

Curriculum Vitae

Maria Chudnovsky

Contact Information

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Present Position

Professor, Mathematics and PACM

Research Interests

Graph Theory

Employment history

2014 Liu Family Professor of IEOR, Columbia University
2014 Professor (IEOR and Mathematics), Columbia University
2006-2013 Associate Professor, Columbia University
2005-2006 Assistant Professor, Princeton University
2003-2008 Clay Research Fellow, The Clay Mathematics Institute
2003-2005 Veblen Research Instructor, Princeton University and the IAS

Education

Ph.D Princeton University, Mathematics, 2003

Thesis Title : Berge Trigraphs and Their Applications.

Thesis Advisor: Paul Seymour

M.A Princeton University, 2002

M.SC Technion, Israel Institute of Technology, Mathematics, 1999.

Thesis Title : Systems of Disjoint Representatives.

Thesis Advisor: Ron Aharoni

B.A. *Summa Cum Laude* Technion, Israel Institute of Technology , Mathematics, 1996.

Honors and Awards

- US Army Research Office Grant W911NF-16-1-0404 (2016-2019)
- Invited speaker, Combinatorics Section, International Congress of Mathematicians, Seoul 2014
- MacArthur Foundation Fellowship (2013-2017)
- NSF Grant DMS-1265803 (2013-2018, now DMS-1550991)
- NSF Grant IIS-1117631 (2011-2014, joint with Tony Jebara)
- NSF Grant DMS-1001091 (2010-2013)
- D.R. Fulkerson Prize (2009, joint with Neil Robertson, Paul Seymour and Robin Thomas)
- NSF Grant DMS-0758364 (2008-2011)
- Ostrowski research stipend (2004)
- Clay Mathematics Institute Research Fellowship (2003-2008)

Editorial Boards

Journal of Graph Theory

Scientific Advisory Boards

MFO (Oberwolfach Research Institute for Mathematics), BIRS (Banff International Research Station for Mathematical Innovation and Discovery)

Program Committees: SODA 2009,2013; Perspectives in Discrete Mathematics 2012; SIAM Discrete Mathematics 2014; PRIMA 2017; Bordeaux Graph Theory Workshop 2016; EuroComb 2017; Mathematical Congress of the Americas 2021.

Steering Committees: International Workshop on Combinational Algorithms.

Post-doc Supervision

- Aurelie Lagoutte (now University Clermont-Auvergne, Clermont-Ferrand, France)
- Bernard Ries (now at University of Fribourg)
- Andrew King (now at D-Wave Systems)
- Juraj Stacho (now at Google)
- Radoslav Fulek (now at Institute of Science and Technology Austria)

PhD Student Supervision

- Yori Zwols (PhD 2010, now at Google DeepMind)
- Alexandra Fradkin (PhD 2011, now at Classical Academy, Bryn-Mawr, PA)
- Irena Penev (PhD 2012, now at The University of Leeds)
- Krzysztof Choromanski (PhD 2013, now at Google Research)
- Matthieu Plumettaz (PhD 2014, now at Investment Technology Group)
- Peter Maceli (now at Canisius College)
- Mingxian Zhong (in progress, joint with Cliff Stein)
- Sophie Spirkel (PhD 2018, joint with Paul Seymour)
- Cemil Dibek (in progress, joint with Amirali Ahmadi)

MSc Student Research Supervision

Mingxian Zhong (2013), Juba Ziani (2013)

Undergraduate Student Research Supervision

David Lyn (2005), Rohan Kapadia (2005,2006), Alexandra Ovetsky (2005,2006) Varun Jalan (2010), Max Ehrman (2012), Kendric Schefers (2014), Alexander Yu (2016), Elizabeth Yang (2016), Emily Zhang (2017), Jessica Shi (current)

Other Experience

1996 - 1999 Service in the Israel Defense Force.

