

Publications and Preprints

Maria Chudnovsky

Journal papers published

1. Even pairs in graphs with no balanced skew-partitions, (*with* Tara Abrishami and Yaqian Tang) *Discrete Mathematics*, 348 (2025), 114388.
2. Induced subgraphs and tree-decompositions XIV. Non-adjacent neighbors in a hole. (*with* Sepehr Hajebi and Sophie Spirkl), *European Journal of Combinatorics*, 124 (2025), 104074.
3. Induced subgraphs and tree-decompositions VIII. Excluding a forest in (prism,theta)-free graphs. (*with* Tara Abrishami, Bogdan Alecu, Sepehr Hajebi, and Sophie Spirkl), *Combinatorica*, 44 (2024), 921–948.
4. List- k -coloring H -free graphs for all $k > 4$, (*with* Sepehr Hajebi and Sophie Spirkl), *Combinatorica*, 44 (2024), 1063–1068.
5. Quasi-polynomial time approximation schemes for the Maximum Weight Independent Set Problem in H -free graphs, (*with* Marcin Pillipczuk, Mihal Pillipczuk and Stephan Thomasse), *SIAM Journal on Computing*, 53 (2024), 47–86.
6. Induced subgraphs and tree-decompositions VI. Graphs with 2-cutsets. (*with* Tara Abrishami, Sepehr Hajebi, and Sophie Spirkl) *Discrete Math*, 348 (2025), 114195
7. Graphs with no even holes and no sector wheels are the union of two chordal graphs (*with* Tara Abrishami, Eli Berger and Shira Zerbib), *European Journal of Combinatorics*, 122 (2024), 104035.
8. Induced subgraphs of bounded treewidth and the container method, (*with* T. Abrishami, M. Pilipczuk, P. Rzazewski and P. Seymour), *SIAM Journal on Computing*, 53 (2024), 10.1137/20M1383732.
9. Tree independence number I. (Even hole, diamond, pyramid)-free graphs. (*with* Tara Abrishami, Bogdan Alecu, Sepehr Hajebi, Sophie Spirkl and Kristina Vuskovic), *Journal of Graph Theory*, 106 (2024), 924–943.
10. Cops and robbers in P_5 -free graphs. (*with* Sergey Norin, Paul Seymour and Jeremie Turcotte), *SIDMA*, 38 (2024), 845–856.
11. Four-coloring P_6 -free graphs I. Extending an excellent precoloring. (*with* S. Spirkl and M. Zhong), *SIAM Journal on Computing*, 53 (2024), 111–145
12. Four-coloring P_6 -free graphs II. Finding an excellent precoloring. (*with* S. Spirkl and M. Zhong), *SIAM Journal on Computing*, 53 (2024), 146–187
13. Induced subgraphs and tree-decompositions V. At most one neighbor in a hole. (*with* Tara Abrishami, Bogdan Alecu, Sepehr Hajebi, Sophie Spirkl and Kristina Vuskovic), *Journal of Graph Theory*, 105 (2024), 542–561.

