

JOE PO-CHOU CHEN

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Department of Mathematics
Colgate University
13 Oak Drive
Hamilton, NY 13346
USA
(*On Sabbatical Leave 2018–19*)

✉ jpchen@colgate.edu 🌐 <http://math.colgate.edu/~jpchen>

RESEARCH INTERESTS

Probability & Stochastic Processes, Analysis of (S)PDEs, and Mathematical Physics on graphs, resistance spaces, and metric measure spaces. More specifically: scaling limits of microscopic stochastic processes, such as interacting particle systems, random surfaces, Laplacian growth and sandpile models; and spectral analysis of Laplace & Schrödinger operators.

EMPLOYMENT

Colgate University, Hamilton, NY, USA
Assistant Professor of Mathematics 2016–Present

University of Connecticut, Storrs, CT, USA
Postdoctoral Fellow / Visiting Assistant Professor of Mathematics 2013–2016
Postdoc sponsor: Alexander Teplyaev

EDUCATION

Ph.D. in Mathematical Physics, Cornell University, Ithaca, NY, USA August 2013
M.S. in Mathematical Physics, Cornell University, Ithaca, NY, USA May 2010
Dissertation title: *Topics in mathematical physics on Sierpinski carpets.*
Thesis supervisor: Robert S. Strichartz

B.S., Yale University, New Haven, CT, USA May 2006
Major in Physics (Intensive), Minor concentration in Mathematics
Phi Beta Kappa, Distinction in Major
Senior thesis title: *Sideband cooling of a one-sided cavity mirror.*
Thesis advisor: Steven M. Girvin

LONG-TERM (> 1 week long) RESEARCH STAYS

Center for Mathematical Analysis, Geometry and Dynamical Systems (CMAGSD), Instituto Superior Técnico, Lisboa, Portugal (*Sponsor: Patricia Gonçalves*) Jan–Feb '19

Applied Probability Group, DIAM, Technische Universiteit Delft, the Netherlands Oct–Nov '18, May '19
(*Sponsors: Frank Redig, Gioia Carinci*)

Fakultät für Mathematik, Universität Bielefeld, Germany Jul–Aug '17, Sep–Nov '18
Guest scientist sponsored by the **Bielefeld–Seoul International Research Training Group 2235**.
“Searching for the regular in the irregular: Analysis of singular and random systems”
(*Sponsors: Moritz Kassmann, Michael Hinz*)

Institut Henri Poincaré, Paris, France May–Jun '17
Participant of the trimester program “*Stochastic Dynamics Out of Equilibrium.*”

Hausdorff Research Institute for Mathematics, Universität Bonn, Germany May–Aug '12
Invited participant of the Hausdorff trimester program
“*Mathematical challenges of material science and condensed matter physics.*”

PUBLICATIONS & PREPRINTS

All of my preprints can be found at http://arxiv.org/a/chen_j_5, or linked from [my research page](#).

Name 'YR indicates Colgate undergraduate co-author and graduation year

PAPERS IN PREPARATION

- P1. "Semilinear evolution equations on resistance spaces," with Michael Hinz and Alexander Teplyaev. [10+ pp.]
- P2. "Hydrodynamic limit of the boundary-driven exclusion process on the Sierpinski gasket," with Michael Hinz and Alexander Teplyaev. [40+ pp.]
- P3. "Scaling limits of density fluctuations in asymmetric exclusion processes on resistance spaces: Kardar-Parisi-Zhang meets Sierpinski via Boltzmann-Gibbs." [30+ pp.]
- P4. "Spectral decimation of magnetic Schrödinger operator on the Sierpinski gasket," with [Ruoyu Guo '19](#). [10+ pp.]

SUBMITTED PAPERS

15. "Laplacian growth & sandpiles on the Sierpinski gasket: limit shape universality and exact solutions." (with [Jonah Kudler-Flam '17](#).) [arXiv:1807.08748](#). [51 pp.]
14. "Fractal AC circuits and propagating waves on fractals." (with Eric Akkermans, Gerald Dunne, Luke G. Rogers, and Alexander Teplyaev.) [arXiv:1507.05682](#). [9 pp.]
13. "Local ergodicity in the exclusion process on an infinite weighted graph." [arXiv:1705.10290](#). [36 pp.]
12. "Internal DLA on Sierpinski gasket graphs." (with Wilfried Huss, Ecaterina Sava-Huss, and Alexander Teplyaev.) [arXiv:1702.04017](#). [24 pp.]