Teaching

Spring 2016, Spring 2017, Princeton University, Topics in Graph Theory, MAT575

Fall 2015, Fall 2016, Princeton University, Advanced Graph Theory, MAT477

Spring 2010, Spring 2011, Spring 2012, Spring 2013, Spring 2014 Columbia University, Graph Theory—A Combinatorial View, CSORE4010

Spring 2009 Columbia University, Introduction to OR—Deterministic Models, IEOR4004

Spring 2009, Spring 2011, Spring 2013 Columbia University, Advanced Topics in IEOR—Graph Theory, IEOR8100

Fall 2008, Fall 2009, Fall 2010, Fall 2011, Fall 2012 Columbia University, Introduction to Mathematical Programming, IEOR 3608

Spring 2007, Fall 2009, Fall 2011 Columbia University, Introduction to OR—Deterministic Models, IEOR4004

Fall 2006 Columbia University, Advanced Topics in IEOR—Graph Theory, IEOR8100

Spring 2005, Spring 2015, Spring 2018 Princeton University, Introduction to Graph Theory, MAT375/COS342

Fall 2002 Princeton University, MAT 202, Linear Algebra With Applications

Invited Talks

2018

- 10th International Colloquium on Graph Theory and Combinatorics, Lyon, France
- 44th International Workshop on Graph-Theoretic Concepts in Computer Science, Lubbenau, Germany
- One day meeting in Combinatoircs, University of Oxford, Oxford, UK
- Barbados Workshop on graph coloring, Bellairs Research Center, Barbados
- IMPA Workshop on Extremal and Structural Combinatorics, Rio de Janeiro, Brazil
- Goddard Science Colloquium, NASA Goddard Space Flight Center, Greenbelt, MD

- US Naval Academy Julian Clancy Frazier Math Colloquium, USNA, Annapolis, MD
- Yale Mathematics Colloquium, Yale University, New Haven, CT
- Asprey Lectures in Mathematics, Vassar College, Poughkeepsie, NY

2017

- Oberwolfach Meeting on Combinatorics, Oberwolfach, Germany
- Mathematics Colloquium, University of Michigan, Ann Arbor, MI
- NSF Distinguished Lecture in Mathematical and Physical Sciences, Arlington, VA
- Barbados Workshop on graph coloring, Bellairs Research Center, Barbados
- Colloquium d'Informatique de L'UPMC Sorbonne Universites, Paris, France
- Structure in Graphs and Matroids, University of Waterloo, Waterloo, ON, Canada
- Mathematical Congress of the Americas, Montreal, QC, Canada
- Workshop on Geometric and Structural Graph Theory, Banff, AB, Canada
- Latin and Algorithms, Graphs and Optimization Symposium, CIRM, Marseille, France
- The 23rd Annual Arne Magnus Lecture Series, Colorado State University, Fort Collins, CO
- The Cheng-Jung Hsu Distinguished Lecture Series, Institute of Mathematics of Academia Sinica, Taipei, Taiwan
- MIT Mathematics Colloquium, Boston, MA
- The 5th International Combinatorics Conference, Monash University, Melbourne, Australia

2016

- Oberwolfach Meeting on Graph Theory, Oberwolfach, Germany
- PIMS/UBC Distinguished Colloquium, Vancouver, BC, Canada
- British Mathematical Colloquium, Bristol, UK

- Barbados Workshop on graph coloring, Bellairs Research Center, Barbados
- Applied Mathematics Colloquium, Princeton University, Princeton, NJ
- Coven-Wood Lecture Series in Mathematics, Wesleyan University, Middletown, CT
- Discrete Math Day of the Northeast, Smith College, Northampton, MA
- Porcelli Lecture Series, LSU, Baton Rouge, LA
- Extremal Combinatorics at Illinois, Illinois Institute of Technology, Chicago, IL
- Hungarian-Israeli combinatorial days at the Technion, Haifa, Israel
- The Second Israeli Workshop for Women in Mathematics, the Jerusalem Institute for Advanced Studies, Jerusalem, Israel
- Triangle Lectures in Combinatorics, North Carolina State University, Raleigh
- Plucker Lectures, Hausdorff Center for Mathematics, Bonn, Germany

2015

- UIUC Mathematics Colloquium, Urbana-Champaign, IL
- EuroComb, Bergen, Norway
- Coloring Graphs at the Technion, The Technion, Haifa, Israel
- One-day Meeting in Combinatorics, University of Oxford, Oxford, UK
- AWM Reserach Symposium, University of Maryland, College Park, MD
- AIM workshop on Graph Ramsey Theory, San Jose, CA
- CIRM meeting on Graph Structure, Marseille, France
- Distinguished Colloquium in Interdisciplinary and Applied Mathematics, Columbia University, New York, NY

2014

- KAIST CMC Annual Distinguished Lecture, KAIST, Daejeon, South Korea
- Bordeaux Graph Workshop, Bordeaux, France

