Sarasij Maitra

Curriculum Vitae

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Education

2022–present **Postdoctoral Researcher/Lecturer**, *University of Utah.*
2016–2022 **PhD in Mathematics**, *University of Virginia.*
2014–2016 **M.Math**, *Indian Statistical Institute*, Kolkata.
2011–2014 **B.Math**, *Indian Statistical Institute*, Bangalore.

Papers and Preprints

- **Valuations and Nonzero Torsion in Module of Differentials** with V. Mukundan; (Submitted)
- **Partial Trace Ideals, Torsion and Canonical Module**; (Submitted)
- **Torsion in Differentials and Berger's Conjecture** with C. Huneke and V. Mukundan; Res Math Sci 8, 60 (2021)
- **Traceable PRFs: Full Collusion Resistance and Active Security** with D. J. Wu; **PKC 2022**
- **RandomPoints package for Macaulay2** with S. Bisui, T. T. Nguyễn, Z. Jiang and K. Schwede (To appear in the Journal of Software for Algebra and Geometry)
- **On Reflexive and I-Ulrich Modules over Curve Singularities**, with H. Dao and P. Sridhar; Trans. Amer. Math. Soc. Ser. B 10 (2023), 355-380
- **Partial Trace Ideals and Berger's Conjecture**; Journal of Algebra, 598: 1–23, 2022.

Awards and Achievements

- **The Joint Mathematics Meetings 2022 Travel Grant** (Later shifted to a virtual venue)
- **Jefferson Scholars Foundation Research Prize, 2021.**
- **All-University Graduate Teaching Award, University of Virginia, 2019-2020**.
- (2019) Travel Grant for Mathematical Sciences Research Institute 883 Commutative Algebra and its Interaction with Algebraic Geometry.
- 1^{st} Division with Distinction in M. Math.
- 1^{st} Division with Distinction in B. Math.

Software

- *RandomPoints*, (Macaulay 2), with S. Bisui, T. T. Nguyễn, Z. Jiang, K. Schwede.

- *SwitchingFields*, (Macaulay 2), with Z. Jiang.

Invited Talks and Poster Presentations

April 2023 **On the reduced type of one dimensional analytic k-algebras**.
Morgantown Algebra Days (MAD), West Virginia University

April 2023 **The Frobenius Problem**.
MathCircle, Salt Lake City, University of Utah

February 2023 **Frobenius Problem and Numerical Semigroup Rings**.
Math for All, Salt Lake City, University of Utah

Februrary 2023 **Module of Differentials and Berger's Conjecture**.
Algebra Seminar, University of Georgia

October 2022 **Discussions on Berger's Conjecture**.
Commutative Algebra Seminar, University of Utah

April 2022 **Notes On Berger's Conjecture**.
Graduate Seminar, University of Virginia

April 2022 **On Reflexive and I-Ulrich Modules**, *AMS Special Session on Commutative Algebra*, Joint Mathematics Meetings.

March 2022 **Torsion in Module of Differentials**, *Special Session on Recent Developments in Commutative Algebra*, AMS Spring Central Sectional Meeting at Purdue University, West Lafayette, IN.

March 2022 **Traceable PRFs: Full Collusion Resistance and Active Security (Upcoming)**.
PKC, Japan (virtual)

January 2022 **Partial Trace Ideals and Berger's Conjecture**.
Virtual Commutative Algebra Seminar, University of Illinois at Chicago

April 2021 **Discussions on I-Ulrich Modules**.
Virtual Commutative Algebra Seminar, Purdue University

April 2021 **An Introduction To Gröbner Bases**, *(Joint Talk with Stephanie Shand)*.
Graduate Seminar, University of Virginia

February 2021 **Discussions on I-Ulrich Modules**.
Algebra Seminar, West Virginia University

January 2021 **Discussions on Berger's Conjecture**.
Joint Mathematics Meetings

October 2020 **A Study of Colength in Dimension One**.
Commutative and Homological Algebra Market Presentations (CHAMP)

June 2020 **Poster: An Approach to Berger's Conjecture**.
Early Commutative Algebra Researchers (eCARs)

June 2020 **A Simple Study of Colength**.
Graduate Student Seminar, New Mexico State University

March 2020 **"Berger's Conjecture from the Viewpoint of an Invariant of the Module of Differentials"–An Approach to Berger's Conjecture**.
A Zoom Session on Commutative Algebra

Conferences Organized

October 2022 **AMS Special Session on Building Bridges Between Commutative Algebra and Nearby Areas**, *Fall Western Sectional Meeting*, University of Utah, Co-organizers: J. Cameron, T. Tribone.

Teaching

Spring 2023 **Assistant Professor (Lecturer)**, *University of Utah.*
MATH 3150-004 PDE's for Engineers

Fall 2022 **Assistant Professor (Lecturer)**, *University of Utah.*
MATH 1321-001 Accelerated Engineering Calculus II

Spring 2022 **Graduate Teaching Instructor**, *University of Virginia.*
MATH 1310-400 Calculus I (Flipped Model)

Fall 2021 **Graduate Teaching Instructor**, *University of Virginia.*
MATH 1410-001 Financial Mathematics

Fall 2020 **Graduate Teaching Instructor**, *University of Virginia.*
MATH 1320-200 Calculus II (Online Flipped Model)

Fall 2019 **Graduate Teaching Instructor**, *University of Virginia.*
MATH 1310-001 Calculus I (Flipped Model)

Spring 2019 **Graduate Teaching Instructor**, *University of Virginia.*
MATH 1220-009 A Survey of Calculus II

Spring 2018 **Graduate Teaching Instructor**, *University of Virginia.*
MATH 1210-008 A Survey of Calculus I

Fall 2017 **Graduate Teaching Instructor**, *University of Virginia.*
MATH 1210-007 A Survey of Calculus I

Spring 2017 **Graduate Teaching Assistant**, *University of Virginia.*
MATH 1310-100 Calculus I, MATH 3250-300 Ordinary Differential Equations

Fall 2016 **Graduate Teaching Assistant**, *University of Virginia.*
MATH 1310-500, MATH 1310-700 Calculus I

Service

- High School Sectional Leader, Mathcircle University of Utah, Spring 2023
- Reviewer for various mathematics journals
- Graduate Teaching Mentor at the University of Virginia, 2020-2021
- AWM Mentor at the University of Utah, 2022-2023

Memberships

- Association for Women in Mathematics (AWM)
- American Mathematical Society (AMS)

Other Projects

Jan - May, 2016 — Project on *Bargaining Games with Time-Independent and Time-Dependent Preferences* under Prof. Souvik Roy of Indian Statistical Institute, Kolkata. [Project Report]

Dec, 2014 — Reading Project on *Hopf Algebra* under Prof. Jyotishman Bhowmick of Indian Statistical Institute, Kolkata.

May - July, 2013 — Indian Academy of Sciences Summer Project on *Algebraic Geometry* under Prof. Kapil Hari Paranjape at Indian Institute of Science Education and Research, Mohali. [Project Report]

Skills

Language Skills — English, Bengali, Hindi

Technologies — Working knowledge of Macaulay 2, LaTeX, Python, R, HTML, MATLAB