Ryan Thomas Weiler

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# Education

Princeton University — Ph.D. in Pure Mathematics (Algebraic Geometry), 2018  
Massachusetts Institute of Technology — M.S. in Mathematics, 2015  
Harvard University — B.A. in Mathematics (Phi Beta Kappa), 2013

# Experience & Projects (Continuous Timeline)

**Assistant Professor of Mathematics | Research University | 2020 - Present**

- Proved fundamental theorems in algebraic geometry, published in Annals of Mathematics and Inventiones

- Developed new techniques in homological algebra advancing K-theory and motivic cohomology

- Solved longstanding conjectures in arithmetic geometry using advanced cohomological methods

- Mentored 12+ graduate students and postdocs, with 8 completing Ph.D. dissertations under supervision

**Assistant Professor of Mathematics Technician | Florida Atlantic University Facilities | 2021 - 2022**

- Supported campus-wide mathematics\_professor operations and maintenance across multiple facilities

- Assisted with installation and system upgrades related to mathematics\_professor work

- Performed preventive maintenance and collaborated with facilities team on repairs

- Maintained accurate documentation and followed safety protocols

**Key Projects & Certifications:**

- Breakthrough in Langlands Program: Established new cases of geometric Langlands correspondence

- Cohomology Theory Advancement: Developed new computational tools for étale cohomology

- Arithmetic Geometry Research: Proved rationality results for certain classes of algebraic varieties

- NSF CAREER Award: $500K grant for research in motivic homotopy theory and A¹-algebraic topology

# Technical Skills

Pure Mathematics: Algebraic Geometry, Homological Algebra, Category Theory, Number Theory

Analysis: Real/Complex Analysis, Functional Analysis, Harmonic Analysis, Differential Geometry

Algebra: Commutative Algebra, Representation Theory, Lie Algebras, Algebraic Topology

Computational: SageMath, Magma, GAP, Macaulay2, LaTeX, TikZ, Proof Assistants (Lean, Coq)

Research: Spectral Sequences, Derived Categories, Sheaf Cohomology, Modular Forms

# References

Available upon request