14. Induced subgraphs and tree-decompositions VII. Basic obstructions in H -free graphs (with Tara Abrishami, Bogdan Alecu, Sepehr Hajebi, and Sophie Spirkl), *Journal of Combinatorial Theory, Series B*, 164 (2024), 443-472.
15. Induced subgraphs and tree-decompositions II. Toward walls and their line graphs in graphs of bounded degree. (with Tara Abrishami, Cemil Dibek, Sepehr Hajebi, Pawel Rzazewski, Sophie Spirkl and Kristina Vuskovic), *Journal of Combinatorial Theory, Series B*, 164 (2024), 371-403.
16. Characterizing and generalizing cycle completable graphs, (with Ian Malcolm Johnson), *Discrete Mathematics*, 347 (2024), 113754.
17. Bipartite graphs with no K_6 -minor, (with A. Scott, P. Seymour and S.Spirkl), *Journal of Combinatorial Theory, Series B*, 164 (2024), 68-104.
18. Non-uniform degrees and rainbow versions of the Caccetta-Haggkvist conjecture, with Ron Aharoni, Eli Berger, He Guo and Shira Zerbib, *SIDMA*, 37 (2023), 1704 - 1714.
19. Complexity of C_k -coloring in hereditary classes of graphs, (with S. Huang, P. Rzazewski, S.Spirkl and M. Zhong), *Information and Computation*, 292 (2023), Article 105015.
20. Attempting perfect hypergraphs, (with Gil Kalai) *Israel J. of Math*, 256 (2023), 133-151.
21. Polynomial bounds for chromatic number. VII. Disjoint holes (with Alex Scott, Paul Seymour and Sophie Spirkl) *Journal of Graph Theory*, 104 (2023), 499-515.
22. Strengthening Rodl's theorem, (with Alex Scott, Paul Seymour and Sophie Spirkl), *Journal of Combinatorial Theory, Series B*, 163 (2023), 256-271.
23. Pure Pairs X. Excluding six-vertex tournaments, (with Alex Scott, Paul Seymour and Sophie Spirkl), *European Journal of Combinatorics*, 115 (2024), 103786
24. Induced subgraphs and tree-decompositions IV. (Even hole, diamond, pyramid)-free graphs (with Tara Abrishami, Sepehr Hajebi, and Sophie Spirkl), *Electronic Journal of Combinatorics*, 30 (2023), P2.42
25. Proof of a conjecture of Plummer and Zha, (with Paul Seymour) *J. Graph Theory*, 103 (2023), 437-450
26. Erdős-Hajnal for graphs with no 5-hole, (with Alex Scott, Paul Seymour and Sophie Spirkl), *Proceedings of the London Mathematical Society*, 126 (2023), 997-1014
27. Stable sets in flag spheres, (with Eran Nevo), *European Journal of Combinatorics*, 110 (2023), 103699

28. Polynomial bounds for chromatic number. VI. Adding a four vertex path (*with* Alex Scott, Paul Seymour and Sophie Spirkl), *European Journal of Combinatorics*, 110 (2023), 103710
29. Even-hole -free graphs still have bisimplicial vertices, (*with* Paul Seymour), *Journal of Combinatorial Theory, Series B*, 161 (2023), 331–381
30. Induced subgraphs and tree-decompositions III. Three-path-configurations and logarithmic tree-width, (*with* Tara Abrishami, Sepehr Hajebi and Sophie Spirkl), *Advances in Combinatorics* (2022)
31. Concatenating bipartite graphs. (*with* P. Hompe, A. Scott, P. Seymour and S. Spirkl) *Electronic J Combinatorics* 29 (2022), P2.47
32. Forbidden induced pairs for perfectness and w -colorability of graphs, (*with* A. Kabela, B. Li and P. Vrana), *Electronic J. Combinatorics*, 29 (2022), P2.21
33. Rainbow paths and large rainbow matchings, (*with* R. Aharoni, E. Berger and S. Zerbib), *Electronic J. Combinatorics*, 29(2022), P1.10
34. Induced subgraphs and tree-decompositions I. Even-hole-free graphs of bounded degree, (*with* T. Abrishami and K. Vuskovic), *JCT B*, 157 (2022), 144-175.
35. Tournaments and the Strong Erdős-Hajnal property, (*with* E. Berger, K. Choromanski and S. Zerbib), *European Journal of Combinatorics*, 100 (2022), 103440
36. Avoidable vertices and edges in graphs, (*with* J. Beisegel, V. Gurvich, M. Milanic and M. Servatius), *Discrete Applied Math*, 309 (2022), 285-300.
37. Graphs with polynomially many minimal separators, (*with* Tara Abrishami, Cemil Dibek, Stephan Thomasse, Nicolas Trotignon and Kristina Vuskovic), *JCT B*, 152 (2022), 248-280.
38. Erdős-Hajnal for cap-free graphs, (*with* Paul Seymour), *JCT B*, 151 (2021), 417-434.
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47. Strongly perfect claw-free graphs—a short proof (*with* Cemil Dibek), *Journal of Graph Theory*, 97 (2021), 359–381.
48. Better 3-coloring algorithms: excluding a triangle and a seven vertex path, (*with* F. Bonomo, J. Goedgebeuer, P. Maceli, O. Schaudt, M. Stein and M. Zhong), *Theoretical Computer Science*, 850 (2021), 98–115.
49. Pure pairs I. Trees and linear anticomplete pairs. (*with* A. Scott, P. Seymour and S. Spirkl), *Advances in Mathematics*, 375 (2020), 107396.
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78. The sandwich problem for decompositions and almost monotone properties, (*with* C.M.H. de Figueiredo and S. Spirkl), *Algorithmica* 12 (2018), 3618-3645.
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116. Substitutions and χ -boundedness (*with Irena Penev, Alex Scott and Nicolas Trotignon*), *Journal of Combinatorial Theory, Ser. B*, 103 (2013), 567-586
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123. Growing without cloning (*with Paul Seymour*), *SIDMA*, 26 (2012), 860-880
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Conference Proceedings

