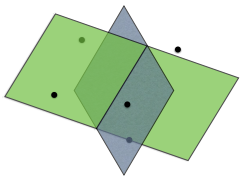
Pablo Soberón



Department of Mathematics
Baruch College
City University of New York
One Bernard Baruch Way
New York NY, 10010
U.S.A.

Department of Mathematics
The Graduate Center
City University of New York
365 Fifth Avenue
New York NY, 10016
U.S.A.

Emails:
pablo.soberon -at- ciencias -dot- unam -dot- mx
pablo.soberon-bravo -at- baruch -dot- cuny -dot- edu
Webpage: http://www.psoberon.com

Date of Birth: May 24th, 1988—Cuernavaca, Mexico.
Nationality: Mexican
Languages: Spanish, French, English

Academic positions

2021-Present Assistant Professor. The Graduate Center, City University of New York. New York, USA.
2018-Present Assistant Professor. Baruch College, City University of New York. New York, USA.
2015-2018 Andrei Zelevinsky Postdoctoral Research Instructor. Northeastern University. Boston, USA.
2013-2015 Postdoctoral Assistant Professor. University of Michigan. Ann Arbor, USA.
2008-2010 Teaching Assistant A (Ayudante de profesor). Universidad Nacional Autónoma de México, Mexico.

Education

2006-2010 BA in Mathematics, Universidad Nacional Autónoma de México
Graduated with honors
Thesis title: Perforando convexos *(Piercing convex sets)*
Thesis supervisor: Luis Montejano

2010-2013 PhD in Mathematics, University College London
Primary supervisor: Imre Bárány
Secondary supervisor: Keith Ball
Thesis title: Partition Problems in Discrete Geometry
Available at http://discovery.ucl.ac.uk/1398297/

Research interests

I am interested in the interaction between combinatorics, algebraic topology and linear algebra. I have focused my research in discrete geometry and topological combinatorics.

Grants / Fellowships

External

2021-2024 NSF DMS Grant 2054419. *Topology and Linear Algebra in Discrete Geometry.*
Principal Investigator(s): Pablo Soberón

2021-2024 NSF REU site Grant DMS 2051026. *REU Site: New York City Discrete Mathematics REU.*
Principal Investigator(s): Adam Sheffer. Co-PI: Pablo Soberón

2018-2021 NSF DMS Grant 1851420. *Combinatorial Properties of Convex Sets and Measures in Euclidean spaces*
Principal Investigator(s): Pablo Soberón.

2019-2022 National Researcher Level 1 - CONACyT (Mexico)
Sistema Nacional de Investigadores, Nivel 1.

Internal

2021-2022 PSC CUNY research award, type B. Period 52
Principal Investigator(s): Pablo Soberón

2020-2021 PSC CUNY research award, type B. Period 51
Principal Investigator(s): Pablo Soberón

2019-2020 PSC CUNY research award, type B. Period 50
Principal Investigator(s): Pablo Soberón

Research papers and manuscripts

Citations count by engine:
Google Scholar: https://scholar.google.com/citations?user=3moLEYcAAAAJ
Scopus Author ID: 36873280200
ORCID: http://orcid.org/0000-0003-2347-4279

Papers with (*) have undergraduate students as coauthors.
Number of papers with undergraduate coauthors: 10

2022a. 1(*) S. Sarkar and P. Soberón *Tolerance for colorful Tverberg partitions*
European J. Combin. **103**, paper 103527.
arXiv version: https://arxiv.org/abs/2005.13495

2022b. 2 E. Roldán-Pensado and P. Soberón *A survey of mass partitions*
Bull. Amer. Math. Soc. **59** (2), pp. 227–267
arXiv version: https://arxiv.org/abs/2010.00478

2022c. 3(*) J. A. Messina and P. Soberón *Isometric and affine copies of a set in volumetric Helly results*
Comput. Geom. **103**, paper 101855
arXiv version: https://arxiv.org/abs/2010.04135

2021a. 4(*) P. Soberón and Y. Tang *Tverberg's theorem, disks, and Hamiltonian cycles*
Ann. Comb. **25** pp. 995–1005
arXiv version: https://arxiv.org/abs/2011.12218

