

Department of Mathematical Sciences
Carnegie Mellon University
Pittsburgh, PA 15213

Tel: (412) 268-2548
ploh@cmu.edu
<http://www.math.cmu.edu/~ploh>

- Research interests** Probabilistic and extremal combinatorics, random structures, and applications of combinatorics to theoretical computer science.
- Current position** CARNEGIE MELLON UNIVERSITY, Pittsburgh, Pennsylvania.
Assistant Professor of Mathematics, 2010–present.
- Education** PRINCETON UNIVERSITY, Princeton, New Jersey.
Ph.D., Mathematics, Jan. 2010, advised by B. Sudakov.

CAMBRIDGE UNIVERSITY, Cambridge, United Kingdom.
Certificate of Advanced Study in Mathematics with Distinction, 2005.

CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, California.
Bachelor of Science with Honor, Mathematics, 2004.
- Grants** NSA Young Investigators Grant (2011–2012).
PI, NSF Infrastructure Grant for USA Math Olympiad Program (2010–2013).
Co-PI, USA-Israel Binational Science Foundation Grant (2011–2015).
- Fellowships** Fannie and John Hertz Foundation Graduate Fellowship (2005–2010).
NSF Graduate Research Fellowship (2006–2009).
Winston Churchill Foundation Scholarship (2004–2005) for study in the U.K.
- Awards** 16th and 18th places, 2002 and 2003 Putnam Mathematical Competitions.
7th place team (out of 3,150), 2004 ACM Int'l. Colleg. Programming Contest.
Silver medalist at the 1999 International Mathematical Olympiad in Romania.
- Professional activities** DEPUTY TEAM LEADER FOR THE UNITED STATES OF AMERICA
at the 2011, 2010, and 2004 International Mathematical Olympiads.

INSTRUCTOR ('04, '08, '09, '10, '11) and JR. INSTRUCTOR ('03)
at the U.S. Math Olympiad Summer Program, the national training camp.
- Publications** *Thresholds for extreme orientability*
(with R. Pagh), submitted.

Self-similarity of graphs
(with C. Lee and B. Sudakov), submitted.

- Publ. (ctd.)** *Bisections of graphs*
(with C. Lee and B. Sudakov), submitted.
- Rainbow Hamilton cycles in random graphs*
(with A. Frieze), submitted.
- On a problem of Erdős and Rothschild on edges in triangles*
(with J. Fox), *Combinatorica*, to appear.
- Stochastic coalescence in logarithmic time*
(with E. Lubetzky), *Ann. Appl. Probab.*, to appear.
- Packing tight Hamilton cycles in 3-uniform hypergraphs*
(with A. Frieze and M. Krivelevich), *Rand. Struct. Algo.*, to appear.
- The size of a hypergraph and its matching number*
(with H. Huang and B. Sudakov), *Combin. Probab. Comput.*, **21** (2012), 442–450.
- Variations on Cops and Robbers*
(with A. Frieze and M. Krivelevich), *J. Graph Theory*, **69** (2012), 383–402.
- Stochastic coalescence in logarithmic time*
(with E. Lubetzky), *Proceedings of the Twenty-Third Annual ACM-SIAM Symposium on Discrete Algorithms* (2012), 541–550.
- Packing tight Hamilton cycles in 3-uniform hypergraphs*
(with A. Frieze and M. Krivelevich), *Proceedings of the Twenty-Second Annual ACM-SIAM Symposium on Discrete Algorithms* (2011), 913–932.
- Ramsey games with giants*
(with T. Bohman, A. Frieze, M. Krivelevich, and B. Sudakov), *Rand. Struct. Algo.* **38** (2011), 1–32.
- Maximizing the number of q -colorings*
(with O. Pikhurko and B. Sudakov), *Proc. Lond. Math. Soc.* **101** (2010), 655–696.
- A note on embedding hypertrees*
(single author), *Electron. J. Combin.* **16** (2009), N18.
- Constrained Ramsey Numbers*
(with B. Sudakov), *Combin. Probab. Comput.* **18** (2009), 247–258.
- Large induced trees in K_r -free graphs*
(with J. Fox and B. Sudakov), *J. Combin. Theory Ser. B* **99** (2009), 494–501.

- Publ. (ctd.)** *Avoiding small subgraphs in Achlioptas processes*
 (with M. Krivelevich and B. Sudakov), *Rand. Struct. Algo.* **34** (2009),
 165–195.
- On the strong chromatic number of random graphs*
 (with B. Sudakov), *Combin. Probab. Comput.* **17** (2008), 271–286.
- Independent transversals in locally sparse graphs*
 (with B. Sudakov), *J. Combin. Theory Ser. B* **97** (2007), 904–918.
- Bounding the number of edges in permutation graphs*
 (with P. Keevash and B. Sudakov), *Electron. J. Combin.* **13** (2006), R44.
- USA and International Mathematical Olympiads 2004*
 (book, co-edited with T. Andreescu and Z. Feng),
 published by the Mathematical Association of America (2005), 100pp.
- Improved expansion of random Cayley graphs*
 (with L. Schulman), *Discrete Math. Theor. Comput. Sci.* **6** (2004), 523–528.
- Finding shortest paths with computational geometry*
 (single author), *J. Graph Algorithms Appl.* **7** (2003), 287–303.

