William Chen-Mertens

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CONTACT
INFORMATION

York University
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Toronto, ON Canada

RESEARCH
INTERESTS

Logic and set theory — especially set-theoretic topology and singular cardinal combinatorics.

EMPLOYMENT

York University

York Science Fellowship (2018–present)

Ben-Gurion University of the Negev

Postdoctoral Fellowship (2016–2018)

EDUCATION

University of California, Los Angeles

Ph.D. in Mathematics (2016)

- Dissertation Topic: Some Results on Tight Stationarity
- Advisor: Itay Neeman

California Institute of Technology

B.S. in Mathematics (2010)

PUBLICATIONS

(with M. Kojman and J. Steprans) Strong colorings over partitions. submitted.

(with P.J. Szeptycki) Selectivity properties of spaces. accepted to Topology Proceedings.

(with P.J. Szeptycki) The effect of forcing axioms on the tightness of the G_δ topology. accepted to Fundamenta Mathematicae.

(with G. Galgon) Antichains, the stick principle, and a matching number. Topology and its Applications **256** (2019), 73–85.

(with S. Garti and T. Weinert) *Cardinal characteristics of the continuum and partitions.* to appear in the Israel Journal of Mathematics.

Variations of the stick principle. European Journal of Mathematics **3** (2017), 650–658.

(with C. Scaduto) *Nilpotency in instanton homology, and the framed instanton homology of a surface times a circle.* Advances in Mathematics **336** (2018), 377–408.

(with I. Neeman) *On the relationship between mutual and tight stationarity.* submitted.

Tight stationarity and tree-like scales. Annals of Pure and Applied Logic **166** (2015), Issue 10, 1019–1036.

(with I. Neeman) *Square principles with tail-end agreement.* Archive for Mathematical Logic **54** (2015), Issue 3-4, 439–452.

(with C.-Y. Ku) *An analogue of the Gallai–Edmonds Structure Theorem for non-zero roots of the matching polynomial.* Journal of Combinatorial Theory, Series B **100** (2010), Issue 2, 119–127.

TEACHING EXPERIENCE	**York University**

MATH 1019 B: Discrete Mathematics for Computer Science, Fall 2019.

Graduate Summer School in Set Theory:

Instructor for part of a two-week course in pcf theory.
UC Irvine, Summer 2016.

UCLA Teaching Assistant:

Math 156: Machine Learning, Spring 2016

Math 115A: Linear Algebra, Winter 2016

Math 155: Mathematical Imaging, Fall 2015

Math 180: Combinatorics, Winter 2015

Math 180: Combinatorics, Fall 2015

Math 61: Discrete Structures, Fall 2014

Math 123: Foundations of Geometry, Spring 2014

Math 61: Discrete Structures, Winter 2014

Math 3A: Calculus for the Life Sciences, Fall 2013

Math M114S: Introduction to Set Theory, Winter 2012

Math 3B: Calculus for the Life Sciences, Winter 2012

Math 3B: Calculus for the Life Sciences, Fall 2011

HONORS AND AWARDS

2010–2013	NSF Research Training Grant Fellowship UCLA
2011	Horn–Moez Prize for Excellence in First-Year Graduate Studies UCLA Mathematics Department
2010	Scott Russell Johnson Prize for Graduating Senior Caltech Mathematics Department
2009	H.J. Ryser Scholarship Caltech Mathematics Department

TALKS

Toronto Set Theory Seminar. *A Frechet space defined from a square principle*, April 12, 2019.

Spring Topology Conference: *A Frechet space defined from a square principle*, March 15, 2019.

Toronto Set Theory Seminar: *Antichains, the stick principle, and a matching number*, November 2, 2018.

SETTOP (Novi Sad): *Cardinal characteristics of ω_1*, July 3, 2018.

UIC Logic Seminar: *Variations of the stick principle*, September 26, 2017.

Logic Colloquium (invited talk, set theory special session): *Negative partition relations from cardinal invariants*, August 17 2017.

BGU Seminar in Logic, Set Theory and Topology: *Variations of the stick principle*, June 27, 2017.

BGU Seminar in Logic, Set Theory and Topology: *Tight stationarity and pcf theory*, November 8, 2016.

Logic in Southern California (UCLA), *Can mutual and tight stationarity agree anywhere?*, May 21, 2016.

Carnegie Mellon Mathematical Logic Seminar, *Can every mutually stationary sequence be tightly stationary?*, October 27, 2015.

Boise Extravaganza in Set Theory (SFSU), *Scales in Prikry extensions*, June 14, 2015.

Boise Extravaganza in Set Theory (UCR), *Tight stationarity and careful sets*, June 18, 2014 (won best student presentation award).

Logic in Southern California (UCI), *Tight stationarity and careful sets*, May 10, 2014.

Caltech–UCLA Logic Seminar (Cabal Seminar), *Tight stationarity and tree-like scales*, October 18, 2013.

ACADEMIC SERVICE Referee/Reviewer for: Math Reviews, Journal of Symbolic Logic, Bulletin of Symbolic Logic, Archive for Mathematical Logic, Topology Proceedings.

Organizer of Toronto Set Theory Seminar, 2019–2020.

Participated in marking the Canadian Open Mathematics Challenge

Committee member for graduate teaching training in Faculty of Science, York University

OTHER INFO Citizenship: USA