2021b. 5 P. Soberón *Fair distributions for more participants than allocations*
arXiv version: https://arxiv.org/abs/2110.03600

2021c. 6(*) I. Axelrod-Freed and P. Soberón *Bisections of mass assignments using flags of affine spaces*
arXiv version: https://arxiv.org/abs/2109.13106

2021d. 7(*) S. Sarkar, A. Xue, and P. Soberón *Quantitative combinatorial geometry for concave functions*
J. Combin. Theory Ser. A. **182** article 105465
arXiv version: https://arxiv.org/abs/1908.04438

2021e. 8(*) A. Xue and P. Soberón *Balanced convex partitions of lines in the plane*
Discrete Comput. Geom. **66**(3) pp. 1150–1167
arXiv version: https://arxiv.org/abs/1910.06231

2021f. 9(*) P. Soberón and Y. Takahashi *Lifting methods in mass partition problems*
arXiv version: https://arxiv.org/abs/2109.03749

2021g. 10(*) J. P. Carvalho and P. Soberón *Counterexamples to the Colorful Tverberg Conjecture for Hyperplanes*
arXiv version: https://arxiv.org/abs/2108.07680

2021g. 11(*) T. Dillon and P. Soberón *A mélange of diameter Helly-type theorems*
SIAM J. Discrete Math. **35** (3) pp.1615–1627
arXiv version: https://arxiv.org/abs/2008.13737

2021h. 12(*) Michael N. Manta and P. Soberón, *Generalizations of the Yao–Yao partition theorem and the central*

transversal theorem
arXiv version: https://arxiv.org/abs/2107.06233

2021i. 13 E. Schulte, P. Soberón, and G. I. Williams, *Prescribing Symmetries and Automorphisms for Polytopes* Polytopes and Discrete Geometry, Contemporary Mathematics **764**, American Mathematical Society pp.221–233.
arXiv version: https://arxiv.org/abs/1902.05439

2021j. 14 A. Chirvasitu, F. Ladisch, and P. Soberón *Finite groups as prescribed polytopal symmetries*
Israel J. Math. **245**(1) pp. 75–91
arXiv version: https://arxiv.org/abs/1907.10022

2020a. 15 F. Frick and P. Soberón *The topological Tverberg problem beyond prime powers*
arXiv version: https://arxiv.org/abs/2005.05251

2020b. 16 J. Fallon, K. Hogenson, L. Keough, M. Lomelí, M. Schaefer, and P. Soberón *A Note on the Maximum Rectilinear Crossing Number of Spiders*
J. Combin. Math. Combin. Comput. **113** pp 127–139
arXiv version: http://arxiv.org/abs/arXiv:1808.00385

2019a. 17 P.V.M. Blagojević, N. Palić, P. Soberón, and G.M. Ziegler, *Cutting a part of many measures*
Forum of Mathematics, Sigma **7** E37
arXiv version: https://arxiv.org/abs/1710.05118

2019b. 18 P. Soberón, *Tverberg partitions as weak epsilon-nets.*
Combinatorica **39** (2) pp 447–458.
arXiv version: http://arxiv.org/abs/1711.11496

2018a. 19 I. Bárány and P. Soberón, *Tverberg plus minus*
Discrete Comput. Geom. **60** (3) pp.588–598
arXiv version: https://arxiv.org/abs/1612.05630

2018b. 20 I. Bárány and P. Soberón, *Tverberg's theorem is 50 years old: a survey*
Bull. Amer. Math. Soc. **55** (4) pp.459–492
arXiv version: http://arxiv.org/abs/1712.06119

2018c. 21 P. Soberón, *Robust Tverberg and colorful Carathéodory results via random choice*
Combinatorics, Probability and Computing. **27** (3) pp.427–440
arXiv version: http://arxiv.org/abs/arXiv:1606.08790

2018d. 22 P.V.M. Blagojević and P. Soberón, *Thieves can make sandwiches*
Bull. London Math. Soc. **50** (1) pp.108–123
arXiv version: http://arxiv.org/abs/arXiv:1706.03640

