# Zachary Gardner

zachary.gardner@bc.edu (214) 493-7284 U.S. Citizen

### **Education**

Boston College 2020–

Ph.D. in Mathematics Advised by Keerthi Madapusi

**University of Texas at Austin** 

2016-2020

B.S. in Mathematics with Departmental Honors

Advised by Sam Raskin

## **Preprints**

*An algebraicity conjecture of Drinfeld and the moduli of p-divisible groups*, joint with K. Madapusi and A. Mathew. 2024. (available on my website)

Prismatic Rapoport-Zink spaces associated to general linear groups. (forthcoming) Moduli of L-typical prismatic  $(\mathcal{G}, \mu)$ -apertures and applications. (forthcoming)

### **Research Talks**

Prismatic Rapoport-Zink spaces associated to general linear groups, Kyoto University, October 27, 2024 Moduli of prismatic  $(\mathcal{G}, \mu)$ -apertures and applications, The University of Tokyo, October 9, 2024 Prismatic  $(\mathcal{G}, \mu)$ -apertures and 1-bounded derived stacks, Universität Münster, August 14, 2024 Moduli of prismatic  $(\mathcal{G}, \mu)$ -apertures, Universität Münster, August 7, 2024

### **Service**

# Seminars Organized Derived Arithmetic Intersection Theory (DAIT) Learning Group K-Theory and Differential Cohomology Learning Group Spring 2022 Derived Algebraic Geometry (DAG) Learning Group Fall 2021 Galois Representations Reading Group UT Summer Minicourses Summer 2020

### Other Service

Treasurer: Math Graduate Student Association Fall 2022–

Managed finances, secured funding for events and standard activities

Secretary: Math Graduate Student Association Fall 2021-Spring 2022

Co-organized GIST, helped with prospective student logistics, and managed internal communications

Developing Exemplary Mathematics Teacher Leaders for High-Need Schools Fall 2021-Spring 2022

Served as Graduate Student Representative for Content initiative

Counselor: Ross Mathematics Program Summer 2017 & 2019

Mentored students, trained other counselors, taught courses, and helped with administration

