Andrew Suk

Contact Information

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Department of Mathematics, Statistics,
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Research Interests

Discrete geometry, extremal combinatorics, Ramsey theory, graph theory, and combinatorial number theory.

Employment

University of Illinois at Chicago

Assistant Professor, *2014–present.*

Massachusetts Institute of Technology

Applied Mathematics Instructor, *2012–2014.*

NSF Postdoctoral Fellow *2011–2014.*

École Polytechnique Fédérale de Lausanne

Postdoctoral Fellow, *2011.*

Long-Term Visiting Scientist, *2010–2011.*

Education

Courant Institute of Mathematical Sciences, New York University

Ph.D., Mathematics, *2005–2011.*

- Thesis: Turán and Ramsey-type problems on geometric objects.
- Advisor: János Pach.

University of Illinois at Urbana-Champaign

M.A. in Electrical Engineering, *2003.*

B.A. in Electrical Engineering, *2001.*

Honors and Awards

2015–2018	NSF Research Grant DMS-1500153 (PI, $179,513). *Geometric Ramsey Theory and Incidence Geometry.*
2015	UIC Junior Faculty Travel Award ($1000).
2014	UIC Junior Faculty Travel Award ($1000).
2011–2014	NSF Postdoctoral Research Fellowship Massachusetts Institute of Technology.
2009–2010	Dean's Dissertation Fellowship New York University Graduate School of Arts and Sciences.
2006–2009	Henry MacCracken Fellowship New York University Graduate School of Arts and Sciences.

Preprints

D. Mubayi, A. Suk, The Erdős-Hajnal hypergraph Ramsey problem, submitted.

J. Fox, J. Pach, A. Suk, Extremal results for graphs with bounded VC-dimension, submitted.

D. Mubayi, A. Suk, Constructions in Ramsey theory, submitted.

J. Fox, J. Pach, A. Suk, Semi-algebraic colorings of complete graphs, submitted.

D. Mubayi, A. Suk, Off-diagonal hypergraph Ramsey numbers, submitted.

Journal publications

J. Fox, J. Pach, A. Suk, A polynomial regularity lemma for semi-algebraic hypergraphs and its applications in geometry and property testing, *to appear in SIAM Journal of Computing.*

A. Suk, On the Erdos-Szekeres convex polygon problem, *to appear in Journal of the American Mathematical Society.*

J. Fox, J. Pach, A. Suk, More distinct distances under local conditions, *to appear in Combinatorica.*

J. Fox, J. Pach, A. Sheffer, A. Suk, J. Zahl, A semi-algebraic version of Zarankiewicz's problem, *to appear in Journal of the European Mathematical Society.*

A. Suk, Semi-algebraic Ramsey numbers, *Journal of Combinatorial Theory, Series B* **116** (2016), 465–483.

A. Ruiz-Vargas, A. Suk, C. Toth, Disjoint edges in topological graphs and the tangled-thrackle conjecture, *European Journal of Combinatorics* **51** (2016), 398–406.

A. Suk, B. Walczak, New bounds on the maximum number of edges in k-quasi-planar graphs, *Computational Geometry Theory and Applications* **50** (2015), 24-33.

L. Guth, A. Suk, The joints problem for matroids, *Journal of Combinatorial Theory, Series A* **131** (2015), 71–87.

A. Suk, Coloring intersection graphs of x-monotone curves in the plane, *Combinatorica* **34** (2014), 487–505.

A. Suk, A note on order-type homogeneous point sets, *Mathematika* **60** (2014), 37–42.

D. Mubayi, A. Suk, A Ramsey-type result for geometric ℓ-hypergraphs, *European Journal of Combinatorics* **41** (2014), 232–241.

D. Conlon, J. Fox, J. Pach, B. Sudakov, A. Suk, Ramsey-type results for semi-algebraic relations, *Transactions of the American Mathematical Society* **366** (2014), 5043–5065.

E. Ackerman, J. Fox, J. Pach, A. Suk, On grids in topological graphs, *Computational Geometry Theory and Applications* **47** (2014), 710–743.

A. Suk, Density theorems for intersection graphs of t-monotone curves, *SIAM Journal on Discrete Mathematics* **27** (2013), 1323–1334.

J. Fox, J. Pach, A. Suk, The number of edges in k-quasi-planar graphs, *SIAM Journal on Discrete Mathematics* **27** (2013), 550–561.

A. Suk, Disjoint edges in complete topological graphs, *Discrete and Computational Geometry* **49** (2013), 280–286.

J. Fox, J. Pach, B. Sudakov, A. Suk, Erdős-Szekeres-type theorems for monotone paths and convex bodies, *Proceedings of the London Mathematical Society* **105** (2012), 953–982.