2017a. 23 A. Barvinok and P. Soberón, *Computing the Partition Function for Graph Homomorphisms.*
Combinatorica **37** (4) pp.633–650.
arXiv version: http://arxiv.org/abs/1410.1842

2017b. 24 P. Soberón, *Tensors, colors, and convex hulls*
Discrete Geometry and Convexity: in honour of Imre Bárány. Edited by Gergely Ambrus, Károly J. Böröczky and Zoltán Füredi. pp.97–101
ISBN 978 963 279 963 6

2017c. 25 J.A. De Loera, R. N. La Haye, D. Rolnick, and P. Soberón, *Quantitative Tverberg theorems over lattices and other discrete sets*
Discrete Comput. Geom. **58** (2) pp.435–458
arXiv version: http://arxiv.org/abs/arXiv:1603.05525

2017d. 26 D. Rolnick and P. Soberón, *Quantitative* (p, q) *theorems in combinatorial geometry.*
Discrete Math. **340** (10) pp.2516–2527
arXiv version: http://arxiv.org/abs/1504.01642

2017e. 27 A. Magazinov and P. Soberón, *Positive-fraction intersection results and variations of weak epsilon-nets.*
Monatsh. Math. **183** (1) pp.165–176.
arXiv version: http://arxiv.org/abs/1506.02191

2017f. 28 J.A. De Loera, R. N. La Haye, D. Rolnick, and P. Soberón, *Quantitative combinatorial geometry for continuous parameters*
Discrete Comput. Geom. **57**(2) pp.318–334
arXiv version: http://arxiv.org/abs/arXiv:1603.05523

2017g. 29 N. Amenta, Jesús A. De Loera, and P. Soberón *Helly's Theorem: New Variations and Applications.*
Chapter in "Algebraic and Geometric Methods in Discrete Mathematics: AMS Special session on Algebraic and Geometric Methods in Applied Discrete Mathematics", Contemporary Math. **685**, published by American Math. Soc., edited by Heather A. Harrington, Mohamed Omar and Matthew Wright. pp.

55-95
arXiv version: http://arxiv.org/abs/1508.07606

2016a. 30 R. N. Karasev, E. Roldán-Pensado, and P. Soberón, *Measure Partitions Using Hyperplanes with Fixed Directions*
Israel J. Math. **212**(2) pp 705–708
arXiv version: http://arxiv.org/abs/1408.4830

2016b. 31 D. Rolnick and P. Soberón *Algorithmic aspects of Tverberg's Theorem*
arXiv version: http://arxiv.org/abs/arXiv:1601.03083

2016c. 32 A. Barvinok and P. Soberón, *Computing the Partition Function for Graph Homomorphisms with Multiplicities.*
J. Combin. Theory, Ser. A **137** pp. 1–26
arXiv version: http://arxiv.org/abs/1406.1771

2016d. 33 P. Soberón *Helly-type theorems for the diameter*
Bull. Lond. Math. Soc. **48** (4): 577-588.
arXiv version: http://arxiv.org/abs/1509.07908

2015a. 34 (Journal version of `2013a`) P. Soberón, *Equal coefficients and tolerance in coloured Tverberg partitions*
Combinatorica **35**(2) pp. 235-252
arXiv version: http://arxiv.org/abs/1204.1202

2015b. 35 J.A. De Loera, R. N. La Haye, D. Rolnick, and P. Soberón, *Quantitative Tverberg, Helly & Carathéodory theorems.*
arXiv version: http://arxiv.org/abs/1503.06116

2015c. 36 J. Jerónimo-Castro, A. Magazinov, and P. Soberón *On a Problem by Dol'nikov.*
Discrete Math. **338**(9) pp 1577–1585
arXiv version: http://arxiv.org/abs/1310.4714

2015d. 37 A. Montejano, L. Montejano, E. Roldán-Pensado, and P. Soberón *About an Erdős-Grünbaum conjecture concerning piercing of non bounded convex sets.*
Discrete Comput. Geom. **53**(4) pp 941–950
arXiv version: http://arxiv.org/abs/1407.0642