- Google Technical Lecture, Google, New York, NY
- Mathematics Colloquium, Rutgers University, Piscataway, NJ
- Gentry Lectures, Wake Forest University, Winston-Salme, NC
- IMA Workshop on Extremal and Probabilistic Combinatorics, Minneapolis, MN
- Combinatorics Section, ICM 2014, Seoul, South Korea
- 2014 Workshop on Structure in Graphs and Matroids, Princeton, NJ
- Erdos Memorial Lecture, AMS Sectional Meeting, Knoxville, TN
- Forty-Fifth Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, FL
- Brandeis-Harvard-MIT-Northeastern joint Mathematics Colloquium, NEU, Boston, MA
- Mathematics Colloquium, Caltech, Pasadena, CA
- Oberwolfach Meeting on Combinatorics, Oberwolfach, Germany

2013

- Mathematics Colloquium, University of Pennsylvania, Philadelphia, PA
- ORFE Colloquium, Princeton University, Princeton, NJ
- Paris Graph Theory Day, Université Paris Diderot, Paris, France
- Women and Mathematics, IAS, Princeton
- Symposium on Visions in the Theory of Computing, UC Berkeley, CA
- McGill University workshop on graph coloring, Bellairs Research Center, Barbados
- Oberwolfach Meeting on Graph Theory, Oberwolfach, Germany

2012

- KAIST Graph Theory Day, KAIST, Daejeon, South Korea
- Columbia Theory Day, Columbia University, New York, NY

- Distinguished Lecture, School of Computing, Informatics, and Decision Systems Engineering, ASU, Tempe, AZ
- Geometry, Structure and Randomness in Combinatorics, Pisa, Italy
- Third Workshop on Graphs and Matroids, Maastricht, The Netherlands
- Joint Colloquium at the Mathematics Institute SANU and Mathematics Faculty of Belgrade University, Belgrade, Serbia
- SIAM conference on Discrete Mathematics, Halifax, Canada
- Matchings, Matroids, and Extensions, A Conference in Honor of Bill Cunningham's 65th Birthday, University of Waterloo, Waterloo, Canada
- Paul Erdős Lecture Series, University of Memphis Centennial Celebration, Memphis, TN
- Graph Theory at Georgia Tech, Georgia Tech, Atlanta, GA
- McGill University workshop on graph coloring, Bellairs Research Center, Barbados
- Workshop on χ -bounded graph classes, ENS Lyon, Lyon, France

2011

- Tutte Seminar, University of Waterloo, Ontario, Canada
- University of Connecticut Mathematics Department Colloquium, University of Connecticut, Storrs, CT
- KAIST Graph Theory Day 2011, KAIST, Daejeon, South Korea
- Atlanta Lecture Series in Combinatorics and Graph Theory (featured speaker), Georgia Tech, Atlanta, GA
- Fourth International Conference on Combinatorics, Graph Theory and Applications, Elgersburg, Germany
- One-Day Meeting in Combinatorics, Mathematical Institute, University of Oxford, Oxford, UK
- A conference on Structural Graph Theory, Universite Paris 7, Paris, France
- Oberwolfach Meeting on Combinatorics, Oberwolfach, Germany

2010

- Workshop on Discrete Optimization, IPAM, Los Angeles, CA
- PACM Colloquium, Princeton University, Princeton, NJ
- Conference on Geometric Graph Theory, EPFL, Lausanne, Switzerland
- Second Workshop on Graphs and Matroids, Maastricht, The Netherlands
- Minisymposium on Graph Coloring, SIAM Discrete Math meeting, Austin, TX
- Symposium "Diskrete Mathematik", Vienna, Austria
- Operations Research Center Seminar, MIT, Boston, MA
- Mathematics Colloquium, University of Calgary, Calgary, AB, Canada
- Mathematics Colloquium, University of Central Florida, Orlando, FL
- Oberwolfach Meeting on Graph Theory, Oberwolfach, Germany
- Mathematics Undergraduate Colloquium, University of Pennsylvania, Philadelphia, PA