A. Suk, A note on geometric 3-hypergraphs, *Thirty Essays on Geometric Graph Theory*, ed. J. Pach, Algorithms and Combinatorics **29** (2012), Springer, 489–498.

R. Fulek, A. Suk, On disjoint crossing-families in geometric graphs, *Thirty Essays on Geometric Graph Theory*, ed. J. Pach, Algorithms and Combinatorics **29** (2012) Springer, 289–302.

J. Pach, A. Suk, M. Treml, Tangencies between families of disjoint regions in the plane, *Computational Geometry Theory and Applications* **45** (2012), 131–138.

A. Hubard, L. Montejano, E. Mora, A. Suk, Order types of convex bodies, *Order* **28** (2011), 121–130.

A. Suk, On the order type of system of segments in the plane, *Order* **27** (2010), 63–68.

A. Asinowski, A. Suk, Edge intersection graphs of a system of paths in a grid, *Discrete Applied Math.* **157** (2009), 3174–3180.

A. Suk, A note on $K_{k,k}$-cross free families, *The Electronic Journal of Combinatorics* **15** (2008), #N39.

Conference Proceedings

J. Fox, J. Pach, A. Suk, Approximating the rectilinear crossing number, *Proc. 24th Symposium on Graph Drawing and Network Visualization* (GD), 2016, LNCS, Springer, to appear.

A. Suk, Semi-algebraic Ramsey numbers, *Proc. 31st Symposium on Computational Geometry* (SoCG), 2015, 59–73.

J. Fox, J. Pach, A. Suk, Density and regularity theorems for semi-algebraic hypergraphs, *Proc. Symposium on Discrete Algorithms* (SODA), 2015, 1517–1530.

A. Ruiz-Vargas, A. Suk, C. Tóth, Disjoint edges in topological graphs and the tangled-thrackle conjecture, *Proc. 22nd Symposium on Graph Drawing* (GD), 2014, LNCS 8871, Springer, 284–293.

A. Suk, B. Walczak, New bounds on the maximum number of edges in k-quasi-planar graphs, *Proc. 21st Symposium on Graph Drawing* (GD), 2013, LNCS 8242, Springer, 95–106.

D. Mubayi, A. Suk, A Ramsey-type result for geometric ℓ-hypergraphs, *Proc. 21st Symposium on Graph Drawing* (GD), 2013, LNCS 8242, Springer, 364–375.

D. Conlon, J. Fox, J. Pach, B. Sudakov, A. Suk, Ramsey-type results for semi-algebraic relations, *Proc. 29th Symposium on Computational Geometry* (SoCG), 2013, ACM Press, 309–318.

A. Suk, Density theorems for intersection graphs of t-monotone curves in the plane, *Proc. 20th Symposium on Graph Drawing* (GD), 2012, LNCS 7704, Springer, 352–363.

A. Suk, Disjoint edges in complete topological graphs, *Proc. 28th Symposium on Computational Geometry* (SoCG), 2012, ACM Press, 383–386.

A. Suk, k-quasi-planar graphs, *Proc. 19th Symposium on Graph Drawing* (GD), 2011, LNCS 7034, Springer, 391–402.

J. Pach, A. Suk, M. Treml, Tangencies between families of disjoint regions in the plane, *Proc. 26th Symposium on Computational Geometry* (SoCG), 2010, ACM Press, 423–428.

E. Ackerman, J. Fox, J. Pach, A. Suk, On grids in topological graphs, *Proc. 25th Symposium on Computational Geometry* (SoCG), 2009, ACM Press, 403–412.

Talks

Aug 2017 - Eurocomb 2017, plenary speaker, Vienna, Austria.

Jun 2017 - CanaDAM, Ryerson University, plenary speaker, Toronto, ON.

Nov 2016 - Georgia Tech, School of Mathematics Colloquium, Atlanta, GA.

Nov 2016 - UIC MSCS Departmental Colloquium, Chicago, IL.

Oct 2016 - AMS Sectional Meeting, Probabilistic & Extremal Combinatorics, Minneapolis, MN.

Oct 2016 - UIC Computer Science Seminar, Chicago, IL.

Aug 2016 - Extremal Combinatorics at Illinois III (EXCILL 3), Chicago, IL.

Jun 2016 - A New Era of Discrete & Computational Geometry, Ascona, Switzerland.

Jun 2016 - SIAM Conference on Discrete Mathematics, Atlanta, GA.

