

Curriculum Vitae

Ramin Naimi

Department of Mathematics, Occidental College, Los Angeles, CA 90041 USA

Education

1992, California Institute of Technology, Ph.D. in Mathematics
1987, University of California, Los Angeles, B.S. in Mathematics

Research Interests

Spatial Graph Theory; Knot Theory; 3-Manifold Topology; Algorithms

Employment

1998- Occidental College: Professor (2010-); Associate Professor (2003-2010); Assistant Professor (1998-2003). 1997 (fall) Pomona College: Lecturer. 1995-98 University of California, Davis: Visiting Research Assistant Professor. 1994-95 University of Texas, Austin: Lecturer. 1993-94 IHES (Institute des Hautes Etudes Scientifique): Postdoctoral position. 1992-93 Technion-Israel Institute of Technology: Council of Higher Education Postdoctoral Fellowship. 1984-87 University of California, Los Angeles: Academic Advancement Program; Physics tutor for minority students.

Awards and Grants

2010 MAA George Pólya Award. 2009-2012 NSF Research Grant, DMS-0905300. 1991-92 Caltech Alfred P. Sloan Doctoral Dissertation Fellowship . 1992 (June) Caltech W. P. Carey Award for Ph.D. thesis in Mathematics. 1987-88 Caltech Earl C. Anthony Graduate Fellowship. 1987 (June) UCLA Departmental Highest Honors; Magna Cum Laude; Phi Beta Kappa.

Publications

- Pairing strategies for the Maker-Breaker game on the boolean hypercube with subcubes as winning sets (with Eric Sundberg). Discrete Mathematics, Volume 346, Issue 10, October 2023, doi.org/10.1016/j.disc.2023.113576 [arXiv:2007.15141](https://arxiv.org/abs/2007.15141)
- Intrinsically knotted graphs with linklessly embeddable simple minors (with Thomas Mattman, Andrei Pavelescu, Elena Pavelescu). Algebraic & Geometric Topology 24-2 (2024), 1203--1223. DOI 10.2140/agt.2024.24.1203. [arXiv:2111.08859](https://arxiv.org/abs/2111.08859)
- New bounds on maximal linkless graphs (with Andrei Pavelescu, Elena Pavelescu). Algebraic & Geometric Topology 23:6 (2023), 2545–2559. DOI: 10.2140/agt.2023.23.2545. [arXiv:2007.10522](https://arxiv.org/abs/2007.10522)
- The Complement Problem for Linklessly Embeddable Graphs (with Ryan Odoneal*, Andrei Pavelescu, Elena Pavelescu). J. Knot Theory and its Ramifications, Vol. 31, No. 11 (2022). DOI: 10.1142/S0218216522500754. [arXiv:2108.12946](https://arxiv.org/abs/2108.12946)
- Intrinsic linking and knotting are arbitrarily complex in directed graphs (with Thomas Mattman, Benjamin Pagano*). Bulletin Polish Acad. Sci. Math. (2021). DOI: 10.4064/ba210704-8-7. [arXiv:1901.01212](https://arxiv.org/abs/1901.01212)
- On intrinsically knotted and linked graphs. Encyclopedia of Knot Theory, Chapman and Hall/CRC, 2020 (Chapter 50). [arXiv:2006.07342](https://arxiv.org/abs/2006.07342)

