

Wai-Kit Lam

EDUCATION

Indiana University, Bloomington

Ph.D. in Mathematics, 2013 - 2018

Advisor: Michael Damron

Dissertation Topic: Topics in critical and first-passage percolation

The Chinese University of Hong Kong

M.Phil. in Mathematics, 2011 - 2013

Advisor: De-Jun Feng

Dissertation Topic: Arithmetic properties of certain sets of fractional dimension

B.Sc. in Mathematics, 2008 - 2011

EMPLOYMENT

National Taiwan University

Assistant Professor, 2021 -

University of Minnesota

Dunham Jackson Assistant Professor, 2018 - 2021

PUBLICATIONS/ PREPRINTS

(With M. Damron, J. Hanson and D. Harper) Transitions for exceptional times in dynamical first-passage percolation. [arXiv:2108.13248](#)

(With P. Nolin) Near-critical avalanches in 2D frozen percolation and forest fires. [arXiv:2106.10183](#)

(With M. Damron, C. Janjigian and X. Shen) Tail bounds for the averaged empirical distribution on a geodesic in first-passage percolation. [arXiv:2010.08072](#)

(With W.-K. Chen) Universality of approximate message passing algorithms. *Electron. J. Probab.* 26 (2021), Paper No. 36, 44 pp.

(With M. Damron and J. Hanson) Universality of the time constant for 2D critical first-passage percolation. [arXiv:1904.12009](#)

(With W.-K. Chen) Order of fluctuations of the free energy in the SK model at critical temperature. *ALEA Lat. Am. J. Probab. Math. Stat.* 16 (2019), no. 1, 809–816.

(With M. Damron and J. Hanson) The size of the boundary in first-passage percolation. *Ann. Appl. Probab.* 28 (2018), no. 5, 3184–3214.

(With M. Damron and X. Wang) Asymptotics for 2D critical first passage percolation. *Ann. Probab.* 45 (2017), no. 5, 2941–2970.

RESEARCH TALKS/ PRESENTATIONS

Seminar, The Chinese University of Hong Kong (Aug. 2021)

Bernoulli-IMS 10th World Congress in Probability and Statistics (July 2021)

Junior Integrable Probability Seminar (Apr. 2021)

Probability Seminar, CUNY (Mar. 2021)

University of Cambridge (Feb. 2021)

Special Colloquium, Academia Sinica (Dec. 2020)

