Connor Watson

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Education

Florida Atlantic University Boca Raton, FL

M.S. in Mathematics, May 2025; B.S. in Mathematics, May 2022.

Master's thesis: *The Consistency Strength of the Generalized Continuum Hypothesis Failing at a Measurable Cardinal*.

Committee: Robert Lubarsky (advisor), James Cummings, James Hanson, and Zvi Rosen.

Research Interests

Primary interest in descriptive inner model theory and its connections with combinatorial set theory. Further interests in forcing and large cardinals, including Prikry-type forcings, the tree property, and cardinal arithmetic. Additionally interested in neostability theory.

Research Papers

1. The Cone Fixing the Reals of $\mathrm{HOD}^{M_{2n}(x)}$

With Farmer Schlutzenberg. Submitted for publication. arXiv:2611.06032.

Characterizes the reals of M_{2n+1} as the reals in $\mathrm{HOD}^{M_{2n}(x)}$ when x computes $M_{2n+1}^{\sharp}$.

2. Indiscernible Extraction in Theories with Bounded k**-splitting**

Submitted for publication. arXiv:2610.22002.

Lowers the large-cardinal strength of an indiscernible extraction result for theories with bounded k-splitting to that of a weakly compact cardinal, and gives the first ZFC indiscernible extraction result for these theories. Also proves that these theories admit total bounded ultraimaginary Morley sequences in ZFC.

3. A Formula for Any Real Number, Maybe

With James E. Hanson. Submitted for publication. arXiv:2602.02384.

Constructs a fixed expression that takes any prescribed constructible real as its value in a suitable forcing extension.

Thesis and Expository Work

Master's thesis 2024–2025

Expository treatment of the equiconsistency of failure of GCH at a measurable cardinal with $o(\kappa) = \kappa^{++}$. Explains Woodin's forcing construction for the upper bound and Mitchell's core-model argument for the lower bound. *Existence of a Model of* $o(\kappa) = \kappa^{++}$ *from Failure of GCH at a Measurable Cardinal* gives the first detailed account of Mitchell's lower-bound argument.

Advanced Study in Set Theory

Weekly meetings with James Cummings August 2024–Present

Discussions of set theory, including extender-based Prikry forcing and PCF theory.

Weekly meetings and reading groups with Douglas Blue March 2026–Present

Readings include Neeman's *Determinacy in* $L(\mathbb{R})$ and *Fine Structure and Iteration Trees*.

Invited Talks

AMS Central Sectional Meeting October 2026
Indiscernible Extraction in Theories with Bounded k-splitting

UIC Logic Seminar September 2026
A HOD Characterization of the Reals of M_{2n+1}

Iowa Colloquium on Information, Complexity, and Logic (ICICL) May 2026
A Formula for Any Real Number, Maybe

Iowa State University Logic Seminar March 2026
A Formula for Any Real Number, Maybe

Contributed Talks

Joint Mathematics Meetings (JMM) January 2027
A HOD Characterization of the Reals of M_{2n+1}

Joint Mathematics Meetings (JMM) January 2027
Indiscernible Extraction in Theories with Bounded k-splitting

AMS East Sectional Meeting October 2026
A HOD Characterization of the Reals of M_{2n+1}

UChicago Graduate Student Logic and Combinatorics Seminar February 2026
A Formula for Any Real Number, Maybe

Graduate Coursework

Set Theory; Forcing and Large Cardinals; Further Topics in Large Cardinals; Inner Model Theory; Determinacy; Mathematical Logic; Linear Algebra (representation theory); Real Analysis (abstract measure spaces); Complex Analysis; Multivariable Analysis; Introductory Abstract Algebra II; Commutative Algebra; Algebraic Number Theory; Algebraic Geometry; Sheaves and Schemes; Algebraic Topology; Functional Analysis.

Additional Mathematical Preparation

Independent and small-group study: tree property, precipitous ideals, generic ultrapowers, determinacy, fine structure, inner model theory, and cardinal arithmetic.

Conferences attended: AMS Central Sectional Meeting (October 2026); AMS East Sectional Meeting (October 2026); MAMLS, Rutgers (2023).

Teaching Experience

Florida Atlantic University

Grader 2022–2023
Calculus I–II; Introduction to Calculus with Applications.

Math Learning Center Tutor Summers 2021 and 2022
Calculus I–III.

Embedded Tutor Summer 2022
Engineering Mathematics I.

Learning Assistant Fall 2021 and Spring 2022
Calculus II.

Skills

Python; German and Spanish (intermediate reading and writing).