Sherwood Hachtman

CONTACT INFORMATION

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EDUCATION

University of California, Los Angeles, Los Angeles, California.
Ph.D., Mathematics, June 2015.
Thesis Title: *Calibrating determinacy strength in Borel hierarchies.*
Itay Neeman, Chair.
M.A., Mathematics, June 2011.

Rutgers, the State University of New Jersey, New Brunswick, New Jersey.
B.S., Mathematics, June 2009.

EMPLOYMENT HISTORY

University of Illinois at Chicago, MSCS Department: Post-Doctoral Research Fellow, Visiting Assistant Professor. August 2015—Present.

UCLA Logic Center: Instructor, Logic Summer School, Supervisor Prof. Itay Neeman. Summer 2014 and 2015.

UCLA Office of Instructional Development: Teaching Assistant Consultant. Supervisor Prof. Olga Radko. Fall 2014.

RESEARCH INTERESTS

Logic; set theory; generalized computability; infinitary model theory.

I'm interested in the interplay between the structure of the real line and the foundations of mathematics, applications of the forcing method to singular cardinal combinatorics, and higher type set theory and computability.

PUBLICATIONS AND PREPRINTS

The super tree property at the successor of a singular, with Dima Sinapova. To appear in Israel Journal of Mathematics.

Determinacy separations for class games, Archive for Mathematical Logic, Vol. 58, Iss. 5-6 (August 2019), pp. 635-648.

ITP, ISP and SCH, with Dima Sinapova. Journal of Symbolic Logic, Vol. 84, Iss. 2 (June 2019) pp. 713-725.

Determinacy and monotone inductive definitions, Israel Journal of Mathematics, Vol. 230, Iss. 1 (March 2019), pp. 71-96.

Determinacy in third order arithmetic, Annals of Pure and Applied Logic, Vol. 168, Iss. 11 (Nov. 2017) pp. 2008-2021.

Calibrating determinacy in levels of the Borel hierarchy, Journal of Symbolic Logic, Vol. 82, Iss. 2 (June 2017) pp. 510-548.

Ultraproducts of finite alternating groups, with Paul Ellis, Scott Schneider, and Simon Thomas. RIMS Kokyuroku, No. 1619 (2008), 1–7.

Scattered sentences have few separable randomizations, with Uri Andrews, Isaac Goldbring, H. Jerome Keisler, and David Marker. Submitted.

INVITED TALKS

Logic Fest in the Windy City, held at UIC, May 30—June 2, 2019.

University of Wisconsin at Madison, Logic Seminar. November 6, 2018.

University of California, Irvine, Logic Seminar. May 21, 2018.

Rutgers University, Logic Seminar. April 17, 2017.

Southeast Atlantic Logic Symposium (SEALS), held at the University of Florida, Gainesville. January 15, 2017.

Midwest Descriptive Set Theory Day. University of Illinois at Chicago, October 21, 2016.

2016 Annual American Meetings of the Association for Symbolic Logic, University of Connecticut, Storrs. Set theory special session, May 25, 2016.

University of Wisconsin at Madison, Logic Seminar. October 4, 2016.

Indiana University at Bloomington, Logic Seminar. November 4, 2015.

Ohio State University, Logic Seminar. November 3, 2015.

University of Illinois at Urbana-Champaign, Logic Seminar September 22, 2015.

University of Illinois, Chicago Logic Seminar. April 21, 2015.

VIG 18: Very Informal Gathering of Logicians in honor of Donald A. Martin on the occasion of his retirement. UCLA, February 1, 2015.

Logic in Southern California Meeting (University of California, Irvine). May 10, 2014.

Cabal Seminar (Joint Caltech-UCLA Logic Seminar, UCLA). October 25, 2013.

CONFERENCE TALKS

Determinacy and reflection to admissibles, 2016 European Summer Meeting of the Association for Symbolic Logic (Leeds, England, June 2016).

Unraveling $\Sigma^0_{1+\alpha+3}(\Pi^1_1)$-Determinacy, 2014 European Summer Meeting of the Association for Symbolic Logic. (Vienna, Austria, June 2014).