PUBLISHED & ACCEPTED PAPERS

11. "From non-symmetric particle systems to non-linear PDEs on fractals." (with Michael Hinz and Alexander Teplyaev.) In A. Eberle *et al.* (eds.), *Stochastic Partial Differential Equations and Related Fields*, Springer Proceedings in Mathematics & Statistics 229 (2018) 503–513. [arXiv:1702.03376](#). [11 pp.]
10. "Regularized Laplacian determinants of self-similar fractals." (with Alexander Teplyaev and Konstantinos Tsougkas.) *Lett. Math. Phys.* **108** (2018) 1563–1579. [arXiv:1610.10062](#). [17 pp.]
9. "The moving particle lemma for the exclusion process on a weighted graph." *Electron. Commun. Probab.* **22** (2017), paper no. 47. [arXiv:1606.01577](#). [13 pp.]
8. "Wave equation on one-dimensional fractals with spectral decimation and the complex dynamics of polynomials." (with Ulysses Andrews, Grigory Bonik, Richard W. Martin, and Alexander Teplyaev.) *J. Fourier Anal. Appl.* **23** (2017) 994–1027. [arXiv:1505.05855](#). [34 pp.]
7. "Power dissipation in fractal AC circuits." (with Luke G. Rogers, Loren Anderson, Ulysses Andrews, Antoni Brzoska, Aubrey Coffey, Hannah Davis, Madeline Hansalik, Stephen Loew, and Alexander Teplyaev.) *J. Phys. A: Math. Theor.* **50** (2017) 325205. [arXiv:1605.03890](#). [20 pp.]
6. "Stabilization by noise of a C^2 -valued coupled system." (with Lance Ford, Derek Kielty, Rajeshwari Majumdar, Heather McCain, Dylan O'Connell, and Fan Ny Shum.) *Stoch. Dyn.* **17** (2017) 1750046. [arXiv:1510.09221](#). [22 pp.]
5. "Singularly continuous spectrum of a self-similar Laplacian on the half-line." (with Alexander Teplyaev.) *J. Math. Phys.* **57** (2016) 052104. [arXiv:1509.08875](#). [10 pp.]
4. "Spectral dimension and Bohr's formula for Schrodinger operators on unbounded fractal spaces." (with Stanislav Molchanov and Alexander Teplyaev.) *J. Phys. A: Math. Theor.* **48** (2015) 395203. [arXiv:1505.03923](#). [27 pp.]
3. "Entropic repulsion of Gaussian free field on high-dimensional Sierpinski carpet graphs." (with Baris E. Ugurcan.) *Stoch. Proc. Appl.* **125** (2015) 4632–4673. [arXiv:1307.5825](#). [42 pp.]
2. "Periodic billiard orbits of self-similar Sierpinski carpets."

- (with Robert G. Niemeyer.) *J. Math. Anal. Appl.* **416** (2014) 969–994. [arXiv:1303.4032](#). [26 pp.]
1. “Quantum theory of cavity-assisted sideband cooling of mechanical motion,”
(with Florian Marquardt, Aashish A. Clerk, and Steven M. Girvin.)
Phys. Rev. Lett. **99**, 093902 (2007). [900 citations as of Nov 2018, per Google Scholar]

OTHER PREPRINTS

- * “Heat kernels on 2d Liouville quantum gravity: a numerical study.”
(with Grigory Bonik and Alexander Teplyaev.) [arXiv:1411.1738](#). [15 pp.]
- * “Statistical mechanics of Bose gas in Sierpinski carpets.”
Appeared as Chapter 2 of my PhD dissertation, Cornell University (2013). [arXiv:1202.1274](#). [37 pp.]