- Talks** ACM-SIAM Symposium on Discrete Algorithms, Kyoto, Japan. (2012)
- Mini-symposium on Probabilistic Combinatorics, AMS-MAA-SIAM Joint
 Mathematics Meetings, Boston. (2012)
- Combinatorics seminar, The Hebrew University of Jerusalem. (2011)
- Combinatorics seminar, Tel Aviv University. (2011)
- Combinatorics seminar, University of California Los Angeles. (2011)
- Combinatorics seminar, California Institute of Technology. (2011)
- Special session on Extremal Combinatorics, AMS Southeastern Sectional Meeting,
 Wake Forest University. (2011)
- Colloquium, Georgia State University. (2011)
- Workshop on graph limits, American Institute of Mathematics, Palo Alto. (2011)
- Workshop on randomized and approximation algorithms, Dagstuhl, Germany. (2011)
- Probability seminar, University of Cambridge. (2011)
- Mini-symposium on probabilistic Combinatorics, Canadian Discrete and
 Algorithmic Mathematics Conference, Victoria, Canada. (2011)

Talks (ctd.) Conference on random structures and algorithms, Atlanta, Georgia. (2011)
Computer Science theory seminar, California Institute of Technology. (2011)
Combinatorics seminar, University of California Los Angeles. (2011)
Combinatorics seminar, Massachusetts Institute of Technology. (2011)
ACM-SIAM Symposium on Discrete Algorithms, San Francisco. (2011)
Workshop on Combinatorics, Oberwolfach, Germany. (2011)
Mathematics colloquium, Dartmouth College. (2010)
Computer Science theory seminar, Carnegie Mellon University. (2010)
Combinatorics seminar, University of California Los Angeles. (2010)
Combinatorics seminar, California Institute of Technology. (2010)
SIAM conference on Discrete Mathematics, Austin, TX. (2010)
Combinatorics seminar, Tel Aviv University. (2010)
Specialized session in Combinatorics, Israeli Mathematical Union Annual Meeting, Weizmann Institute, Israel. (2010)
Combinatorics seminar, Institute of Pure and Applied Mathematics, Los Angeles. (2009)
Workshop on graphs and hypergraphs, Institute of Pure and Applied Mathematics, Los Angeles. (2009)
Workshop on probabilistic and extremal Combinatorics, Banff. (2009)
Conference on random structures and algorithms, Poznań, Poland. (2009)
Workshop on Combinatorics, randomization, algorithms, and probability, Centre de Recherches Mathématiques, Montreal. (2009)
Combinatorics seminar, California Institute of Technology. (2009)
Special session on probabilistic and extremal Combinatorics, AMS Central Sectional Meeting, Urbana, IL. (2009)
Discrete math seminar, Princeton University. (2009)
Discrete math seminar, Columbia University. (2009)
Geometry seminar, New York University. (2009)
Combinatorics seminar, Rutgers University. (2009)
Combinatorics seminar, University of California Los Angeles. (2009)

- Talks (ctd.)** Mathematical Sciences colloquium, Carnegie Mellon University. (2009)
- Probability seminar, University of Southern California. (2009)
- Algorithms, Combinatorics, and optimization seminar, Carnegie Mellon University. (2009)
- SIAM conference on Discrete Mathematics, Burlington, VT. (2008)
- Computer Science theory seminar, California Institute of Technology. (2008)
- Combinatorics seminar, University of California San Diego. (2008)
- Probability seminar, University of California Los Angeles. (2008)
- Combinatorics seminar, California Institute of Technology. (2008)
- Combinatorics seminar, City University of New York. (2007)
- European conference in Combinatorics, graph theory, and applications, Seville, Spain. (2007)
- Combinatorics seminar, California Institute of Technology. (2007)
- Combinatorics seminar, University of California San Diego. (2007)
- Workshop on extremal graphs and hypergraphs, Carnegie Mellon. (2007)
- Combinatorics seminar, University of Pennsylvania. (2006)
- Computer Science / discrete math seminar, Inst. for Advanced Study. (2006)
- Combinatorics seminar, Rutgers University. (2006)
- Combinatorics seminar, City University of New York. (2006)
- Combinatorics seminar, California Institute of Technology. (2006)
- Workshop on algebraic and geometric methods in Combinatorics, DIMACS, Rutgers University. (2005)
- Morgan Prize honorable mention lecture, AMS-MAA-SIAM Joint Meetings, Atlanta, GA. (2005)
- Talks (gen.)** Public lecture on math competitions, Atlanta, GA. (2011)
- Colloquium, Canada/USA MathCamp. (2011)
- Assembly, Phillips Exeter Academy. (2010)
- Colloquium, Canada/USA MathCamp. (2010)
- Colloquium, Canada/USA MathCamp. (2009)

Talks (gen.) Invited talk showcasing the Fall 2009 IPAM Program on Combinatorics, SACNAS (Society for Advancement of Chicanos and Native Americans in Science) National Conference, Salt Lake City, UT. (2008)