation
  - FALL 2010: Calculus in Single Variable, Geometry in 3D
- *Lecturer*, Southeast University, Dhaka, Bangladesh *2009 - 2010*
  - Fundamental Mathematics, Ordinary Differential Equations, Partial Differential Equations.

CONFERENCE & SEMINAR PRESENTATIONS

- Title: 'Decoupled, Unconditionally Stable Higher Order Discretizations for MHD Simulation', *40th Society for Industrial and Applied Mathematics Southeastern Atlantic Section Conference (SIAM-SEAS), University of Georgia, Athens, GA, USA, *Mar 2016* **Talk**
- Title: 'Decoupled, Unconditionally Stable Higher Order Discretizations for MHD Simulation', 8th Annual JohnFest / SIAM Student Conference, Clemson University, *Feb 2016* **Talk**
- Title: 'Efficient Numerical Methods for Magnetohydrodynamics Flow', *Nov 2015* Graduate Student Seminar, Clemson University, Clemson, SC **Talk**
- Title: 'Numerical analysis and testing of a fully discrete, decoupled algorithm for MHD in Elsässer variable' *39th Society for Industrial and Applied Mathematics Southeastern Atlantic Section Conference (SIAM-SEAS), The University of Alabama, Birmingham, AL, *Mar 2015* **Talk**
- Title: 'Numerical analysis and testing of a fully discrete, decoupled algorithm for MHD in Elsässer variable', Computational Math Seminar at Department of Mathematical Sciences, Clemson University, Clemson, SC *Mar 2015* **Talk**
- Title: 'Heat and mass transfer for free convection flow along a vertical stretching sheet in presence of magnetic field', Computational Math Seminar at Department of Mathematical Sciences, Clemson University, Clemson, SC *Nov 2012* **Talk**

(* = received travel support)

SERVICE AND VOLUNTEER WORK

- ***President, 'Bangladesh Association Clemson'*** *Fall 2014 - Fall 2015*
  A graduate student organization of Clemson University, SC

HONORS, AWARDS, AND SCHOLARSHIPS

- ***Travel Support***
  1. AMS Sectional Meeting at North Carolina State University, Raleigh, 2016
  2. SIAM Annual Meeting, Boston 2016
  3. GSMMC, Rensselaer Polytechnic Institute, Troy, NewYork 2016
  4. Mathematical Problems to Industry (MPI) workshop, Duke University, NC 2016
  5. 40th SIAM-SEAS, University of Georgia, Athens, GA 2016
  6. 39th SIAM-SEAS Conference, The University of Alabama, Birmingham, AL 2015
- **A.F. Mujibur Rahman Foundation Gold Medal and Cash Award** *2009*
  Department of Mathematics, University of Dhaka, Awarded to the student of the Department of Mathematics with best result in MS.
- **University Grants Commission Merit Scholarship** *2008*
  Ministry of Education, Bangladesh
- **A.F. Mujibur Rahman Foundation Gold Medal and Cash Award** *2008*
  Department of Mathematics, University of Dhaka, Awarded to the student of the Department of Mathematics with best result in BS.
- **Mitra Yushuf Trust Fund** *2006*
  For achieving the highest grade (mark) in third year offered by the Department of Mathematics, University of Dhaka, Dhaka, Bangladesh.
- **Hasina Shiddki Trust Fund** *2005*
  For achieving the highest grade (mark) in second year offered by the Department of Mathematics, University of Dhaka, Dhaka, Bangladesh.

PROFESSIONAL MEMBERSHIPS

- *American Mathematical Society (AMS)*
- *Society for Industrial and Applied Mathematics (SIAM)*
- *Bangladesh Mathematical Society (BMS)*

REFERENCES

Dr. Leo G. Rebholz

Professor, Mathematical Sciences,
Long H-208, Clemson University
Clemson, SC, 29634 USA
Email: rebholz@clemson.edu

Dr. Chris Cox

Interim Department Chair and
Professor at Clemson University in
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Dr. Meredith Burr

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