

Saad Slaoui

Curriculum Vitae

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Department of Mathematics, University of Texas at Austin

Education

- 2019–present **University of Texas at Austin**, *PhD student in Mathematics*.
PhD advisor: David Ben-Zvi
- 2018–2019 **University of Pennsylvania**, *M.A. in Mathematics*.
Master's thesis: "Topological K-Theory and Some of Its Applications".
Thesis supervisor: Mona Merling.
- 2015–2019 **University of Pennsylvania**, *B.A. in Mathematics with honors*.
Graduated Summa Cum Laude.
- 2017–2018 **University of Oxford**, *Academic year abroad, Lady Margaret Hall college*.

Honors and Awards

- 2019–2024 **Provost's Graduate Excellence Fellowship recipient**, *University of Texas at Austin*.
- 2019 **Phi Beta Kappa**, *University of Pennsylvania*.
- 2017 **Penn Math Undergraduate Research Prize**, *University of Pennsylvania*.
- 2015–2019 **Dean's List**, *University of Pennsylvania*.

Projects and Expository Writing

(Files accessible by clicking the title)

- 2020 **A Prelude to the Geometric Satake Equivalence**.
Lecture notes for a summer mini-course co-organized by Alberto San Miguel Malaney and myself.
- 2019 **Topological K-Theory and Some of Its Applications**.
Master's thesis. Advisor: Mona Merling.
- 2019 **The Brown Representability Theorem: Old and New**.
Co-written with Mark Macerato
- 2018 **Building up to the Pontryagin-Thom Theorem & Computation of $\pi_*(MO)$** .
UChicago REU 2018 project. Mentors: Peter May and Colin Aitken.
- 2018 **Tensor Product of Functors**.
Written in contribution to the book in progress "Finite Spaces and Larger Contexts", by Peter May.
- 2018 **A Primer on Sheaf Theory and Sheaf Cohomology**.
Oxford reading course project. Mentor: André Henriques.
- 2017 **Geometry and Topology of Complex Matrix Spaces**.
Summer 2017 project in collaboration with Louis Esser and Mark Macerato, supervised by Dennis DeTurck and Herman Gluck.

Talks

- April 2021 **Chern classes in complex algebraic geometry**, *Junior Geometry Seminar, University of Texas at Austin*.
(Online)
- March 2021 **Height filtration of the moduli of formal groups**, *Chromatic Seminar, University of Texas at Austin*.
(Online)
- March 2021 **The étale fundamental group and Tannakian formalism**, *BAGS Seminar, University of Texas at Austin*.
(Online)
- February 2021 **Formal group laws and Lazard's theorem**, *Chromatic Seminar, University of Texas at Austin*.
(Online)
- October 2020 **Algebraic K-theory from the geometric viewpoint**, *Junior Geometry Seminar, University of Texas at Austin*.
(Online)

- October 2020 (Online) **Introduction(s) to \mathcal{D} -modules and their 6 functor formalism**, BZR Seminar, University of Texas at Austin.
- September 2020 (Online) **Schemes from the functor of points perspective**, BAGS Seminar, University of Texas at Austin.
- May 2020 (Online) **Serre's GAGA theorems**, BAGS Seminar, University of Texas at Austin.
- March 2020 (Online) **Derived functors and sheaf cohomology**, BAGS Seminar, University of Texas at Austin.
- March 2020 **Quantum groups and their representations in the context of 3-2-1 TQFTs**, Junior Geometry Seminar, University of Texas at Austin.
- Oct. 2019 **A Primer on Lie groups and Lie algebras**, Sophex Seminar, University of Texas at Austin.
- Sept. 2019 **Clifford algebras and Clifford modules**, Junior Geometry and String Theory Seminar, University of Texas at Austin.
- Oct. 2018 **The Pontryagin-Thom isomorphism and null-bordism of manifolds via Stiefel-Whitney numbers**, Invited talk for Math 618, University of Pennsylvania.
- Sept. 2018 **From the Pontryagin-Thom isomorphism to the classification of manifolds up to unoriented cobordism**, Graduate Geometry/Topology Seminar, University of Pennsylvania.
- Aug. 2018 **Representability in algebraic topology**, REU 2018 participant talks, University of Chicago.
- Aug. 2018 **Geometry of matrix spaces**, Undergraduate Workshop in Geometry/Topology, University of Notre Dame.

Conferences Attended

- July 2020 (Online) **Motivic, Equivariant and Non-commutative Homotopy Theory**, IHES.
- June 2020 (Online) **Geometric Representation Theory**, Perimeter Institute/Max Planck Institute.
- Feb. 2020 **Introductory Workshop: Higher Categories and Categorification**, MSRI.

Teaching Experience

- July 2020 (Online) **The Geometric Satake Equivalence, Summer Mini-course Leader**, University of Texas at Austin.
Week long mini-course on the geometric Satake equivalence, jointly led by Alberto San Miguel Malaney.
[Click here for lecture notes.](#)
- May 2020 (Online) **Introduction to Representation Theory, Summer Mini-course Teaching Assistant**, University of Texas at Austin.
Two weeks long mini-course on the representation theory of semisimple Lie algebras, led by Tom Gannon.
- F2019-S2020 **Directed Reading Program, Mentor**, University of Texas at Austin.
Undergraduate mentees: Rithvik Reddy (algebraic topology), Joshua Wong (representation theory).
- Fall 2016 **CIS 120: Programming Languages and Structures, Teaching Assistant**, University of Pennsylvania.

Service

- Spring 2021 (Online) **Volunteer high-school tutor**, Precalculus, Art of Problem Solving.
- Spring 2020 **Graduate Student Volunteer, Sunday Morning Math Groups**, University of Texas at Austin.
Outreach program consisting of supervised problem-solving sessions and guest lectures, aimed at students in grades 6-12.
- F2019-present **Co-organizer, Basic Algebraic Geometry Seminar**, University of Texas at Austin.
Semester-long learning seminar on algebraic geometry, co-organized by Desmond Coles and myself. Topics from past semesters have included Serre duality and the Riemann-Roch theorem, stacks and moduli of curves, étale cohomology and the étale fundamental group.
- Spring 2017 **Teaching Assistant, Penn Emerging Scholars Program**, University of Pennsylvania.
Outreach weekly workshop designed to introduce college freshmen and sophomores to areas of discrete mathematics, computer science, and logic.

Languages

English (fluent); **French** (fluent); **Spanish** (intermediate).