Calibrating Borel determinacy, 2014 Annual American Meeting of the Association for Symbolic Logic. (Colorado University at Boulder, May 2014).

AWARDS AND FELLOWSHIPS

Fall 2015 to Spring 2018: Postdoctoral research fellow, funded via NSF Research & Training Group Grant DMS-1246844: PI Prof. Lawrence Ein (UIC).

Summer 2014: Association for Symbolic Logic Student Travel Grant, European Summer Meeting 2014.

Spring 2014: Association for Symbolic Logic Student Travel Award, North American Annual Meeting 2014.

2011-2012: NSF Research & Training Group (UCLA).

2009-2011: NSF Vertical Integration of Research & Education in the Mathematical Sciences (VIGRE) Grant (UCLA).

Summer 2008: NSF Research Experiences for Undergraduates (Rutgers University, Piscataway NJ), through NSF DMS-0603745: PI Prof. Janos Komlos (Rutgers).

TEACHING EXPERIENCE

As Instructor:

- **Math 215**: Introduction to Advanced Mathematics (UIC, Fall 2018).
- **Math 210**: Calculus III (UIC, Fall 2018). Multivariable calculus.
- **Math 430**: Formal Logic (UIC, Spring 2018, Spring 2016).
- **Math 180**: Calculus I (UIC, Fall 2017, Fall 2015). Calculus I.
- **Math 310**: Applied Linear Algebra (UIC, Spring 2017).
- **Math 512**: Topics in Set Theory (UIC, Fall 2016).
- **Determinacy**. Part of the 2015 Undergraduate Summer School, UCLA Logic Center, *Summer 2015*.
- **Forcing and Independence in Set Theory**. Part of the 2014 Undergraduate Summer School, UCLA Logic Center, *Summer 2014*.
- **Teaching Assistant Instructor**, Math 31B: Integration and Infinite Series, UCLA, *Winter 2014*.

Teacher Training:

- **Teaching Assistant Consultant**, Office of Instructional Development, UCLA, 2014-2015. Co-developed Math department TA training, including design of TA training seminar, teaching observations, and interdepartmental teaching seminar at OID.

As Teaching Assistant/Fellow: UCLA, *Fall 2009–Fall 2013*. Responsibilities include variously: 1-2 hr in class per week per section, office hours, grading of homework, quizzes, exams.

- Fall 2013: 115A – Linear Algebra (1 section)
- Fall 2012: 31A – Calculus (4 sections)
- Summer 2012: 33B – Differential Equations (2 sections)
- Spring 2011: 114L – Mathematical Logic (1 section)
- Winter 2011: 116 – Introduction to Cryptology (1 section)
- Fall 2010: 3A – Calculus for Life Sciences (2 sections)
- Spring 2010: 31B – Integration and Infinite Series (2 sections)
- Winter 2010: 31B – Integration and Infinite Series (2 sections)

- Fall 2009: 3B – Calculus for Life Sciences (2 sections)

Service and Organizing

UIC Mathematics Masters Examination Committee, 2017-2019. Subject section: Logic.

Dissertation committee: Jin Du, *Scales, Diamond and the Strong Tree Property* Ph.D thesis. University of Illinois at Chicago, 2018.

Dissertation committee: Maxwell Levine, *Reflection versus Square Properties: Some Compatibility Results.* Ph.D thesis. University of Illinois at Chicago, 2017.

Transactions of the American Mathematical Society, referee.

Israel Journal of Mathematics, referee.

Archive for Mathematical Logic, referee.

Annals of Pure and Applied Logic, referee.

Participating seminar in cardinal arithmetic, organizer; UIC Fall 2016.

Set theory seminar, local topics seminar, UIC, Spring 2015, organizer.

Logic seminar, weekly research seminar featuring visiting speakers, organizer Spring 2016—Fall 2017.

Grading and problem solving in math and sciences, 2014 UCLA campus-wide TA training. 90-minute interdisciplinary workshop for first time TAs.