2014a. 38 E. Roldán-Pensado and P. Soberón *An Extension of a Theorem by Yao & Yao.* Discrete Comput. Geom. **51**(2), pp.285-289
arXiv version: http://arxiv.org/abs/1112.5737

2013a. 39 P. Soberón *Equal coefficients and tolerance in coloured Tverberg partitions.* Proceedings of the 29th annual symposium on Symposium on computational geometry. pp91-96.
Journal version is item `2015a`, arXiv version: http://arxiv.org/abs/1204.1202

2012a. 40 P. Soberón *Balanced Convex Partitions of Measures in* $\mathbb{R}^d$. Mathematika **58**, pp.71-76, doi:10.1112/S0025579311001914
arXiv version: https://arxiv.org/abs/1010.6191

2012b. 41 P. Soberón and R. Strausz *A Generalisation of Tverberg's Theorem.*
Discrete Comput. Geom. **47**(3), pp.455-460, doi: 10.1007/s00454-011-9379-z

2011a. 42 L. Montejano and P. Soberón *Piercing Numbers for Balanced and Unbalanced Families.*
Discrete Comput. Geom. **45**(2), pp.358-364. doi:10.1007/s00454-010-9295-7

Popularization/Outreach Publications

2017 P. Soberón *Gerrymandering, Sandwiches, and Topology.* Notices of the American Mathematical Society **64** (9), pp. 1010–1013
http://www.ams.org/publications/journals/notices/201709/rnoti-p1010.pdf

2012-2016 Bi-Monthly Outreach articles for popularization of science at `www.loshijosdelamalinche.com`

2012-2016 Editor of science/ambient section at `www.loshijosdelamalinche.com`

2010 *El principio de las casillas* (*The Pigeonhole Principle*, in Spanish). Tzaloa, 2010 (2) pp. 1–6 . Tzaloa is a popularization journal published by the Mexican Mathematical Olympiad. http://www.ommenlinea.org/wp-content/uploads/2014/01/10-2.pdf

Editorial Work.

2022-2025 Associate editor for USA(J)MO (the United States of America Mathematical Olympiad and the United States of America Junior Mathematical Olympiad).

Selected awards

2021 Feliks Gross award. CUNY.
2012 Davenport Prize in Pure Mathematics. University College London.
2009a Special Gold Medal. I CIIM *(Iberoamerican Interuniversity Mathematical Competition)* Girardot, Colombia.
2009b Gold Medal. XII Iberoamerican Mathematical Olympiad for University.
2006a Bronze Medal. Asian Pacific Mathematical Olympiad
2006b Gold Medal. XXI Iberoamerican Mathematical Olympiad. Guayaquil, Ecuador
2006c Gold Medal. XLVII International Mathematical Olympiad Ljubljana, Slovenia.
2005a Silver Medal. Asian Pacific Mathematical Olympiad
2005b Bronze Medal. XLVI International Mathematical Olympiad Mérida, Mexico.
2005c Silver Medal. XX Iberoamerican Mathematical Olympiad. Cartagena de Indias, Colombia.
2004 Gold Medal. VI Central American and the Caribbean Mathematical Olympiad. Managua, Nicaragua.

Books

2013 *Problem-Solving Methods in Combinatorics: an Approach to Olympiad Problems*. Birkhäuser Basel. 174 p. 65 illus., 10 in color. ISBN 978-3-0348-0596-4
2010 *Combinatoria para Olimpiadas Internacionales*. Instituto de Matemáticas, UNAM. Series *Cuadernos de olimpiada*. ISBN 978-607-02-1710-4. Note: this is a spanish version of the book above, distributed by the Mexican Mathematical Olympiad.

Undergraduate Students Research Mentoring

Students with (*) are coauthors in research papers.

2021 Ilani Axelrod-Freed (*, MIT), João Pedro Carvalho (*, Haverford), Michael N. Manta (*, Caltech), Yuki Takahashi (*, Grinnell)
2020 Phillip Chen (Baruch), Travis Dillon (*, Lawrence University) John A. Messina (*, NYU), Kukai Nakahata (Baruch), Shawn Roy (Baruch), Yaqian Tang (*, Wesleyan)
2019 Sherry Sarkar (*, Georgia Tech), Alexander Xue (*, Cornell)
2017 Christina Nguyen (Northeastern)
2016 Adam Tobey (Northeastern).

