Maria Akter

✉ makter2@crimson.ua.edu   •   🌐 https://github.com/mariaakter-math

Research Interests

Coomutative algebra and it's connection to algebraic geometry. More specifically, A primary goal of my research is to understand, measure, and relate singularities appearing in prime characteristic commutative algebra.

Education

University of Alabama	January 2022 – Present
PhD in Mathematics, Advisor: Thomas Polstra	*Tuscaloosa, AL, USA*
Bangladesh University of Engineering & Technology	2015 – 2019
M.Phil in Mathematics	*Dhaka, Bangladesh*
University of Dhaka	2011 – 2013
M.Sc in Pure Mathematics	*Dhaka, Bangladesh*
University of Dhaka	2005 – 2010
B.Sc in Mathematics	*Dhaka, Bangladesh*

Employment

Graduate Teaching Assistant	January 2022 – Present
University of Alabama	*Tuscaloosa USA*
Assistant Professor	June 2018 – Present
Bangladesh University of Engineering & Technology	*Dhaka Bangladesh*
Lecturer	February 2015 – May 2018
Bangladesh University of Engineering & Technology	*Dhaka Bangladesh*
Lecturer	May 2016 – May 2017
Sonargaon University	*Dhaka Bangladesh*
Lecturer	May 2014 – February 2015
Brac University	*Dhaka Bangladesh*
Lecturer	August 2013 – December 2013
United International University	*Dhaka Bangladesh*

Publications & Preprint

1. *On m-adic Continuity of F-Splitting Ratio*, Maria Akter, arXiv preprint arXiv:2505.12174, submitted (2025).

2. *Numerical Simulation that Provides Non-oscillatory Solutions for Porus Medium Equation and Error Approximation of Boussinesq's Equation*, S. M. Atiqur Rahman Chowdhury, Ashish Barmon, Sharmin Alam, Maria Akter, Universal Journal of Computational Mathematics, 5(2), 25-33, 2017, DOI: 10.13189/ujcmj.2017.050203.

3. *Invariant Differential Operator on Homogeneous Space*, Maria Akter, Salma Nasrin, International Journal of Mathematics and Computational Science, Vol. 3, No. 1, pp. 1-5, 2017.

4. *Symmetric Pair from Symmetric Space and Lie group*, Maria Akter, Salma Nasrin Journal of Engineering Mathematics and Statistics, 2018

Selected Talks And Presentations

Poster

- *On m-adic Continuity of F-Splitting Ratio*, CATS conference,
  Georgia State University, USA   April 2025

- *On m-adic Continuity of F-Splitting Ratio*, WICA conference,
  Field Institute, Toronto, CANADA   March 2025

- *On Inversion of Adjunction of Splitting Dimensions*, SLAM conference,
  University of Oklahoma, USA   February 2024

Small Talks

- *On m-adic Continuity of F-Splitting Ratio*, CATS conference,
  Georgia State University, USA   April 2025

- *On m-adic Continuity of F-Splitting Ratio*, WICA conference,
  Field Institute, Toronto, CANADA   March 2025

- *Frobenius action on local cohomology*, GEMS conference,
  University of Minnesota, MN, USA   November 2023

Workshops and Conferences Attended

- *An Introduction to Recent Trends in Commutative Algebra Workshop*,
  The Field Institute, University of Toronto, Ontario, Canada   June 2025

- *SLMath 1060 Recent Development in Commutative Algebra Workshop*,
  SLMath, University of California, Berkeley, USA   April 2024

- *Attended CATS conference*,
  University of Alabama, Tuscaloosa, USA   April 2023

- *Attended 20th International Math Conference*,
  University of Dhaka, Dhaka, Bangladesh   December 2017

- *Attended a day long Training Workshop on Teaching-Learning for IQAC*
  Bangladesh University of Engineering & Technology, Dhaka, Bangladesh   November 2016

- *Attended a day long Faculty Orientation Workshop on Teaching and Learning*
  Brac University, Dhaka, Bangladesh   February 2014

Awards and Honours

- Nominated by University of Alabama to attend Slmath summer program
  The Field Institute, University of Toronto, Ontario, CANADA   2025

- Hasell Palmer scholarships for Fall 2025 and Spring 2026
  Department of Mathematics, University of Alabama, Tuscaloosa, USA   2025