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| | National Taiwan University (Nov. 2020) |
| | Weierstrass Institute for Applied Analysis and Stochastics (Oct. 2020) |
| | Bernoulli-IMS One World Symposium 2020 (Aug. 2020) |
| | Northwestern University-University of Minnesota Joint Probability Seminar (Sep. 2020) |
| | Probability and Related Fields Seminar, Indiana University (Feb. 2020) |
| | Probability Seminar, University of Minnesota (Jan. 2020) |
| | AMS Sectional Meeting, Binghamton University (Oct. 2019) |
| | Stochastic Processes and their Applications 2019, Northwestern University (July 2019) |
| | (Poster presentation) Interacting Particle Systems, Statistical Mechanics, and Related Topics, UCLA (Mar. 2019) |
| | Functional Analysis Seminar, University of Pittsburgh (Oct. 2018) |
| | Probability Seminar, University of Minnesota (Sep. 2018) |
| | Probability Seminar, University of Illinois at Urbana-Champaign (Mar. 2018) |
| | Seminar, The Chinese University of Hong Kong (May 2017) |
| | AMS Joint Math Meetings, Atlanta (Jan. 2017) |
| | Probability and Related Fields Seminar, Indiana University (Oct. 2016) |
| | Seminar, The Chinese University of Hong Kong (July 2016) |
| | Seminar, The Chinese University of Hong Kong (Nov. 2012) |
| EXPOSITORY TALKS | Several talks on first-passage percolation Probability/mathematical physics learning seminar, University of Minnesota (Spring 2019) |
| | Several talks on random matrix theory Graduate student seminar: Random matrix theory, Indiana University (Spring 2018) |
| | Fourier decay of measures Graduate student analysis seminar, Indiana University (Nov. 2015) |
| | Commutative Banach algebras Student seminar, The Chinese University of Hong Kong (July 2015) |
| | Arithmetic progressions in sets of fractional dimension Seminar, The Chinese University of Hong Kong (Mar. 2012) |
| CONFERENCES/ WORKSHOPS PARTICIPATION | Bernoulli-IMS 10th World Congress in Probability and Statistics (July 2021) |
| | Stochastic Spatial Processes Conference, Ohio State University (Mar. 2021) |
| | 42nd Midwest Probability Colloquium, Northwestern University (Oct. 2020) |
| | Bernoulli-IMS One World Symposium 2020 (Aug. 2020) |
| | AMS Joint Math Meetings, Denver (Jan. 2020) |
| | AMS Sectional Meeting, Binghamton University (Oct. 2019) |
| | 41st Midwest Probability Colloquium, Northwestern University (Oct. 2019) |
| | Stochastic Processes and their Applications 2019, Northwestern University (July 2019) |
| | Mathematics Research Communities: Stochastic Spatial Models, Whispering Pines (June 2019) |
| | 2019 Spring Probability Workshop, Academia Sinica (May 2019) |
| | Interacting Particle Systems, Statistical Mechanics, and Related Topics, UCLA (Mar. 2019) |
| | Spin Glasses and Related Topics, BIRS (Oct. 2018) |
| | Workshop on Fractal Geometry and Related Topics, CUHK (May 2018) |
| | Wabash Modern Analysis Seminar, Wabash College (Feb. 2018) |
| | AMS Sectional Meeting, Indiana University (Apr. 2017) |
| | AMS Joint Math Meetings, Atlanta (Jan. 2017) |
| | School and Workshop on Random Interacting Systems, University of Bath (June 2016) |

Midwest Workshop on Asymptotic Analysis, Indiana University (Oct. 2015)
 AMS Sectional Meeting, Michigan State University (Mar. 2015)
 International Conference on Advances on Fractals and Related Topics, CUHK (Dec. 2012)
 Workshop on Fractals and Related Fields, CUHK (Feb. 2012)
 Kyoto University/CUHK Joint Workshop on Analysis and Geometry of Fractals and Metric Measure Spaces, CUHK (Mar. 2010)

TEACHING EXPERIENCE

At NTU:

Fall 2021 High-dimensional probability.

At UMN:

Spring 2021 MATH 5652 Introduction to Stochastic Processes.

Fall 2020 MATH 5651 Basic Theory of Probability and Statistics (two sections).

Spring 2020 MATH 5652 Introduction to Stochastic Processes.

Fall 2019 MATH 5652 Introduction to Stochastic Processes (two sections).

Spring 2019 MATH 5651 Basic Theory of Probability and Statistics.

Fall 2018 MATH 5651 Basic Theory of Probability and Statistics (two sections).

At IU:

Fall 2017 MATH-D116 Introduction to Finite Mathematics.

Fall 2016 MATH-M018 Basic Algebra for Finite Mathematics (two sections).

EDITORIAL SERVICE

Refereed articles for Annales de l'Institut Henri Poincaré, Communications in Mathematical Physics, Electronic Communications in Probability, Electronic Journal of Probability, Journal of Statistical Physics, and some conference proceedings.

Reviewed articles for Mathscinet.

SERVICE

Co-organizer, Probability seminar (Fall 2018 – Spring 2021)

Organizer, Graduate student seminar: Random matrix theory (Spring 2018)

Student helper and organizer, Directed Reading Program (Spring 2016)

MENTORING

Undergraduate senior project:

Lu Zhang (Spring 2019), Xiaoyi Duan (Fall 2019), Lukuan Wang, Wanchen Zhang (Spring 2020), Brandon Kolstoe, Feng Su (Spring 2021)

Directed Reading Program:

Beixi Lei (Fall 2015)