Teaching

2021a. MTH 4005 (Problem-solving seminar). Baruch College, CUNY. Fall term, one section.
2021b. MTH 2610 (Calculus I). Baruch College, CUNY. Spring term, one section.
2021b. MTH 4100 (Linear Algebra and Matrix Methods). Baruch College, CUNY. Spring term, one section.
2020a. MTH 4005 (Problem-solving seminar). Baruch College, CUNY. Fall term, one section
2020b. MTH 4100 (Linear Algebra and Matrix Methods). Baruch College, CUNY. Spring term, one section.
2019a. MTH 4005 (Problem-solving seminar). Baruch College, CUNY. Fall term, one section
2019b. MTH 4100 (Linear Algebra and Matrix Methods). Baruch College, CUNY. Spring term, one section.
2019b. MTH 2610 (Calculus I). Baruch College, CUNY. Spring term, one section.
2018a MTH 4430 (Mathematics of Inferential Statistics). Baruch College, CUNY. Fall term, one section.
2018b. MTH 2003 (Precalculus). Baruch College, CUNY. Fall term, one section.
2018c. "Dividiendo votos, pasteles y mapas: matemáticas y algoritmos". *Dividing votes, cakes and maps: mathematics and algorithms*. One-week summer course for high-school and undergraduate students, part of the project "clubes de ciencias". Ensenada, Mexico.
2018d Math 3150 (Introduction to Real Analysis). Northeastern University. Spring term, one section.
2018e Math 2331 (Linear Algebra). Northeastern University. Spring term, one section.

2017a Math 3150 (Introduction to Real Analysis). Northeastern University. Fall term, one section.

2017b Math 3150 (Introduction to Real Analysis) at Northeastern University. Spring term, one section.

2016a Math 2321 (Calculus 3 for Science and Engineering) at Northeastern University. Fall term, two sections.

2016a Teaching Methods in Mathematics Workshop ("*Métodos de enseñanza de matemáticas para alumnos del Siglo XXI*"), June 29th to July 1st, 24 hours, ITESM Estado de México, Mexico.

2016b Math 2331 (Linear Algebra). Northeastern University. Spring term, two sections.

2015a Math 1342 (Calculus 2 for Science and Engineering) at Northeastern University. Fall term, one section.

2015b Math 216 (Introduction to Differential Equations). The University of Michigan. Winter term, two sections.

2014a Math 216 (Introduction to Differential Equations. University of Michigan. Winter term, two sections.

2014b Math 116 (Calculus 2). University of Michigan. Fall term, two sections.

2013 Math 115 (Calculus 1). University of Michigan. Fall term, two sections.

2011 Combinatorics for international olympiads. "Workshop for olympiad trainers".
12 hours. San Luis Potosí, Mexico.

2009 Geometry problem-solving workshop. "Workshop for olympiad trainers".
8 hours. Guanajuato, Mexico.

2008-2010 Teaching Assistant A. UNAM. Courses included: Analytic Geometry I, Analytic Geometry II, Complex Variable I, Convex Sets. Mexico City, Mexico.

2007-2010 Training the Mexican teams for international mathematical olympiads.

2007 Inequalities problem-solving workshop. "Workshop for olympiad trainers".
8 hours. Guanajuato, Mexico.

Other activities / Broarder impacts

2022a Joint with Egon Schulte. Organizer of special session titled "Discrete and Convex Geometry" for AMS Spring Eastern Viertual Sectional Meeting (Meeting #1176).

2021a Organizer of conference "celebrating the 70th birthday of Luis Montejano", virtual conference.

2021b Organizer of NYC Discrete mathematics REU.

2020a Organizer of Baruch College Combinatorics REU.

2020b Coach for the Panama Mathematical Olympiad international teams. Panama City, Panama.

2019a Training Putnam team. Supervising Putnam mathematical competition at Baruch College.

2019b Organizer of Baruch College Combinatorics REU. Co-organizers: Adam Sheffer, Frank de Zeeuw.