- Lucretia Anne Dehaney Endowed Scholarship
  Department of Mathematics, University of Alabama, Tuscaloosa, USA   2024

- Award for highest GPA in 3rd year in Undergraduate
  University of Dhaka, Dhaka, Bangladesh   2010

Academic Services

- Co-organizer of Dhaka Undergraduate Math Olympiad Final Event
  Bangladesh University of Engineering & Technology, Dhaka, Bangladesh 2019

- Co-organizer of Dhaka South Undergraduate Math Olympiad
  Bangladesh University of Engineering & Technology, Dhaka, Bangladesh 2018

- Co-organizer of Dhaka South Undergraduate Math Olympiad
  Bangladesh University of Engineering & Technology, Dhaka, Bangladesh 2017

- BUGS Secratery,Bangladesh University of Engineering & Technology
  Dhaka, Bangladesh 2021

- Member of Examiner community, Water Recruit job in Bangladesh
  Dhaka, Bangladesh 2019

- Member of Examiner community for Entrance Exam in BUET
  Dhaka, Bangladesh 2019

- Member of Scrutinizer community for Entrance Exam in BUET
  Dhaka, Bangladesh 2017, 2018

- Member of Interview Board of Recruting GTA in BUET
  Dhaka, Bangladesh 2018

- Member of BRTC Board of Recruiting in BUET
  Dhaka, Bangladesh 2018-2021

- Secretary of organizing Commettee of Study Tour in Mathematics Department
  BUET, Dhaka, Bangladesh 2019

Membership

- Member of Association of Women in Mathematics
  University of Alabama, USA 2022

- Member of Association of Bangladeshi Women in Mathematics
  Dhaka, Bangladesh 2021

- Life long Member of BUET Alumini Association of Mathematics
  Dhaka, Bangladesh 2020

- Life long Member of DUMAA Dhaka, Bangladesh 2013

- Life long Member of Bangladesh Mathematical Society
  Dhaka, Bangladesh 2013

Teaching Experience

University of Alabama

- Math 110 - Finite Mathematics, Summer 2025

- Math 237 - Linear Algebra, Spring 2025

- Math 572 - Linear Algebra(Grader and Assistant Instructor), Fall 2024

- Math 238 -Applied Differential Equations I , Spring 2024

- Math 126 - Calculus II, Fall 2023.

- Math 125 - Calculus I, Spring 2022.

- Math 115 -Precalculus and Trigonometry , Fall 2022.

Bangladesh University of Engineering & Technology

January 2015

Math 111 - Mathematics I
Math 141 - Calculus I
Math 243 - Advanced Calculus
Math 235 - Vector Analysis and Statistics
Math 263 - Complex Variables, Harmonic Analysis and PDE
Math 133 - Matrices and Coordinate Geometry

January 2016

Math 113 - Calculus
Math 161 - Differential Calculus, Solid Geometry and Vectors
Math 141 - Calculus I
Math 121 - Calculus
Math 191 - Differential and Integral Calculus
Math 137 - Differential and Integral Calculus, Matrices

January 2017

Math 113 - Calculus
Math 145 - Linear Algebra
Math 231 - Differential Equations
Math 237 - Laplace Transform and Vector Analysis
Math 121 - Calculus

January 2019

Math 213 - Differential Equations
Math 161 - Differential Calculus, Solid Geometry and Vectors
Math 271 - PDE and Vector Analysis
Math 171 - Calculus and Ordinary Differential Equations

July 2019

Math 191 - Differential and Integral Calculus
Math 161 - Differential Calculus, Solid Geometry and Vectors
Math 283 - Statistics, PDE and Matrices
Math 257 - Ordinary and Partial Differential Equations

BRAC University

Summer 2014

Math 123 - Calculus I
Math 121 - Basic Algebra
Math 211 - Calculus II

Fall 2014

Math 123 - Calculus I
Math 121 - Basic Algebra
Math 211 - Calculus II

United International University

Summer 2013

Math 134 - Calculus I
Math 121 - Basic Algebra

Sonargaon University

Fall 2016

Math 167 - Integral Calculus I

Spring 2017

Math 167 - Integral Calculus I

Fall 2017

Math 144 - Matrices