2009

- Bertinoro Workshop on Algorithms and Graphs, Bertinoro, Italy
- Workshop on Topics in Graphs and Hypergraphs, IPAM, Los Angeles, CA
- Mathematics Colloquium, University of Buenos Aires, Buenos Aires, Argentina
- Mathematics Colloquium, Technion, Haifa, Israel
- 2009 AMS Spring Central Sectional Meeting, Special Session on Graph Theory, UIUC, Champaign, IL
- Everett Pitcher Lecture Series, Lehigh University, Bethlehem, PA
- 13th Combinatorial Optimization Workshop, Aussois, France
- Invited MAA address at the 2009 Joint Mathematics Meetings, Washington, DC

2008

- The Fourth International Conference on Combinatorial Mathematics and Combinatorial Computing, Auckland, New Zealand
- BIRS workshop on Graph Minors, Banff, Canada
- Graph Theory 2008 at Sandbjerg Manor, Denmark
- Netherlands Workshop on Graphs and Matroids, Sittard, The Netherlands
- Princeton/Oxford Meeting, Oxford University, Oxford, England
- Workshop on Combinatorial Optimization and Discrete Algorithms, RIMS, Kyoto, Japan
- New Directions in Algorithms, Combinatorics, and Optimization, Georgia Institute of Technology, Atlanta, GA
- Mathematics Colloquium, Haifa University, Haifa, Israel
- Joint Mathematics and IME Colloquium, WMU, Kalamazoo, MI
- Mathematics Colloquium, Brigham Young University, Provo, Utah
- 3eme cycle romand de Recherche Operationnelle, Zinal, Switzerland
- Oberwolfach Meeting on Combinatorics, Oberwolfach, Germany

2007

- Joint Meeting of the AMS - NZMS 2007, Victoria University, Wellington, New Zealand
- IV Latin-American Graphs Algorithms and Optimization, Puerto Varas, Chile
- The ADONET-CIRM School on Graphs and Algorithms, Levico Terme, Italy
- Combinatorics Seminar, CUNY Graduate Center, New York, NY
- Princeton Discrete Math Seminar, Princeton, NJ
- 21st British Combinatorial Conference, Reading, UK
- *C&O@40*, University of Waterloo, Waterloo, ON, Canada
- 20th Cumberland Conference, Emory University, Atlanta, GA
- Oberwolfach Meeting on Graph Theory, Oberwolfach, Germany

- ACM-SIAM Symposium on Discrete Algorithms (SODA), New Orleans, LA

2006

- Combinatorics Seminar, University of Michigan, Ann Arbor, MI
- Discrete Mathematics and Theoretical Computer Science Seminar, Yale University, New Haven, CT
- CS Colloquium, City University of New York, New York, NY
- 2nd Annual Heilbronn Conference, Bristol, UK
- CS Colloquium, New York University, New York, NY
- 19th International Symposium on Mathematical Programming, Rio de Janeiro, Brazil
- SIAM Conference on Discrete Mathematics, Victoria, BC
- Sixth Haifa Workshop on Interdisciplinary Applications of Graph Theory, Combinatorics and Algorithms, University of Haifa, Haifa, Israel
- Theory of Computing Seminar, The Hebrew University at Jerusalem, Jerusalem, Israel
- Bar Ilan University Discrete Math Seminar, Israel
- Discrete Math Seminar, The Hebrew University at Jerusalem, Jerusalem, Israel
- Discrete Math and Theory of Computing Seminar, Rutgers University, Piscataway, NJ
- Joint SFU/UBC Discrete Mathematics Computing Science Seminar, Vancouver, BC, Canada
- Theory of combinatorial algorithms mittagseminar, ETH, Zurich, Switzerland
- Oberwolfach Meeting on Combinatorics, Oberwolfach, Germany

2005

- Workshop on Graph Classes, Width Parameters and Optimization, Prague, The Czech Republic
- 7th International Colloquium on Graph Theory ICGT '05, Giens, France
- Combinatorics Seminar, UC Berkeley, Berkeley, CA

- Mathematics Colloquium UC Berkeley, Berkeley, CA
- Combinatorial Mathematics and its Applications, Oxford, England
- Princeton/Oxford Meeting, Oxford University, Oxford, England
- Mathematics Colloquium, The Ohio State University, Columbus, OH
- 49th Graph Theory Day, Shirley, NY
- MAA annual meeting, Metropolitan New York Section, Queens, NY
- Workshop on Combinatorics and Telecommunications, Icapui, Ceara, Brazil
- Computer Science/Discrete Mathematics Seminar, IAS, Princeton, NJ
- 9th Combinatorial Optimization Workshop, Aussois, France
- CAM Colloquium, Cornell University, Ithaca, NY
- Oberwolfach Meeting on Graph Theory, Oberwolfach, Germany
- Algorithms seminar, McGill University, Montreal, Canada