2018a Training Putnam team. Supervising Putnam mathmatical competition at Baruch College.

2018b Organizer of special session titled "Algebraic, geometric, and topological methods in combinatorics" for AMS Spring Eastern Sectional Meeting (Meeting #1139).

2018c Training Putnam / Organizing reading Seminar of "Proofs from the book" at Northeastern University

2017a Training Putnam team for Northeastern University, and supervising Putnam mathematical competition at Northeastern University.

2017b Organizer of "Pick my brain" seminar at Northeastern University.

2017c Assistant at MRC (Mathematical Research Communities) Workshop "Beyond Planarity: Crossing numbers of Graphs". Snowbird, Utah, USA.

2016 Training Putnam team for Northeastern University, and supervising Putnam mathematical competition at Northeastern University.

2007-2011 Organizing committee of the Mexican Mathematical Olympiad.

2010 Leader of Mexico. `XII` Central American Mathematical Olympiad.
Mayagüez, Puerto Rico.

2009a Research assistant of L. Montejano. Funded by CONACyT.

2009b Deputy leader of Mexico. `L` International Mathematical Olympiad.
Bremen, Germany.

2008 Deputy leader of Mexico. `XXIII` Iberoamerican Mathematical Olympiad.
Salvador do Bahia, Brazil.

2007 Deputy leader of Mexico. `IX` Central American Mathematical Olympiad.
Mérida, Venezuela

Talks in conferences/seminars

2022a. 1 Bisection of mass assignments using flags of affine spaces. *Joint Mathematics Meetings.* Special session on Geometric and Topological Combinatorics (online).

2022a. 2 La topología de las particiones de medidas. *Cibercoloquio latinoamericano de matemáticas.* (online)

2021a. 3 Stiefel Manifolds and Mass partitions. *AMS Fall Souteastern Sectional meeting 2021.* (online)

2021b. 4 Mass partitions, transversals, and Stiefel manifolds. *Big seminar.* (Moscow Institute of Physics and Technology, online)

2021c. 5 Stiefel Manifolds and Mass partitions. *NY Geometry seminar.* (online)

2021d. 6 Quantitative Helly Theorems. *SUNY Binghampton combinatorics seminar.* (online)

2021e. 7 Quantitative Helly Theorems. *Budapest Big Combinatorics and Geometry seminar.* (online)

2021f. 8 The topological Tverberg theorem beyond prime powers. *Copenhagen-Jerusalem Combinatorics Seminar.* (online)

2021g. 9 Quantitative Helly theorems. *University of Massachusetts Lowell mathematics colloqium.* (online)

2021h. 10 Quantitative Helly theorems. *Bard College mathematics seminar.* (online)

2021i. 11 Teoremas de Helly cuantitativos. *Seminario preguntón.* Usually in Juriquilla, Querértaro (online)

2021j. 12 The topological Tverberg theorem beyond prime powers. *IST Austria seminar* (online)

2020a. 13 A glimpse of discrete geometry. *Online Undergraduate Resource Fair for the Advancement in Academia of Marginalized Mathematicians.* (online)

2020b. 14 The topological Tverberg theorem beyond prime powers. *Combinatorics and Geometry Days III conference.* (online)

2020c. 15 Variations of Convex Equipartitions of Measures. *CoSP Seminar* (online, replaced a workshop to be held in Prague)

2020d. 16 Teoría de Tverberg sin potencias de primos. *CCM Coloquium.* Morelia, Mexico (online).

2020e. 17 The topological Tverberg theorem beyond prime powers. *Combinatorial and Additive Number Theory Conference* (online).

2019a. 18 Barvinok's method to approximate the permanent II. *New York Number Theory Seminar.* Graduate Center CUNY, NY, USA.

2019b. 19 Matroids, Helly's theorem, and Ellipsoids. *AMS Fall Southeastern sectional meeting.* University of Florida, FL, USA.

2019c. 20 Barvinok's method to approximate the permanent I. *New York Number Theory Seminar.* Graduate Center CUNY, NY, USA.