RECENT GRANTS

(Sole PI unless noted otherwise)

- **Simons Foundation Collaboration Grant for Mathematicians (2017–22, grant #523544)**, for research project entitled “Scaling limits of particle systems on self-similar and random networks.” \$42,000. Awarded June 2017.
- **Colgate University Research Council Major Grant Award (2017–18)**, for research project entitled “Identifying Fluctuations in Interacting Particle Systems on Self-Similar and Random Networks.” Awarded February 2017.
- **Co-PI, NSF DMS-1700187 conference grant** “Cornell 6th Conference on Analysis, Probability, and Mathematical Physics on Fractals.” (PI: Robert Strichartz; other co-PIs: Luke Rogers, Alexander Teplyaev.) Awarded January 2017.

CONFERENCES ORGANIZED

- **7th Cornell Conference on Analysis, Probability & Mathematical Physics on Fractals**
Cornell University June 2020
Joint with Patricia Alonso-Ruiz, Luke Rogers, Robert Strichartz, and Alexander Teplyaev.
- **Special Session on Geometry, Analysis, Dynamics, and Mathematical Physics on Fractal Spaces at the 2019 AMS Spring Central & Western Joint Sectional Meeting**, Honolulu March 2019
Joint with Machiel van Frankenhuisen, Hung Lu, and Robert Niemeyer.
- **Special Session on Differential Equations on Fractals at the 2019 Joint Mathematics Meetings**, Baltimore January 2019
Joint with Patricia Alonso-Ruiz, Luke Rogers, Robert Strichartz, and Alexander Teplyaev.
- **6th Cornell Conference on Analysis, Probability & Mathematical Physics on Fractals**
Cornell University June 2017
Joint with Luke Rogers, Robert Strichartz, and Alexander Teplyaev.
- **Special Session on Analysis, Probability & Mathematical Physics on Fractals at the 2016 AMS Spring Eastern Sectional Meeting**, SUNY Stony Brook March 2016
Joint with Luke Rogers, Robert Strichartz, and Alexander Teplyaev.
- **The 3rd Northeast Mathematics Undergraduate Research Mini-Symposium**
University of Connecticut July 2015
Joint with Luke Rogers, we organized a one-day symposium featuring oral and poster presentations by math REU participants from 9 colleges & universities in CT-MA-NY. More than 100 students and faculty members attended, with 24 talks and 10 posters presented.

INVITED LECTURES & TUTORIALS

- '19 Jan Lisboa, Portugal Instituto Superior Técnico
Hydrodynamic limit of particle systems on resistance spaces (Minicourse, 6 lectures)
- '18 Oct Bielefeld, Germany Bielefeld–Seoul International Research Training Group 2235
Random processes induced by Laplacian determinants (Scientific block course, 5 lectures)
- '17 Jul Bielefeld, Germany Bielefeld–Seoul International Research Training Group 2235
Scaling limits of particle systems on nonsmooth spaces (Scientific block course, 5 lectures)
- Jun Ithaca, NY 6th Cornell Conf on Analysis, Probability & MathPhys on Fractals
Probability on fractals (2 hours)

