

# Asvin G.

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## Education

- 2018–2023 **PhD**, *University of Wisconsin-Madison*, Advisor: Jordan Ellenberg.  
(expected)
- 2015–2017 **MMath**, *University of Michigan, Ann Arbor*.
- 2011–2015 **BS with Distinction**, *Indian Institute of Technology Kanpur*.

## Interests

Number theory, arithmetic and algebraic geometry, combinatorics, algebraic topology.

## Papers

- Configuration spaces, graded spaces, and polysymmetric functions; joint with [Andrew O'Desky](#). [\[arxiv\]](#) (submitted)
- On the variation of the Frobenius in a non abelian Iwasawa tower. [\[arxiv\]](#) (submitted)
- Unlikely and just-likely intersections for high dimensional families of elliptic curves. [\[arxiv\]](#) (submitted)
- Just-likely intersections on Hilbert modular surfaces; joint with [Qiao He](#) and [Ananth N. Shankar](#). [\[arxiv\]](#) (submitted)
- Supersingularity of Motives with Complex Multiplication and a Twisted Polarization. [\[arxiv\]](#) (submitted)

## Awards

- Excellence in Research, Graduate Student Award*, 2021.
- Henry Schaerf Mathematics Graduate Award*, 2022.

## Research Talks

- (Jan 2023) *JMM, Special Session - Excursions in Arithmetic Geometry*. Just-likely and unlikely intersections on Shimura varieties.
- (Dec 2022) *John Hopkins Junior Number Theory Days 2022*. On a p-adic Chebotarev density theorem.
- (May 19, 2022) *IISC Number Theory seminar, Bangalore*. On the space of irreducible polynomials in many variables.
- (April 30, 2022) *ADDING seminar, Georgia*. The variation of Frobenius eigenvalues in  $\ell$ -adic towers of curves over a finite field.
- (Nov 22, 2021) *UW Madison Singularities seminar*. On topological invariants of the space of irreducible polynomials in many variables.

6. (Oct 22, 2021) *UW-Madison Algebraic Geometry seminar*. A generalization of the ring of Symmetric functions and an application to computing topological invariants of graded monoid spaces.
7. (Oct 14, 2021) *UW-Madison Number Theory seminar*. The variation of the characteristic polynomial in  $\ell$ -adic towers.

## Expository Talks and Reading Groups

1. (July 28, 2017) *Invited talk at TIFR*. On mod- $p$  and  $p$ -adic modular forms following Swinnerton-Dyer and Serre.
2. (Spring 2018-2019) *For a course on Class Field Theory*. On Drinfeld Modules.
3. (Spring 2018 - Fall 2019) *Math-Physics reading group, UW Madison*. Covered various topics such as Quantum cryptography, electromagnetism, statistical physics etc.
4. (Nov 10, 2020) *Minnesota reading seminar on perfectoid spaces*. On the Weight-Monodromy Conjecture.
5. (Feb 7, 2021) *U-Washington reading seminar*. On Mori's paper "Projective manifolds with ample tangent bundle."
6. (Winter 2020-21) *Reading group on Weil I*.
7. (Summer 2021) *Reading group on Absolute Hodge Cycles*.
8. (Summer 2021) *Reading group on  $p$ -adic Hodge Theory*.
9. Various talks in the Graduate Number Theory and Algebraic Geometry seminars at UW-Madison.

## Teaching

1. (Fall Semester, 2018-19) *Teaching Assistant; Math 221, UW-Madison*: Calculus I.
2. (Fall Semester, 2018-19) *Directed Reading Program for undergraduates, UW-Madison*: Algebraic Geometry and Galois Theory.
3. (Spring Semester, 2018-19) *Teaching Assistant; Math 222, UW-Madison*: Calculus II.
4. (Spring Semester, 2018-19) *Directed Reading Program for undergraduates, UW-Madison*: Algebraic Number Theory.
5. (Fall Semester, 2019-20) *Teaching Assistant; Math 234, UW-Madison*: Calculus III.
6. (Spring Semester, 2019-20) *Teaching Assistant; Math 240, UW-Madison*: Discrete Math.
7. (Spring Semester, 2019-20) *Directed Reading Program for undergraduates, UW-Madison*: Galois Theory.
8. (Summer Semester, 2019-20) *Instructor; Math 234, UW Madison*: Calculus III.
9. (Fall Semester, 2020-21) *Teaching Assistant; Math 340, UW-Madison*: Linear Algebra
10. (Spring Semester, 2020-21) *Instructor; Math 96, UW Madison*: Preparatory Algebra.
11. (Fall Semester, 2021-22) *Teaching Assistant; Math 321, UW-Madison*: Applied Mathematical Analysis.
12. (Spring Semester, 2021-22) *Teaching Assistant; Math 321, UW-Madison*: Applied Mathematical Analysis.