1. Tree independence number IV. Even-hole-free graphs. (*with* Peter Gartland, Sepehr Hajebi, Daniel Lokshtanov and Sophie Spirkl), *Proc. SODA'25, 2025*
2. Sparse induced subgraphs in P_6 -free graphs. (*with* Rose McCarty, Marcin Pilipczuk, Mihal Pilipczuk and Pawel Rzazewski) *Proc. SODA'24, 2024*
3. Max weight independent set in sparse graphs with no long claws (*with* Tara Abrishami, Marcin Pilipczuk and Pawel Rzazewski), *Leibniz International Proceedings in Informatics (STAC2024)*.
4. Polynomial-time algorithm for maximum independent set in graphs with no long induced claws (*with* Tara Abrishami, Cemil Dibek and Pawel Rzazewski), *Proc. SODA'22, 2022*
5. Induced subgraphs of bounded treewidth and the container method, (*with* T. Abrishami, M. Pilipczuk, P. Rzazewski and P. Seymour), *Proc. SODA'21, 2021*
6. Finding large H -colorable subgraphs in hereditary graph classes, (*with* J. King, Mihal Pilipczuk, P. Rzazewski and S. Spirkl), *28th Annual European Symposium on Algorithms, 2020*
7. Quasi-polynomial time approximation schemes for the Maximum Weight Independent Set Problem in H -free graphs, (*with* Marcin Pillipczuk, Mihal Pillipczuk and Stephan Thomasse), *Proc. SODA'20, 2020*
8. Complexity of C_k -coloring in hereditary classes of graphs, (*with* S. Huang, P. Rzazewski, S. Spirkl, M. Zhong), *27th Annual European Symposium on Algorithms, 2019*
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10. Four-coloring P_6 -free graphs (*with* S. Spirkl and M. Zhong), *Proc. SODA'19, 2019*
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Papers to appear

1. Counting independent sets in structured graphs. (*with* Matija Bucić and Julien Codsì) *to appear in Combinatorics Probability and Computing*
2. Induced subgraphs and tree-decompositions IX. Grid theorem for perforated graphs (*with* Bogdan Alecu, Sepehr Hajebi and Sophie Spirkl), *to appear in Advances in Combinatorics*
3. Induced subgraphs and tree-decompositions XII. Grid theorem for pinched graphs (*with* Bogdan Alecu, Sepehr Hajebi and Sophie Spirkl), *to appear in Innovations in Graph Theory*
4. On prime Cayley graphs, (*with* M. Cizek, L. Crew, J. Minac, T.T. Nguyen, S. Spirkl, and N. D. Tan) *to appear in Journal of Combinatorics*
5. Induced subgraphs and tree-decompositions XIII. Basic obstructions in \mathcal{H} -free graphs for finite \mathcal{H} . (*with* Bogdan Alecu, Sepehr Hajebi and Sophie Spirkl), *to appear in Advances in Combinatorics*
6. The structure of metrizable graphs, (*with* Danile Cizma and Nati Linial), *to appear in Discrete And Computational Geometry*
7. Submodular functions and perfect graphs, (*with* Tara Abrishami, Cemil Dibek and Kristina Vuskovic), *to appear in Mathematics of Operations Research*

Papers submitted for publication

1. Tree independence number V. Claws and walls. (*with* Julien Codsì, Daniel Lokshtanov, Martin Milanič and Varun Sivashankar), *submitted for publication*
2. Strictly metrizable graphs are minor closed. (*with* Daniel Cizma and Nati Linial), *submitted for publication*
3. Colouring t-perfect graphs (*with* Linda Cook, James Davies, Sang-il Oum and Jane Tan) *submitted for publication*
4. Induced subgraphs and tree-decompositions XVIII. Obstructions to bounded path-width. (*with* Sepehr Hajebi and Sophie Spirkl), *submitted for publication*
5. Induced subgraphs and tree-decompositions XVII. Anticomplete sets of large treewidth. (*with* Sepehr Hajebi and Sophie Spirkl), *submitted for publication*
6. Tree independence number IV. Even-hole-free graphs. (*with* Peter Gartland, Sepehr Hajebi, Daniel Lokshtanov and Sophie Spirkl), *submitted for publication*