TALKS AND CONFERENCES

Colloquium & seminar talks

- '18 Oct Delft, NL Dept of Applied Math, Technische Universiteit Delft
Probability Seminar
- Düsseldorf, DE Mathematisches Institut, Universität Düsseldorf
Oberseminar "Spezielle Stochastische Probleme"
- Jun Ithaca, NY Dept of Math, Cornell University
Cornell Math SPUR/REU Smorgasbord Seminar
- May Providence, RI Dept of Math, Brown University
Discrete Math Seminar
- Apr Waterville, ME Dept of Math & Stats, Colby College
Colloquium
- '17 Nov Ithaca, NY Dept of Math, Cornell University
Analysis Seminar
- Oct New York City Dept of Math, CUNY Graduate Center
Probability Seminar
- Apr Hamilton, NY Colgate University Teaching with Technology: Brown Bag Series
Lightboard demo (with Kiko Galvez); Piazza demo (with Aaron Gember-Jacobson)
- '16 Nov Albany, NY Dept of Math & Stats, SUNY Albany
Analysis & Data Science Seminar
- Sep Hamilton, NY Colgate University Teaching with Technology: Brown Bag Series
Capture Dynamic Lectures with the Lightboard
- Ithaca, NY Dept of Math, Cornell University
Analysis Seminar
- Jul Graz, Austria Institute of Discrete Mathematics, TU Graz
Seminar: Structure Theory and Stochastics and Noncommutative Structures
- Feb Hamilton, NY Dept of Math, Colgate University
Colloquium
- Jan Amherst, MA Dept of Math, Amherst College
Colloquium: "Random walks and the p -series."
- Chicago, IL Dept. of Mathematical Sciences, DePaul University
Colloquium
- '15 Dec Storrs, CT Dept of Math, University of Connecticut
UConn Math Club. "Mr. Schur's neighborhood."
- Nov Ithaca, NY Dept of Math, Cornell University
Joint analysis/probability seminar. "Current large deviations in SSEP on SG."
- Storrs, CT Dept of Math, University of Connecticut
Analysis & Probability Seminar. "Current large deviations in SSEP on SG."
- Jun Storrs, CT Dept of Math, University of Connecticut
Joint REU-S.I.G.M.A. seminar. "Octopus, drunkards & electric networks."
- Feb Storrs, CT Dept of Math, University of Connecticut
UConn Math Club. "Universality for random matrices."
- Storrs, CT UConn Honors Program

'14 Feb	Storrs, CT	<i>Informal "lunch bunch" sharing my experiences with select Honors students</i> Dept of Math, University of Connecticut <i>UConn Math Club. "Harmonic series and random walks."</i>
'13 Nov	Providence, RI	Dept of Math, Brown University <i>Discrete math seminar</i>
Sep	Storrs, CT	Dept of Math, University of Connecticut <i>Analysis & Probability Seminar. "Maxima & entropic repulsion of the free field."</i>
Mar	Ithaca, NY	Dept of Math, Cornell University <i>Probability seminar. "Entropic repulsion of the free field on SC."</i>
'12 Jul	Jena, Germany	Mathematisches Institut, Friedrich-Schiller-Universität Jena <i>Oberseminar Analysis, Geometrie und Stochastik</i>
May	Bonn, Germany	Hausdorff Research Institute for Mathematics <i>Happy Hour of Math seminar</i>
Feb	Ithaca, NY	Dept of Math, Cornell University <i>Analysis seminar</i>
'11 Dec	Kaohsiung, Taiwan	Dept of Physics, National Sun Yat-Sen University <i>Department Colloquium</i>
Apr	Storrs, CT	Dept of Math, University of Connecticut <i>Analysis & Probability Seminar</i>

Conference presentations (talks unless indicated otherwise; *co-author presenting)

'19 Jan	Baltimore, MD	Joint Mathematics Meetings <i>AMS Special Session on Differential Equations on Fractals</i>
'18 Oct	Bad Herrenalb, DE	Fractal Geometry & Stochastics VI
Jul	Montréal, QC	XIX International Congress on Mathematical Physics <i>Contributed talk, equilibrium statistical mechanics section</i>
	Montréal, QC	Summer Workshop on Challenges in Probability & Mathematical Physics
Apr	Rochester, NY	Finger Lakes Probability Seminar
'17 Nov	Riverside, CA	AMS Fall Western Sectional Meeting <i>Special Session on Analysis & Geometry of Fractals*</i>
Sep	Syracuse, NY	Northeast Analysis Network Conference
Aug	Potsdam, Germany	Analysis and Geometry on Graphs and Manifolds
Jul	Edinburgh, Scotland	International Workshop on BSDEs, SPDEs & their Applications <i>Special Session on SPDEs and PDEs on singular spaces</i>
Jun	Ithaca, NY	6th Cornell Conf on Analysis, Probability and MathPhys on Fractals
May	Paris, France	Institut Henri Poincaré Trimester "Stochastic Dynamics Out of Equilibrium" <i>Workshop: Life Sciences</i> (poster)
Apr	Syracuse, NY	Finger Lakes Probability Seminar
	Westfield, MA	Hudson River Undergraduate Mathematics Conference
Mar	Charlottesville, VA	Seminar on Stochastic Processes at UVa
'16 Oct	Atlanta, GA	QMath13: Mathematical Results in Quantum Physics <i>Special Session on Quantum Mechanics with Random Features</i>
Sep	Rochester, NY	Northeast Analysis Network Conference
Jun	San Luis Obispo, CA	2016 Summer School on Fractal Geometry and Complex Dimensions <i>In celebration of the 60th birthday of Michel Lapidus</i>
Mar	Stony Brook, NY	AMS Spring Eastern Sectional Meeting <i>Special Session on Analysis, Probability, and MathPhys on Fractals</i>
	College Park, MD	Seminar on Stochastic Processes at Univ. of MD
Jan	Seattle, WA	Joint Mathematics Meetings <i>AMS Special Session on Fractal Geometry & Dynamical Systems</i> <i>MAA Session on Experiences and Innovations in Teaching Probability Theory</i>
'15 Nov	New York City	14th Northeast Probability Seminar at NYU
Sep	Oaxaca, Mexico	CMO-BIRS 5-Day Workshop: <i>Spectral Properties of Quasicrystals</i>