# **Teaching Experience**

Teaching fellow for Math 1100 Calculus I Teaching fellow for Math 1004 Finite Probability and Applications Teaching fellow for Math 1100 Calculus I Teaching assistant for Math 1101 Calculus I Teaching assistant for Math 1101 Calculus II Teaching assistant for Math 2202 Multivariable Calculus Teaching assistant for Math 2202 Multivariable Calculus Teaching assistant for Math 2202 Multivariable Calculus Teaching assistant for Math 1102 Calculus I (Math/Sci) Teaching assistant for Math 1202 Calculus I (M		
Teaching fellow for Math 1004 Finite Probability and Applications Teaching fellow for Math 1100 Calculus I Teaching assistant for Math 1101 Calculus II Spring 202: Teaching assistant for Math 2202 Multivariable Calculus Teaching assistant for Math 2202 Multivariable Calculus Teaching assistant for Math 2202 Multivariable Calculus Teaching assistant for Math 1102 Calculus I (Math/Sci) Teaching	Boston College	
Teaching fellow for Math 1100 Calculus I Teaching assistant for Math 1101 Calculus II Teaching assistant for Math 2202 Multivariable Calculus Grader for Math 3312 Algebra II Teaching assistant for Math 2202 Multivariable Calculus Grader for Math 3312 Algebra II Teaching assistant for Math 1102 Calculus I (Math/Sci) Teaching assistant for Math 1202 Calculus I (Math/Sci) Teaching assistant for M	e	Spring 2024
Teaching assistant for Math 1101 Calculus II Teaching assistant for Math 2202 Multivariable Calculus Teaching assistant for Math 2202 Multivariable Calculus Teaching assistant for Math 3312 Algebra II Teaching assistant for Math 1102 Calculus I (Math/Sci) Teaching assistant for Math Mordell Public Intermediate Teaching assistant for Math 1102 Calculus I (Math/Sci) Teaching assistant for Math Mordell Public Intermediate Teaching assistant for Math Mordell Public Intermediate Teaching assistant for Math	• • • • • • • • • • • • • • • • • • • •	Fall 2023
Teaching assistant for Math 2202 Multivariable Calculus Grader for Math 3312 Algebra II Fall 2021 Grader for Math 3312 Algebra II Fall 2020 University of Texas at Austin UT Summer Minicourses Taught one-week course titled "Abelian Varieties and the Mordell-Weil Theorem" Taught one-week course titled "Class Field Theory" Summer 2019 Scholarships, Honors, & Awards  Boston College Donald J. White Teaching Excellence Award Spring 2022 Conferences & Workshops Attended  Workshop on Shimura varieties and related moduli stacks Kyoto University, Kyoto, Japan p-adic cohomology and arithmetic geometry (in honor of Nobuo Tsuzuki) Tohoku University, Sendai, Japan Workshop on Shimura varieties, representation theory and related topics The University of Tokyo, Tokyo, Japan Young Topologists Meeting Universitiat Münster, Münster, Germany Algebraic geometry and cohomology in mixed characteristic Evanston, Illinois, USA Homotopy Theory with Applications to Arithmetic and Geometry Fields Institute, Toronto, Ontario, Canada Arizona Winter School on Topology and Arithmetic Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English Native Intermediate	· ·	
Grader for Math 3312 Algebra II Teaching assistant for Math 1102 Calculus I (Math/Sci)  University of Texas at Austin UT Summer Minicourses Taught one-week course titled "Abelian Varieties and the Mordell-Weil Theorem" Summer 2020 Taught one-week course titled "Class Field Theory"  Scholarships, Honors, & Awards  Boston College Donald J. White Teaching Excellence Award  Spring 2022  Conferences & Workshops Attended  Workshop on Shimura varieties and related moduli stacks Kyoto University, Kyoto, Japan P-adic cohomology and arithmetic geometry (in honor of Nobuo Tsuzuki) Tohoku University sendai, Japan Workshop on Shimura varieties, representation theory and related topics The University of Tokyo, Tokyo, Japan Young Topologists Meeting Universitat Münster, Münster, Germany Algebraic geometry and cohomology in mixed characteristic Evanston, Illinois, USA Homotopy Theory with Applications to Arithmetic and Geometry Fields Institute, Toronto, Ontario, Canada Arizona Winter School on Topology and Arithmetic Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English Native Hindi		Spring 2022