May 2016 - EPFL Combinatorial Geometry and Optimization Seminar, Lausanne, Switzerland.

Apr 2016 - Carnegie Mellon University, ACO Seminar, Pittsburgh, PA.

Dec 2015 - UIUC Combinatorics Seminar, Urbana, IL.

Nov 2015 - Stanford University Combinatorics Seminar, Stanford, CA.

Nov 2015 - IIT Applied Mathematics Colloquium, Chicago, IL.

Jun 2015 - CG Week workshop on intersection graphs, Eindhoven, Netherlands.

Jun 2015 - Symposium on Computational Geometry (SoCG), Eindhoven, Netherlands.

May 2015 - Ascension of Combinatorics, EPFL, Lausanne, Switzerland.

Jan 2015 - Symposium on Discrete Algorithms (SODA), San Diego, CA.

Dec 2014 - MIT Combinatorics Seminar, Cambridge, MA.

Nov 2014 - Geometric and Enumerative Combinatorics, IMA, Minneapolis, MN.

Sep 2014 - UIC Combinatorics Seminar, Chicago, IL.

Mar 2014 - Combinatorial Geometry Problems at the Algebraic Interface, IPAM, UCLA.

Dec 2013 - EPFL Combinatorial Geometry and Optimization Seminar, Lausanne, Switzerland.

Oct 2013 - MIT Combinatorics Seminar, Cambridge, MA.

Sep 2013 - Symposium on Graph Drawing, Bordeaux, France.

May 2013 - EPFL Combinatorial Geometry and Optimization Seminar, Lausanne, Switzerland.

Jan 2013 - UIC MSCS Departmental Colloquium, Chicago, IL.

Sep 2012 - Symposium on Graph Drawing, Redmond, WA.

Jun 2012 - Symposium on Computational Geometry (SoCG), Chapel Hill, NC.

Feb 2012 - Bernoulli Reunion Conference on Discrete and Computational Geometry, EPFL.

Feb 2012 - EPFL Combinatorial Geometry and Optimization Seminar, Lausanne, Switzerland.

Feb 2012 - Renyi Institute Combinatorics Seminar, Budapest, Hungary.

Dec 2011 - MIT Combinatorics Seminar, Cambridge, MA.

Sep 2011 - Symposium on Graph Drawing, TU Eindhoven, Netherlands.

Dec 2010 - Culminating Workshop in Discrete and Computational Geometry, EPFL.

Nov 2007 - One-Day Combinatorial Geometry Conference, NYU, New York, NY.

Teaching Experience

UIC	Fall	2016	Instructor, Applied Linear Algebra
UIC	Spring	2016	Instructor, Combinatorics
UIC	Fall	2015	Instructor, Applied Linear Algebra
UIC	Spring	2015	Instructor, Discrete Geometry
UIC	Spring	2015	Instructor, Combinatorics
MIT	Spring	2014	Teaching Assistant, Differential Equations
MIT	Spring	2013	Teaching Assistant, Differential Equations
MIT	Fall	2012	Instructor, Undergraduate Seminar in Discrete Mathematics
EPFL	Spring	2011	Teaching Assistant, Graph Theory
NYU	Spring	2009	Teaching Assistant, Complex Variables II
NYU	Fall	2008	Instructor, Discrete Math
NYU	Spring	2008	Instructor, Discrete Math
NYU	Fall	2007	Instructor, Calculus I
NYU	Spring	2007	Teaching Assistant, Real Analysis
NYU	Fall	2006	Instructor, Precalculus
NYU	Summer	2006	Instructor, Precalculus
NYU	Spring	2006	Teaching Assistant, Linear Algebra II
NYU	Fall	2005	Teaching Assistant, Precalculus

Advising

Current graduate students: Mojgan Mirzaei.

Other Experiences and Services

UIC Departmental service: Graduate admissions committee (2014–2016), colloquium organizer (2015-2016), Master's examination coordinator for MCS (2016). Organizer for the Combinatorics Seminar.

Referee for: Discrete and Computational Geometry, Journal of Combinatorics, Combinatorica, Computational Geometry Theory and Applications, Journal of Combinatorial Theory Series B, Journey Through Discrete Mathematics – A Tribute to Jiří Matoušek, ACM Symposium on Computational Geometry, Graphs and Combinatorics, International Symposium on Theoretical Aspects of Computer Science, International Symposium on Graph Drawing, Thirty Essays on Geometric Graph Theory, ACM-SIAM Symposium on Discrete Algorithms, and IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science.

Reviewer for Israel Science Foundation Grant Proposals (2015, 2016).