Mar	East Lansing, MI	<i>via Analysis, Dynamics & Geometric Measure Theory</i> AMS Spring Central Sectional Meeting <i>Special Session on Fractals & Tilings</i>
'14 Jun	Ithaca, NY	5th Cornell Conf on Analysis, Probability and MathPhys on Fractals
Mar	Tabarz, Germany Coventry, England	Fractal Geometry & Stochastics V EPSRC Symposium on StatMech & Mathematics of Phase Transitions at Warwick Maths Institute: <i>Many-body quantum systems</i>
Jan	Baltimore, MD	Joint Mathematics Meetings <i>AMS Special Session on Fractal Geometry: Mathematics of Fractals and Related Topics*</i>
'13 Jun	Halifax, N.S.	2013 CMS Summer Meeting <i>Analysis, Geometry and Topology on Fractals, Wavelets and Self-Similar Tilings</i>
'12 Dec	Hong Kong	Advances on Fractals and Related Topics at Chinese Univ. of HK
Aug	Aalborg, Denmark	XVII International Congress on Mathematical Physics & Young Researcher Symposium
Jul	Coventry, England	5th Probability at Warwick Young Researchers Workshop
Mar	Tucson, AZ Honolulu, HI	Arizona School of Analysis and Mathematical Physics AMS Spring Western Sectional Meeting <i>Special Session on Geometry & Analysis on Fractal Spaces</i>
Jan	Boston, MA	Joint Mathematics Meetings <i>AMS Special Session on Fractal Geometry in Pure and Applied Mathematics (in memory of Benoit Mandelbrot)</i>
'11 Nov	New York City Messina, Italy	10th Northeast Probability Seminar at Courant Institute First International Meeting PISRS 2011 <i>Analysis, Fractal Geometry, Dynamical Systems and Economics, on the occasion of the Anassilaos International Prize 2011 awarded to Profs. Michel Lapidus & Franco Nicolosi</i>
Sep	Ithaca, NY	4th Cornell Conf on Analysis, Probability, and MathPhys on Fractals <i>joint with the AMS Fall Eastern Sectional Meeting</i>
Aug	Prague, Czech Rep.	6th Prague Summer School on Mathematical Statistical Physics
Jun	Haifa, Israel	Waves & Quantum Fields on Fractals workshop at Technion
May	New Brunswick, NJ	105th Statistical Mechanics Conference at Rutgers
Mar	Dallas, TX	APS March Meeting
Feb	College Park, MD	February Fourier Talks at Norbert Wiener Center, UMD
'10 Oct	Syracuse, NY	AMS Fall Eastern Sectional Meeting <i>Special Session on Analysis, Probability & MathPhys on Fractals</i>