2019d. 21 Probabilistic Methods for the colorful Tverberg theorem.*AMS sectional meeting 1151, special session on oriented matroids and related topics.* Binghampton University, NY, USA.

2019e. 22 Exact Quantiative Helly Theorems. *CMO-BIRS Workshop [19w5028] Helly and Tverberg theorems..* Casa Matemática Oaxaca, Oaxaca, México.

2019f. 23 Exact Quantitative Helly Theorems.*Rutgers Combinatorics Seminar.* Rutgers University. New Brunswick, NJ, USA.

2019g. 24 Prescribing symmetries of centrally symmetric polytopes. *AMS Southeeastern sectional meeting.* University of Auburn. Auburn, AL, USA.

2019h. 25 Tverberg's theorem and weak epsilon-nets. *NYC Geometry Seminar.* Courant Institute, NYU. New York, NY, USA.

2018a. 26 Random partitions and the Colorful Tverberg theorem. *ACO Seminar.* Carnegie Mellon University. Pittsburgh, PA, USA.

2018b. 27 Extending robust versions of Tverberg's theorem. *Special session on Polytopes and Discrete Geometry, AMS Northeastern Sectional Meeting.* Northeastern University. Boston, MA, USA.

2018c. 28 Different approaches to the colorful Tverberg theorem. *Pick My Brain Seminar.* Northeastern University. Boston, MA, USA.

2018d. 29 Tverberg-type results, weak epsilon-nets and the probabilistic method. *Worldwide Center of Math Lecture Series Seminar.* Cambridge, MA, USA.

2018e. 30 Packing densities, kissing numbers and piercing numbers. *Norhteastern University Math Club.* Boston, MA, USA.

2018f. 31 Tverberg's theorem: a gem in discrete geometry. *Latinx in the Mathematical Sciences Conference.* Institute of Pure and Applied Mathematics, UCLA. Los Angeles, CA, USA.

2017a. 32 Problemas de particiones justas (Fair partition problems). *Coloquium of Centro de Ciencias Matemáticas.* Morelia, Mexico.

2017b. 33 Linear versions of Tverberg's theorem: progress and problems. *Introductory Workshop: Geometric and Topological Combinatorics* MSRI program 309. Berkeley, CA, USA.

2017c. 34 Symmetries in mass partition problems. *BIRS-CMO Workshop 17w5015: Symmetries and Discrete Structures in Geometry.* Oaxaca, Oaxaca, Mexico.

2017d. 35 Fair division problems and high-dimensional necklaces. *Pacific Rim Mathematical Association 3rd Congress.* Oaxaca, Oaxaca, Mexico.

2017e. 36 Tensors, colors, convex hulls. *Discrete Geometry and Convexity, Bárány 70.* Rényi Institute, Budapest, Hungary.

2017f. 37 Thieves and High-dimensional necklaces. *University of Washington Combinatorics Seminar.* Seattle, USA.

2017g. 38 Robust Tverberg results via the probabilistic methdod. *Ninth Discrete Geometry and Algebraic Combinatorics Conference UTRGV.* South Padre Island, Texas, USA.

2016a. 39 A toolbox for topologists. *ICERM workshop: Topology and Geometry in a Discrete Setting.* Institute for Computational and Experimental Research in Mathematics (ICERM), Providence, RI, USA.

2016b. 40 An application of the probabilistic method to Tverberg's theorem. *CMO-BIRS workshop: Transversal, Helly and Tverberg type Theorems in Geometry, Combinatorics and Topology III.* CMO-BIRS Oaxaca, Mexico.

2016c. 41 A probabilistic approach to Tverberg-type results. *2016 Fall Eastern Sectional Meeting.* Bowdoin College, Brunswick, ME, USA.

2016d. 42 Quantitative Helly-type theorems. *2016 SIAM Discrete Mathematics conference.* Atlanta, USA

2016e. 43 Quantitative and Colorful combinatorial geometry. *8-th Algebraic combinatorics and discrete geometry conference UTRGV.* South Padre Island, Texas, USA

2016f. 44 Positive-fraction results in combinatorial geometry. *MIT Combinatorics seminar.* Cambridge, USA.

