Jas Singh		
jas@math.ucla.edu		https://www.math.ucla.edu/~jas/
EDUCATION	University of California, Los Angeles Bachelor of Science, Mathematics	September 2016 - March 2020
	University of California, Los Angeles <i>Masters of Science</i> , Mathematics	September 2022
	University of California, Los Angeles <i>Ph.D</i> , Mathematics	September 2021 -
PAPERS	Smooth Calabi-Yau varieties with large index and Betti numbers, 2025, preprint	
ACADEMICS	I have passed all of my qualifying exams, including the basic qualifying exam as well as the area qualifying exams in algebra and in geometry/topology. Additionally, I have passed my candidacy exam.	
	Talks given	
	Lubin-Tate formal group laws in local class field theory	
	Elliptic curves over local fields and the Néron-Ogg-Shafarevich theorem Selmer and Shafarevich-Tate groups for elliptic curves	
	Stickelberger's and Herbrand's theorems in Iwasawa theory	
	Introduction to étale cohomology and the Weil conjectures	
	The étale fundamental group	
	Computation of étale cohomology of curves	
	A comparison theorem between analytic and étale cohomology	
	Global monodromy of Lefschetz pencils	
	Proof of the Weil conjectures, II	
	Conclusion to the Weil conjectures seminar - finishing touches, applications, and generalizations	
	Introduction to tropical varieties	
	Introduction to p -adic and Λ -adic modular forms	
	Examples of adic spaces and analytic points	
	Root systems and root datum	
	The Hodge-Tate decomposition for the p -adic Tate module	
	Introduction to Néron models	
	Existence and construction of Néron models of elliptic curves	
	Kodaira/Néron's classification of singular fibers and Tate's algorithm	
	Introduction to stacks and the moduli of curves	
	Valuative criteria, sheaves, and the local structure of Deligne-Mumford stacks	
	Stable reduction of curves	
	Hodge structures	
	The unramified geometric Langlands correspondence	
	The intersection product on Chow groups	
	Motivic cohomology of fields	
	Reduction of Drinfeld modules and Tate uniformization	
	Moduli of curves and abelian varieties	

OUTREACH In the summer of 2023 I was a mentor in the SURE-C² outreach program to advise community college students interested in math in a research project on transfer systems in homotopical combinatorics. Over the course of the 2023-2024 academic year, I met the students and guide them on their research. I was a mentor in the same program in the summer of 2025, also covering transfer systems in homotopical combinatorics, and am meeting the students over this academic year to guide them on their research.

I have been a mentor in UCLA's Directed Reading Program each quarter since my eligibility. The DRP pairs undergraduates interested in math with graduate student mentors to guide them through a reading project.

Spring 2022

Introduction to cryptography

Introduction to algebraic geometry

Fall 2022

Abel's theorem through monodromy on Riemann surfaces

Winter 2023

The Lisp programming language and λ -calculus Elliptic curve cryptography

Spring 2023

The Lisp programming language and λ -calculus Elliptic curve cryptography

Fall 2023

Introduction to homology Introduction to machine learning

Winter 2024

The Lisp programming language and λ -calculus Introduction to algebraic geometry

Fall 2024

Introduction to group theory Introduction to algebraic geometry

Winter 2025

Rational points on elliptic curves

SERVICE As of Fall 2023, I am a member of the teaching committee and the DRP committee.

 CONFERENCES
 PCMI Graduate Summer School on motivic homotopy theory and computational number

 ATTENDED
 theory, Summer 2021

WAGS at UC Riverside, Fall 2022

AWS on Unlikely Intersections, Winter 2023

Special Values of L-functions at Universität Paderborn, Winter 2023

SoCalAGS at UCSD, Spring 2023

Arithmetic, Birational Geometry, and Moduli Spaces at Brown University, Summer 2023

K-Theory, Algebraic Cycles, and Mathematical Physics at OSU, Summer 2023 SoCal Number Theory Day at UC Irvine, Fall 2023

	SoCalAGS at UCLA, Fall 2023	
	WAGS at Washington University, Fall 2023	
	Higher Dimensional Algebraic Geometry at UCSD, Fall 2023	
	AWS on Abelian Varieties, Winter 2024	
FELLOWSHIPS AND AWARDS	PS I received the 2020 Sherwood Prize from UCLA's mathematics department for exceptionDS performance as an undergraduate.	
	I received the Summer Mentored Research Fellowship in Summer 2022.	
TECHNICAL SKILLS	I am familiar with Python, Bash, SageMath, and LaTeX.	