Conference participation

'19 Apr	Ithaca, NY	Finger Lakes Probability Seminar
Mar	Honolulu, HI Salt Lake City, UT	AMS Spring Central & Western Joint Sectional Meeting Seminar on Stochastic Processes
Jan	Paris, France	Inhomogeneous Random Systems at Institut Henri Poincaré
'18 Nov	Montréal, QC	CRM Thematic Semester on Mathematical Challenges in Many-Body Physics & Quantum Information <i>Workshop: Spectral Theory of Quasi-Periodic and Random Operators</i>
Sep	Bonn, Germany Bielefeld, Germany	Young Women in Mathematical Physics workshop 9th International Conference on Stochastic Analysis and Its Applications
Aug	Groton, CT	Recent Progress on Dimer Model and Statistical Mechanics
Apr	Canton, NY	Hudson River Undergraduate Mathematics Conference
'17 Jun	New York City	Dynamics, Aging and Universality in Complex Systems <i>In honor of Gerard Ben Arous' 60th Birthday</i>
'16 Sep	Cambridge, MA	Charles River Lectures on Probability Theory and Related Topics
Jul	Bielefeld, Germany	Heat Kernels and Analysis on Manifolds and Fractals
'15 May	W. Lafayette, IN	Conference in stochastic analysis and related topics

		<i>In honor of Rodrigo Bañuelos' 60th Birthday</i>
Apr	Providence, RI	ICERM Semester on "Phase Transitions and Emergent Properties" <i>Workshop: Limit Shapes</i>
'14 Nov	New York City	13th Northeast Probability Seminar at Columbia Univ.
Oct	New Haven, CT	The 7th Ahlfors-Bers Colloquium at Yale University
	Cambridge, MA	Charles River Lectures on Probability Theory and Related Topics
'13 Oct	Cambridge, MA	Charles River Lectures on Probability Theory and Related Topics
Jul	Ithaca, NY	9th Cornell Probability Summer School
'12 Nov	New York City	11th Northeast Probability Seminar at Columbia Univ.
Sep	New York City	Random Structures and Limit Objects: A conference to celebrate the 60th birthday of David Aldous (at Courant Institute)
Jul	Berlin, Germany	Mathematics of Many-Particle Systems (at TU Berlin) <i>Conference in Honor of Elliott Lieb on the Occasion of his 80th Birthday</i>
Jun	Munich, Germany	11th Probability Day Erlangen-München (at TUM/LMU) and Conference in Honor of Herbert Spohn
	Coventry, England	EPSRC Symposium on Probability at Warwick Maths Institute <i>The Geometry of Discrete Random Structures</i>
May	Bonn, Germany	Random Matrices workshop at Hausdorff Center for Mathematics
Mar	Berkeley, CA	Statistical Mechanics and Conformal Invariance workshop at MSRI
'11 Nov	Ithaca, NY	1-day Probability Conference in Honor of Harry Kesten's 80th Birthday
Jul	Ithaca, NY	7th Cornell Probability Summer School
May	Ithaca, NY	Random Walks in Random Environments Conference
'10 Nov	New York City	9th Northeast Probability Seminar at CUNY Graduate Center
Jul	Ithaca, NY	6th Cornell Probability Summer School
Apr	Ithaca, NY	Stochastic Analysis and MathPhys: A Conference in Honor of Len Gross

TEACHING [^G indicates a graduate-level course]**Colgate University**

- Real Analysis I (MATH 377) Spring 2018
- Functions of a Complex Variable (MATH 313) Spring 2017
- Linear Algebra (MATH 214) Fall 2017
- Multivariable Calculus (MATH 113) / Calculus III (MATH 163) Spring 2017–Spring 2018
- Calculus II (MATH 112) Fall 2016

University of Connecticut

- Analysis I (MATH 3150) Spring 2016†
- Independent study (MATH 3799): Spectral graph theory (1 undergraduate advisee) Spring 2016
- Probability Theory & Stochastic Processes I (MATH 5160^G) Fall 2015†
- Honors Undergraduate Probability (MATH 3160, renamed MATH 3165) Spring 2015*†, Fall 2015*†
- Undergraduate Probability (MATH 3160) Fall 2013*†, Fall 2014†, Spring 2015*†, Spring 2016 †
- Elementary Stochastic Processes (MATH 3170) Spring 2014†
- Multivariable Calculus (MATH 2110, one section) Spring 2014*†

*Received a median score of 5/5 in every instructor category on the course evaluations.

