# Sai Sivakumar

Email: sivakumars@utexas.edu

University of Texas at Austin

Personal page: sivakumarsai.github.io

## Goals

To obtain a Ph.D. in Mathematics, followed by a career in academia.

## Education

| | |
|---|---|
| 2024– | **Ph.D. in Mathematics**, *University of Texas at Austin* |
| 2020–2024 | **B.Sc. in Mathematics**, *University of Florida* |
| 2020–2024 | **Minors in Physics, Computer Science**, *University of Florida* |

## Works

### Publications

[1] **On virtual resolutions of points in a product of projective spaces**
I. Bailly-Hall, C. Berkesch, K. Dovgodko, S. Guan, S. Sivakumar, J. Sun (2024). To appear in the Journal of Pure and Applied Algebra.

[2] **Ideals preserved by linear changes of coordinates in positive characteristic**
B. Cattell-Ravdal, E. Delargy, A. Ganguly, S. Guan, T. Karn, M. Perlman, S. Sivakumar (2024). Submitted to Communications in Algebra.

### Miscellaneous

[3] **Strong multiplicity one for classical modular forms**
S. Sivakumar (2024). Senior thesis.

## Talks and Presentations

| | |
|---|---|
| Oct. 2024 | Local systems, monodromy, elliptic curves, and the Picard-Fuchs equation<br>UT Austin GRANT (Geometry, Representation theory, Algebra, and Number Theory) Seminar |
| Jan. 2024 | On virtual resolutions of points in a product of projective spaces<br>Joint Mathematics Meetings 2024, in the AMS Contributed Paper Session on Commutative Algebra and Related Topics |
| Jan. 2024 | Ideals preserved by linear changes of coordinates in positive characteristic<br>Joint Mathematics Meetings 2024, in the AMS Contributed Paper Session on Commutative Algebra and Related Topics |
| Oct. 2023 | Virtual resolutions of points in $\mathbb{P}^n \times \mathbb{P}^m$<br>UF Algebra Seminar |
| Apr., Jul. 2023 | Fourier analysis on LCA groups and Pontryagin duality<br>For Dr. Sin's Introduction to Representation Theory class; for the Student Summer Representation Theory Seminar at the University of Minnesota, Twin Cities. |
| Feb. 2022 | Combinatorial proof of existence of Sylow subgroups<br>UF Algebra seminar |
| Falls 2021–2023 | Annual LaTeX seminar<br>Joint with the UF Graduate Mathematics Association (GMA) and the UF Association for Women in Mathematics (AWM) chapter. |

## Conferences and Workshops

| | |
|---|---|
| Jan. 2024 | Joint Mathematics Meetings, *San Francisco* |

## Teaching

| | |
|---|---|
| Fall 2024 | **Teaching Assistant**, *M 408N*: Differential Calculus for Science |

## Outreach and Service

| | |
|---|---|
| Oct. 2024– | Volunteer at the Sunday Morning Math Group at UT Austin |
| | Exposes local junior high and high school students to fun and engaging topics in mathematics not typically appearing in the curricula; this group also hosts the AMC 8, 10, and 12 exams. |
| 2024 AY | Member of the Graduate Representative Committee at UT Austin |
| | We interface with UT Austin's graduate students by representing the interests of the graduate students in the department, and we organize events and tea. I specifically organize social events. |
| 2024 AY | Organizer of the Sophex seminar at UT Austin |
| | This seminar gives first-year graduate students a low-pressure environment to practice giving talks. |
| 2023 AY | President of the University Math Society at UF |
| | I managed the club, ensured all events ran smoothly, formed collaborations with the AWM chapter and the GMA, and encouraged a friendly, inclusive environment for all members. |
| 2021, 2022 AY | Teaching assistant and grader for *MAP2302* Elementary Differential Equations |
| Mar. 2021– | Moderator for a large online mathematics community |
| | Exceeding 230,000 members globally, it seeks to stimulate mathematical discussion and interest, as well as to provide assistance with math. |
| 2021, 2022 AY | Academic Director of the University Math Society at UF |
| | I scheduled talks from professors, gave talks myself, and encouraged undergraduate students to give talks. |

## Honors and Awards

| | |
|---|---|
| 2023 | The Kermit Sigmon Scholarship. |
| | $200, awarded every spring to promising undergraduate mathematics majors. |

## Skills

| | |
|---|---|
| LaTeX | 5+ years |
| Macaulay2 | Used in both REUs I attended |
| Java, C++ | In my undergraduate studies |