2016g. 45 A glimpse of combinatorial geometry. *Northeastern University Mathematics Postdoc seminar.* Boston, USA.

2015a. 46 Measure partitions using hyperplanes with fixed directions. *Northeastern University GASC seminar.* Boston, USA.

2015b. 47 Quantitative Helly-type theorems in combinatorial geometry. *University of Massachusetts Colloquium.* Boston, USA.

2015c. 48 Fixed directions in mass partition problems. *University of Michigan combinatorics seminar.* Ann Arbor, USA.

2015d. 49 Quantitative Helly-type theorems. *László Fejes Tóth centennial conference.* Budapest, Hungary.

2015e. 50 Variations of positive-fraction intersection results in combinatorial geometry. *Freie Universitët Topological Combinatorics seminar.* Berlin, Germany.

2014a. 51 Aproximando números de homomorfismos (*Approximating homomorphism numbers*, in spanish). II Reunión de Matemáticos Mexicanos en el Mundo (*II Meeting of Mexican Mathematicians in the World*). Guanajuato, Mexico.

2014b. 52 Variations of the ham sandwich theorem. *UC Davis Algebra & Discrete Math Seminar.* Davis CA, USA.

2014c. 53 Mass Partitions with Hyperplanes of Fixed Directions. *Oberwolfach Workshop 1436.* Oberwolfach, Germany.

2014d. 54 Variations of Tverberg's theorem. *MIT Combinatorics Seminar* Boston, USA.

2014e. 55 Teoremas coloreados y productos tensoriales (Colorful theorems and tensor products) *CIM seminar.* Querétaro, Mexico

2014f. 56 Tverberg's theorem and the Birkhoff Polytople. *Discrete Mathematics Seminar, Freie Universität Berlin.* Berlin, Germany

2014g. 57 Splitting points and hyperplanes. *SIAM Conference on Discrete Mathematics, Discrete Geometry Session* Minneapolis, USA

2013a. 58 Tverberg's theorem: different approaches to the colorful version. *University of Michigan Combinatorics seminar.* Ann Arbor, USA.

2013b. 59 Equal Coefficients and Tolerance in Coloured Tverberg Partitions. *29th ACMSymposium on Computational Geometry.* Rio de Janeiro, Brazil.

2013c. 60 Particiones balanceadas de medidas en $\mathbb{R}^d$ (Balanced Partitions of Measures in $\mathbb{R}^d$). *National Congress of the Royal Spanish Mathematical Society (RSME).*
Santiago de Compostela, Spain.

2013d. 61 Variaciones del teorema de Tverberg (Variations of Tverberg's Theorem). *Seminario de matemáticas discretas*
Univeristy of Cantabria. Santander, Spain.

2013e. 62 Partitions of measures and combinatorial geometry.
Warwick University, UK.

2012a. 63 Some generalisations of Radon's theorem *LSE lunchtime seminar.*

London School of Economics.

2012b. 64 An extension of a theorem by Yao and Yao. *European workshop on computational geometry (EuroCG).* Assisi, Italy.

2012c. 65 Variations of Tverberg's theorem. *Geometry seminar.* Rényi Institute. Budapest, Hungary.

2012d. 66 Equal coefficients in coloured Tverberg partitions. *Recent Advances in Transversal and Helly-type Theorems in Geometry, Combinatorics and Topology.* Banff, Canada.

2011a. 67 Balanced equipartitions of measures in $\mathbb{R}^d$. *Discrete mathematics seminar.* University College London.

2011b. 68 On the tolerated Tverberg theorem. *Discrete geometry workshop (ID 1136).* Oberwolfach, Germany.

2011c. 69 Balanced partitions of measures in $\mathbb{R}^d$. *Convexity , Topology, Combinatorics, and Beyond: A workshop in honor of Montejano's 60th birthday.* Puerto Vallarta, Mexico.

2011d. 70 Round table for the 25 years of the Mexican Mathematical Olympiad. *National congress of the Mexican Mathematical Society.* San Luis Potosí, Mexico.

2009a. 71 Piercing numbers for balanced families. *Transversals and Helly-type theorems in Geometry, Combinatorics and Topology.* Banff, Canada.