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University of Texas at Austin  UT Summer Minicourses  Taught one-week course titled "Abelian Varieties and the Mordell-Weil Theorem"  Summer 2026  Scholarships, Honors, & Awards  Boston College  Donald J. White Teaching Excellence Award  Spring 2022  Conferences & Workshops Attended  Workshop on Shimura varieties and related moduli stacks  Kyoto University, Kyoto, Japan  p-adic cohomology and arithmetic geometry (in honor of Nobuo Tsuzuki)  Tohoku University, Sendai, Japan  Workshop on Shimura varieties, representation theory and related topics  The University of Tokyo, Japan  Young Topologists Meeting  Universität Münster, Münster, Germany  Algebraic geometry and cohomology in mixed characteristic  Evanston, Illinois, USA  Homotopy Theory with Applications to Arithmetic and Geometry  Fields Institute, Toronto, Ontario, Canada  Arizona Winter School on Topology and Arithmetic  Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English  Native Intermediate	Grader for Math 3312 Algebra II	Spring 2021
UT Summer Minicourses Taught one-week course titled "Abelian Varieties and the Mordell-Weil Theorem" Summer 2020 Taught one-week course titled "Class Field Theory" Scholarships, Honors, & Awards  Boston College Donald J. White Teaching Excellence Award Spring 2022  Conferences & Workshops Attended  Workshop on Shimura varieties and related moduli stacks Kyoto University, Kyoto, Japan p-adic cohomology and arithmetic geometry (in honor of Nobuo Tsuzuki) Tohoku University, Sendai, Japan Workshop on Shimura varieties, representation theory and related topics The University of Tokyo, Tokyo, Japan Young Topologists Meeting Universität Münster, Münster, Germany Algebraic geometry and cohomology in mixed characteristic Evanston, Illinois, USA Homotopy Theory with Applications to Arithmetic and Geometry Fields Institute, Toronto, Ontario, Canada Arizona Winter School on Topology and Arithmetic Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English Native Intermediate	Teaching assistant for Math 1102 Calculus I (Math/Sci)	Fall 2020
UT Summer Minicourses Taught one-week course titled "Abelian Varieties and the Mordell-Weil Theorem" Summer 2020 Taught one-week course titled "Class Field Theory" Scholarships, Honors, & Awards  Boston College Donald J. White Teaching Excellence Award Spring 2022  Conferences & Workshops Attended  Workshop on Shimura varieties and related moduli stacks Kyoto University, Kyoto, Japan p-adic cohomology and arithmetic geometry (in honor of Nobuo Tsuzuki) Tohoku University, Sendai, Japan Workshop on Shimura varieties, representation theory and related topics The University of Tokyo, Tokyo, Japan Young Topologists Meeting Universität Münster, Münster, Germany Algebraic geometry and cohomology in mixed characteristic Evanston, Illinois, USA Homotopy Theory with Applications to Arithmetic and Geometry Fields Institute, Toronto, Ontario, Canada Arizona Winter School on Topology and Arithmetic Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English Native Intermediate	University of Texas at Austin	
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Workshop on Shimura varieties and related moduli stacks  Kyoto University, Kyoto, Japan  p-adic cohomology and arithmetic geometry (in honor of Nobuo Tsuzuki)  Tohoku University, Sendai, Japan  Workshop on Shimura varieties, representation theory and related topics  The University of Tokyo, Tokyo, Japan  Young Topologists Meeting  Universität Münster, Münster, Germany  Algebraic geometry and cohomology in mixed characteristic  Evanston, Illinois, USA  Homotopy Theory with Applications to Arithmetic and Geometry  Fields Institute, Toronto, Ontario, Canada  Arizona Winter School on Topology and Arithmetic  Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English  Native Intermediate	Donald J. White Teaching Excellence Award	Spring 2022
Ryoto University, Kyoto, Japan p-adic cohomology and arithmetic geometry (in honor of Nobuo Tsuzuki) Tohoku University, Sendai, Japan Workshop on Shimura varieties, representation theory and related topics The University of Tokyo, Tokyo, Japan Young Topologists Meeting Universität Münster, Münster, Germany Algebraic geometry and cohomology in mixed characteristic Evanston, Illinois, USA Homotopy Theory with Applications to Arithmetic and Geometry Fields Institute, Toronto, Ontario, Canada Arizona Winter School on Topology and Arithmetic Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  English Hindi  October 21-25, 2024 October 7-11, 2024  August 5-9, 2024  May 15-19, 2023  May 15-19, 2023  May 15-19, 2023  March 2-6, 2019  March 2-6, 2019  Native Intermediate	Conferences & Workshops Attended	
p-adic cohomology and arithmetic geometry (in honor of Nobuo Tsuzuki) Tohoku University, Sendai, Japan Workshop on Shimura varieties, representation theory and related topics The University of Tokyo, Tokyo, Japan Young Topologists Meeting Universität Münster, Münster, Germany Algebraic geometry and cohomology in mixed characteristic Evanston, Illinois, USA Homotopy Theory with Applications to Arithmetic and Geometry Fields Institute, Toronto, Ontario, Canada Arizona Winter School on Topology and Arithmetic Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English Hindi  October 21-25, 2024 October 7-11, 2024 October 7-11, 2024 August 5-9, 2024 August 5-9, 2024 May 15-19, 2023 May 15-1	Workshop on Shimura varieties and related moduli stacks	October 27, 2024