- A Combinatorial Problem Solved by a Meta-Fibonacci Recurrence Relation (with Eric Sundberg). *Integers* 19 (2019) A53. [pdf](#) [arXiv:1902.02929](#)
- Escher squares and Lattice Links (with Andrei Pavelescu, Elena Pavelescu). *Topology and its Applications* 256 (2019) 69–72. <https://doi.org/10.1016/j.topol.2019.01.017> [arXiv:1804.04724](#)
- Recent Developments in Spatial Graph Theory (survey article, joint with Erica Flapan, Thomas Mattman, Blake Mellor, Ryo Nikkuni). *Contemporary Mathematics*, Vol. 689, American Mathematical Society, (2017). [ams.org/books/conm/689](#) [arXiv:1602.08122](#)
- List coloring and n -monophilic graphs (with Radoslav Kirov*), *Ars Combinatoria*, 124 (2016), 329-340. [arXiv:1004.5183](#)
- On the number of links in a linearly embedded $K_{3,3,1}$ (with Elena Pavelescu). *J. Knot Theory and its Ramifications*, Vol. 24 (2015) 1550041 (21 pages). DOI: [10.1142/S0218216515500418](https://doi.org/10.1142/S0218216515500418) . [arXiv:1207.0572](#)
- Many, many more minor minimal intrinsically knotted graphs (with Noam Goldberg* and Thomas Mattman). *Algebraic & Geometric Topology*, 14 (2014) 1801-1823. DOI: [10.2140/agt.2014.14.1801](https://doi.org/10.2140/agt.2014.14.1801) . [arXiv:1109.1632](#) ; [Appendix](#)
- Linear embeddings of K_9 are triple linked (with Elena Pavelescu). *J. Knot Theory and its Ramifications*. Vol. 23, No. 2 (2014). DOI: 10.1142/S0218216514200016. [arXiv:1202.1613](#)
- An algorithm for detecting intrinsically knotted graphs (with Jonathan Miller*). *Experimental Mathematics*, 23:1 (2014) 6-12. DOI: 10.1080/10586458.2014.852033. [arXiv:1109.1030](#)
- Classification of topological symmetry groups of K_n (with Erica Flapan, Blake Mellor, Michael Yoshizawa*). *Topology Proceedings*, 43 (2014) pp. 209-233. [arXiv:1205.1560](#)
- Induced subgraphs of Johnson graphs (with Jeffrey Shaw*). *Involve, a Journal of Mathematics* 5-1 (2012), 25--37. DOI: 10.2140/involve.2012.5.25. [arXiv:1008.0595](#)
- Spatial graphs with local knots (with Erica Flapan, Blake Mellor) *Revista Matemática Complutense*, Vol. 25, No. 2 (2012), p. 493-510. DOI: 10.1007/s13163-011-0072-9. [arXiv:1010.0479](#)
- Complete graphs whose topological symmetry groups are polyhedral (with Erica Flapan, Blake Mellor). *Algebraic & Geometric Topology*, 11 (2011) 1405-1433. [arXiv:1008.1095](#)
- Topology Explains Why Automobile Shades Fold Oddly (with Curtis Feist). *College Mathematics Journal*, Vol. 40, No. 2 (Mar 2009), p. 93-98. [arXiv:1205.4797](#)
- Intrinsic linking and knotting are arbitrarily complex (with Erica Flapan, Blake Mellor). *Fundamenta Mathematicae*, Vol. 201 (2008), p.131-148. [arXiv:math/0610501](#)
- The Y-triangle move does not preserve intrinsic knottedness (with Erica Flapan). *Osaka Journal of Mathematics*, Vol. 45, No. 1 (2008), 107-111. [arXiv:1205.4798](#)
- Topological symmetry groups of complete graphs in the 3-sphere. *J. London Math. Soc.* (2) 73 (2006) 237-251 (with Erica Flapan, Harry Tamvakis) ([pdf file](#)).
- A tree that's not a tree. *Mathematics Magazine*, Vol. 79, No. 5, (Dec 2006), p. 367. (just a [picture](#), not an article)
- Topological symmetry groups of embedded graphs in the 3-sphere ([pdf file](#)) (with Erica Flapan, James Pommersheim, Harry Tamvakis). *Commentarii Math. Helv.* Vol. 80 (2005) 317-354.
- Maximizing the Chances of a Color Match. *Mathematics Magazine*, Vol. 78, No. 2 (Apr 2005), 132-137. ([pdf file](#))([Supplement](#)) (with Roberto Pelayo*)
- Almost Alternating Harmonic Series. *College Mathematics Journal*, Vol. 35, No. 3 (2004) 183-191. ([pdf file](#)) (with Curtis Feist)

- Intrinsically n -linked graphs. *Journal of Knot Theory and Its Ramifications*, Vol. 10, No. 8 (2001) 1143-1154. ([pdf file](#)) (with Erica Flapan, Joel Foisy, and James Pommersheim)
- Intrinsically triple linked complete graphs. *Topology and Its Applications* 115 (2001) 239-246. ([pdf file](#)) (with Erica Flapan and James Pommersheim)
- Essential laminations in graph manifolds, *J. of Differential Geometry* 45 (1997) 446-470. (with Mark Brittenham and Rachel Roberts)
- Constructing essential laminations in 2-bridge knot surgered 3-manifolds, *Pacific J. of Math.* 180 (1997) 153-186. ([pdf file](#))
- Foliations transverse to fibers of Seifert manifolds, *Commentarii Math. Helv.*, 69 (1994) 155-162. ([pdf file](#))
- Constructing essential laminations in 3-manifolds obtained by surgery on 2-bridge knots, *Contemporary Math.*, 164 (1994) 183-186.

* Undergraduate co-author