†Received University Provost's commendation for high teaching evaluation scores.

Cornell University

- Teaching assistant, Honors Introduction to Analysis I (MATH 4130) Spring 2013
- Teaching assistant, Applied Complex Analysis (MATH 4220) Fall 2011 & Fall 2012
- Grader, Applied Functional Analysis (MATH 6220^G) Spring 2012
- Grader, Partial Differential Equations I (MATH 6190^G) Fall 2011
- Teaching assistant, Wavelets & Fourier Series (MATH 4240) Spring 2011
- Teaching assistant, Quantum Mechanics I (PHYS 6572^G) Fall 2009 & Fall 2010
- Recitation instructor, Engineering Differential Equations (MATH 2930) Spring 2010
- Recitation instructor, Waves, Optics & Quantum Physics (PHYS 2214) Fall 2008 & Spring 2009

TEACHING INNOVATIONS

(At UConn) In collaboration with Tom Roby, we implemented “flipped classroom” in our undergraduate probability (MATH 3160) courses in Fall 2015, which is taken by 200+ students majoring in math, actuarial science, and engineering. Before each class, students are asked to watch short video lectures which are recorded using the [Lightboard](#) technology. Then the class time is devoted to group problem solving and interactive discussions. Information on our teaching materials is available upon request.

SERVICE

- **Actuarial exam advisor at Colgate University** Fall 2016–Present
 Advises Colgate undergraduates on preparing for the actuarial probability & financial math exams (1 student each in Spring '17 and Fall '17). As part of my credentials, I took and passed Exam P in Nov '16. I also serve as the faculty sponsor for the Colgate Actuarial Society (Fall 2017–Present).
- **Coordinator for the Hudson River Undergraduate Mathematics Conference** 2017–Present
 Leads Colgate undergraduates to the annual conference to present their research.
- **2015 UConn Math Research Experience for Undergraduates (REU) program** May–July 2015
 Served as a research supervisor for the fractals group (8 undergraduates) and the stochastic control group (5 undergraduates).
- **The 1st Annual UConn STEM-fest** May 2015
 Helped design, host, and grade the competition event “The Dice Game” for 100+ CT high school student participants.
- **Co-organizer of the UConn Analysis & Probability Seminar** Spring 2015–Spring 2016
 Joint with Matthew Badger.
- **Organizer of informal probability reading group, Cornell University** Spring 2012
 Topic: Statistical mechanics models on planar graphs and their conformally invariant scaling limits.
 Gave three seminar talks on the conformal invariance of domino tilings on planar domains, and convergence of the dimer height function to Gaussian free fields.
- **2011 Cornell Math Research Experience for Undergraduates (REU) program** June–August 2011
 Served as the graduate assistant to the Analysis on Fractals project, working with 9 undergraduate students. Led daily problem sessions during week one, mentored students’ research projects in subsequent weeks, and organized outdoor activities and picnics.

AWARDS & FELLOWSHIPS

- Student travel funding from the Canadian Mathematical Society to attend the 2013 CMS Summer Meeting 2013
- NSF support for US-based young researchers to travel to the XVII International Congress on Mathematical Physics in Aalborg, Denmark (competitive selection) 2012
- DeForest Pioneers Prize for distinguished creative achievement, Dept of Physics, Yale University 2006
- Yale College Dean’s Summer Research Fellowship 2005
- AT&T Asia-Pacific Leadership Award 2002

MEDIA PUBLICITY

In Fall 2014, my MATH 3160 final exam problem on Yale’s upset win over UConn in men’s basketball (December 5, 2014) was publicized in [an article by Matt Norlander of CBSsports.com](#). This was a problem involving the use of correlation and the central limit theorem to estimate the probability that UConn is upset by an Ivy League opponent. It has since appeared in other media outlets, including [Sports Illustrated](#) and ESPN (on the “Olbermann” show, [YouTube link](#)), as well as mentions in [UConn CLAS News](#) and the Yale Alumni Magazine (March/April 2015).