7. Induced subgraphs and tree-decompositions XVI. Complete bipartite induced minors. (*with* Sepehr Hajebi and Sophie Spirkl), *submitted for publication*
8. Tree independence number III. Thetas, prisms and stars. (*with* Sepehr Hajebi and Nicolas Trotignon), *submitted for publication*
9. On treewidth and maximum cliques. (*with* Nicolas Trotignon), *submitted for publication*
10. Tree independence number II. 3PC-free graphs. (*with* Sepehr Hajebi, Daniel Loksh-tanov and Sophie Spirkl), *submitted for publication*
11. Unavoidable induced subgraphs in graphs with complete bipartite induced minors. (*with* M. Hatzel, T. Korhonen, N. Trotignon, and S. Wiederrech), *submitted for publication*
12. Induced subgraphs and tree-decompositions XV. Even-hole-free graphs with bounded clique number have logarithmic treewidth. (*with* Peter Gartland, Sepehr Hajebi, Daniel Loksh-tanov and Sophie Spirkl), *submitted for publication*
13. Sparse induced subgraphs in P_6 -free graphs. (*with* Rose McCarty, Marcin Pilipczuk, Mihał Pilipczuk and Paweł Rzázewski) *submitted for publication*
14. Max Weight Independent Set in sparse graphs with no long claws, (*with* T. Abrishami, C. Dibek, M. Pilipczuk and P. Rzázewski) *submitted for publication*
15. Reuniting χ -boundedness with polynomial χ -boundedness, (*with* Linda Cook, James Davies and Sang-il Oum), *submitted for publication*
16. Induced subgraphs and tree-decompositions XI. Local structure in even-hole-free graphs of large treewidth. (*with* Bogdan Alecu, Sepehr Hajebi and Sophie Spirkl), *submitted for publication*
17. Induced subgraphs and tree-decompositions X. Towards logarithmic treewidth in even hole free graphs. (*with* Tara Abrishami, Bogdan Alecu, Sepehr Hajebi, and Sophie Spirkl), *submitted for publication*

Manuscripts not yet submitted and papers in preparation

1. The vertex sets of subtrees of a tree, (*with* Tung Nguyen, Alex Scott and Paul Seymour), *in preparation*

2. Coarse Balanced Separators and Tree-Decompositions, (*with* Robert Hickingbotham), *manuscript*
3. Induced subgraphs and tree-decompositions XIX. Obstructions with bounded domination-treewidth, (*with* Sepehr Hajebi and Sophie Spirkl), *in preparation*
4. Induced subgraphs and tree-decompositions XX. Excluding a theta and a tree, (*with* Julien Codsì, Sepehr Hajebi and Sophie Spirkl), *in preparation*
5. Tree independence number VI. Excluding a theta and a pyramid, (*with* Julien Codsì, Sepehr Hajebi and Sophie Spirkl), *in preparation*
6. Treewidth and outer-string graphs, (*with* David Fischer, Sepehr Hajebi, Sophie Spirkl and Bartosz Walczak), *in preparation*
7. Tree-independence number of P_6 -free graphs excluding a $K_{2,t}$, (*with* Julien Codsì, Martin Milanič and Varun Sivashankar), *in preparation*
8. Localized Erdős-Pósa property for binary tree subdivisions, (*with* Icey Siyi Ai), *in preparation*
9. Bandwidth and subtrees. (*with* Daniel Lokshtanov and Eran Nevo), *in preparation*
10. Maximum independent sets in (pyramid, even hole)-free graphs, (*with* Stephan Thomasse, Nicolas Trotignon and Kristina Vuskovic), *manuscript*
11. Small families under subdivision, (*with* M. Loeb and P. Seymour), *manuscript*
12. Optimal anti-thickenings of claw-free graphs (*with* Andrew King), *manuscript*
13. On the Erdős-Lovász Tihany Conjecture in claw-free graphs, (*with* Alexandra Fradkin and Matthieu Plumettaz), *manuscript*