Tohoku University, Sendai, Japan  Workshop on Shimura varieties, representation theory and related topics  The University of Tokyo, Tokyo, Japan  Young Topologists Meeting  Universität Münster, Münster, Germany  Algebraic geometry and cohomology in mixed characteristic  Evanston, Illinois, USA  Homotopy Theory with Applications to Arithmetic and Geometry  Fields Institute, Toronto, Ontario, Canada  Arizona Winter School on Topology and Arithmetic  Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English  Native Intermediate	Kyoto University, Kyoto, Japan	
Workshop on Shimura varieties, representation theory and related topics  The University of Tokyo, Tokyo, Japan  Young Topologists Meeting  Universität Münster, Münster, Germany  Algebraic geometry and cohomology in mixed characteristic  Evanston, Illinois, USA  Homotopy Theory with Applications to Arithmetic and Geometry  Fields Institute, Toronto, Ontario, Canada  Arizona Winter School on Topology and Arithmetic  Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English  Native Hindi	p-adic cohomology and arithmetic geometry (in honor of Nobuo Tsuzuki)	October 21-25, 2024
The University of Tokyo, Tokyo, Japan  Young Topologists Meeting  Universität Münster, Münster, Germany  Algebraic geometry and cohomology in mixed characteristic  Evanston, Illinois, USA  Homotopy Theory with Applications to Arithmetic and Geometry  Fields Institute, Toronto, Ontario, Canada  Arizona Winter School on Topology and Arithmetic  Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English  Native Hindi	Tohoku University, Sendai, Japan	
Young Topologists Meeting  Universität Münster, Münster, Germany  Algebraic geometry and cohomology in mixed characteristic  Evanston, Illinois, USA  Homotopy Theory with Applications to Arithmetic and Geometry  Fields Institute, Toronto, Ontario, Canada  Arizona Winter School on Topology and Arithmetic  Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English  Native Hindi	Workshop on Shimura varieties, representation theory and related topics	October 7-11, 2024
Universität Münster, Münster, Germany  Algebraic geometry and cohomology in mixed characteristic  Evanston, Illinois, USA  Homotopy Theory with Applications to Arithmetic and Geometry  Fields Institute, Toronto, Ontario, Canada  Arizona Winter School on Topology and Arithmetic  Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English  Native Hindi	The University of Tokyo, Tokyo, Japan	
Algebraic geometry and cohomology in mixed characteristic  Evanston, Illinois, USA  Homotopy Theory with Applications to Arithmetic and Geometry  Fields Institute, Toronto, Ontario, Canada  Arizona Winter School on Topology and Arithmetic  Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English  Native Hindi	Young Topologists Meeting	August 5-9, 2024
Evanston, Illinois, USA  Homotopy Theory with Applications to Arithmetic and Geometry Fields Institute, Toronto, Ontario, Canada Arizona Winter School on Topology and Arithmetic Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English Native Hindi	Universität Münster, Münster, Germany	
Homotopy Theory with Applications to Arithmetic and Geometry  Fields Institute, Toronto, Ontario, Canada  Arizona Winter School on Topology and Arithmetic  Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English  Native Hindi	Algebraic geometry and cohomology in mixed characteristic	May 15-19, 2023
Fields Institute, Toronto, Ontario, Canada  Arizona Winter School on Topology and Arithmetic  Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English  Native Hindi	Evanston, Illinois, USA	
Fields Institute, Toronto, Ontario, Canada  Arizona Winter School on Topology and Arithmetic  Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English  Native Hindi	Homotopy Theory with Applications to Arithmetic and Geometry	June 27-30, 2022
Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English Hindi  Intermediate	Fields Institute, Toronto, Ontario, Canada	
Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA  Languages  English Hindi  Intermediate		March 2-6, 2019
English Native Hindi	Southwest Center for Arithmetic Geometry, Tucson, Arizona, USA	
Hindi Intermediate	Languages	
Hindi Intermediate	English	Native
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French Reginner	French	Beginner