2004

- Joint conference: the 2004 NZIMA Conference in Combinatorics and its Applications and the 29th Australasian Conference in Combinatorial Mathematics and Combinatorial Computing, Lake Taupo, New Zealand
- Combinatorics Seminar, University of Pennsylvania, Philadelphia, PA
- ACCOTA 2004 International Workshop, Combinatorial and Computational Aspects of Optimization, Topology and Algebra, San Cristbal de las Casas, Chiapas, Mexico
- Tenth annual Big Sky Conference on Discrete Mathematics, Missoula, MN
- Latin American Conference on Combinatorics, Graphs and Applications, Santiago, Chile
- Prague Midsummer Combinatorial Workshop XI, Prague, Czech Republic
- Graph Theory 2004 conference in memory of Claude Berge, Paris, France
- SIAM Conference on Discrete Mathematics, Nashville, TN

- Computer Science Colloquium, University of Haifa, Haifa, Israel
- Mathematics Colloquium, The Technion, Haifa, Israel
- Fourth Haifa Workshop on Interdisciplinary Applications of Graph Theory, Combinatorics and Algorithms, University of Haifa, Haifa, Israel
- France-Israel Expert Workshop on Graph Classes and Graph Algorithms, University of Haifa, Haifa, Israel
- Computer Science/ Discrete Math Seminar, IAS, Princeton, NJ
- Combinatorics Seminar, LaPCS, Université Claude Bernard Lyon 1, Lyon, France
- Oberwolfach Meeting on Combinatorics, Oberwolfach, Germany

2003

- Advances in Graph and Matroid Theory, The Ohio State University, Columbus, OH
- DIMACS Mixer Series, Princeton, NJ
- Princeton/Oxford Meeting, Oxford University, Oxford, England
- Combinatorics, Probability and Algorithms, Centre de recherches mathématiques, Université de Montreal, Montreal, Canada
- Combinatorics Seminar, Tel-Aviv University, Tel-Aviv, Israel
- Spring School on Combinatorics, Topology and Convexity at the Institute for Advanced Study, The Hebrew University at Jerusalem, Jerusalem, Israel
- Erdos Lecture, The Hebrew University at Jerusalem, Jerusalem, Israel
- Special Colloquium, Haifa University, Haifa, Israel
- CMI Research Academy, Clay Mathematics Institute, Cambridge, MA
- Combinatorics Seminar, University of Pennsylvania, Philadelphia, PA
- CS Theory Seminar, Department of Computer Science, Princeton, NJ
- ACO Colloquium, Georgia Institute of Technology, Atlanta, GA
- Tenth Workshop on Applied/Advanced Research in Combinatorial Optimization, University of Southern Denmark, Odense, Denmark

- Oberwolfach Meeting on Graph Theory, Oberwolfach, Germany
- Tutte Seminar, University of Waterloo, Ontario, Canada

2002

- ACCOTA 2002 International Workshop, Combinatorial and Computational Aspects of Optimization, Topology and Algebra, San Cristbal de las Casas, Chiapas, Mexico
- 2nd Columbia Optimization Day, Advances in Optimization, Columbia University, New York, NY
- ARCC Workshop on The Perfect Graph Conjecture, American Institute of Mathematics, Palo Alto, CA
- The Joint ALADDIN/Theory/Operations Research Seminar, Carnegie Mellon University, Pittsburgh, PA
- Discrete Math/Theory of Computing Seminar, Rutgers University, Piscataway, NJ
- Combinatorics and Number Theory Seminar, SUNY at Binghamton
- A Conference on Matroid Structure Theory in Honour of W.T. Tutte, The Ohio State University
- CS Theory Seminar, Department of Computer Science, Princeton
- Oberwolfach Meeting on Geometric Convex Combinatorics, Oberwolfach, Germany
- Discrete Mathematics Day at Dartmouth College

2001

- Courant Institute Geometry Seminar, NYU, New York, NY
- Princeton Discrete Math Seminar, Princeton, NJ
- Sectional meeting of AMS, April 28-29, 2001
Session on matchings in graphs and hypergraphs

2000

- Bar Ilan University Discrete Math Seminar, Israel
- The Technion Discrete Math Seminar, Israel