

Hamid Reza Daneshpajouh
School of Mathematical Sciences
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Employment

School of Mathematical Sciences

Faculty of Science and Engineering

23 Sept 2021 → present

Postdoctoral Experience

2019-2021 Postdoctoral Fellow, CERMICS, Ecole des Ponts ParisTech, Paris, France.

2018-2019 Postdoctoral Fellow, School of Mathematics, Institute for Research in Fundamental Sciences, Tehran, Iran.

Educations

2013-2018 Ph.D In Mathematics, Institute For Research In Fundamental Sciences, Iran. Adviser: Prof. H. Hajiabolhassan, GPA -- 18.69 out of 20.

(Second Master's Degree) Master's Degree in Applied Mathematics, Advanced Combinatorics Program, Moscow Institute of Physics and Technology, Moscow, Russia. Adviser: Roman Karasev, Graduated with Red Diploma (Highest Honors).

2009-2011 Master's of Science In Pure Mathematics, University of Tehran, Tehran, Iran. Adviser: F. Shirazi, GPA -- 18.14 out of 20.

Research Interests

Broadly speaking, my research interests lie in the intersection of combinatorics and topology. In particular, using topological and geometric techniques to study combinatorial problems.

Awards and Honors

2024 35000 RMB, Exceptional Performance Award, awarded by the University of Nottingham Ningbo.

2023 13000 RMB, Excellent Performance Award, awarded by the University of Nottingham Ningbo.

2023 30000 RMB, Research Grant, awarded by the University of Nottingham Ningbo China.

2022 15000 RMB, Research Grant, awarded by the University of Nottingham Ningbo China.

2021 200 Million Iranian Rials, Research Grant, Institute for Research in Fundamental Sciences (IPM). Awarded to support a summer research project conducted at IPM.

2015-2017 (\$9,000) Research Grant, awarded by Iranian National Elites Foundation.

2012 Ranked 6th in the National University Entrance Exam for PhD in Mathematics among around 10000 candidates.

2010-2011 Selected for one-year special program in Non-Commutative Geometry with full funding, IPM, Tehran, Iran.

2008 Silver Medals, 32th Iranian National Mathematics Competition for University Students

Research outputs

Box complexes: at the crossroad of graph theory and topology

Daneshpajouh, H. R. & Meunier, F., Jun 2025, In: Discrete Mathematics. 348, 6, 114422.

On the number of star-shaped classes in optimal colorings of Kneser graphs

Daneshpajouh, H. R., Feb 2024, In: Journal of Graph Theory. 105, 2, p. 230-238 9 p.

A Topological Version of Hedetniemi's Conjecture for Equivariant Spaces

Bui, V. & Daneshpajouh, H. R., 2024, (Accepted/In press) In: Combinatorica. 44, 2, p. 441-452 12 p.

Hedetniemi's conjecture from the topological viewpoint

Daneshpajouh, H. R., Karasev, R. & Volovikov, A., Apr 2023, In: Journal of Combinatorial Theory - Series A. 195, 105721.

A counterexample to a conjecture on the chromatic number of r-stable Kneser hypergraphs

Daneshpajouh, H. R., 26 Feb 2023, In: Journal of Graph Theory. 103, 4, p. 762-766 5 p.

Colorings of complements of line graphs

Daneshpajouh, H. R., Meunier, F. & Mizrahi, G., Sept 2021, In: Journal of Graph Theory. 98, 2, p. 216-233 18 p.

On the neighborhood complex of s--stable Kneser graphs

Daneshpajouh, H. R. & Osztényi, J., Apr 2021, In: Discrete Mathematics. 344, 4, 112302.

Dold's theorem from viewpoint of strong compatibility graphs

Daneshpajouh, H. R., Mar 2020, In: European Journal of Combinatorics. 85, 103064.

On the chromatic number of generalized Kneser hypergraphs

Daneshpajouh, H. R., Oct 2019, In: European Journal of Combinatorics. 81, p. 150-155 6 p.

A topological lower bound for the chromatic number of a special family of graphs

Daneshpajouh, H. R., Feb 2018, In: Discrete Mathematics. 341, 2, p. 508-512 5 p.

New Construction of Graphs with High Chromatic Number and Small Clique Number

Daneshpajouh, H. R., 1 Jan 2018, In: Discrete and Computational Geometry. 59, 1, p. 238-245 8 p.

A new proof of 0-resolvability of a metric space without an isolated point

Daneshpajouh, H. R., 2015, In: American Mathematical Monthly. 122, 9, p. 897-898 2 p.

An interesting proof of the nonexistence of a continuous bijection between $\mathbb{R}^n$ and $\mathbb{R}^2$ for $n \neq 2$

Daneshpajouh, H. R., Daneshpajouh, H. & Malek, F., 2014, In: Involve. 7, 2, p. 125-127 3 p.

Books

- 1 Mathematics Olympiad for High School (1st, 2nd, and 3rd Grades) (In Farsi). Co-authored with M. T. Tanjani, O. Mazaheri, S. Taheri, M. Etesami Far, M. R. Gharib Dost, S. Khan Khajeh, P. Ramzi, A. Iranian, and M. Mir Rafie. Publisher: Kanon Farhangi Amoozesh Ghalam Chi. ISBN: 978-964-509-405-6.
- 2 Mathematics Olympiad for 2nd Grade of High School (In Farsi). Co-authored with M. T. Tanjani, O. Mazaheri, S. Taheri, M. Etesami Far, M. R. Gharib Dost, S. Khan Khajeh, A. Iranian, P. Ramzi, and M. Mir Rafie. Publisher: Kanon Farhangi Amoozesh Ghalam Chi. ISBN: 978-964-509-390-5.
- 3 Computer Science Olympiad for High School (In Farsi). Co-authored with M. T. Tanjani, M. Etesami Far, M. R. Gharib Dost, S. Taheri, and P. Esfandyar. Publisher: Kanon Farhangi Amoozesh Ghalam Chi. ISBN: 978-964-509-387-5.

Teaching Certificates

Nov 2023 Fellow (FHEA), Advanced Higher Education (AdvHE)
May 2023 Associate Fellow AFHEA), Advanced Higher Education (AdvHE).

Teaching Exprience

2021–Present
University of Nottingham Ningbo China (UNNC):

Coding and Cryptography, Discrete Mathematics and Graph Theory, and Game Theory.

Problem-Solving-based Seminars (IMC Preparation):

(Some Topics in:) Linear Algebra, Topology of Metric Spaces, Polynomial and Probabilistic Methods in Combinatorics, Discrete Geometry, Multivariable Calculus I & II, Real Analysis, Abstract Algebra, Number Theory and Combinatorics.

2019

Guest Lecturer, Moscow Institute of Physics and Technology

A mini course on Topological Combinatorics.

Other Working Experience

- 2022-Present Team Leader and Mathematical Olympiad Instructor, UNNC Mathematical Olympiad Team.
Achievements: 2024: Two bronze medals at the 29th International Mathematics Competition for University Students (IMC). 2023: One gold medal and one silver medal at the 30th IMC. 2022: One silver medal and one bronze medal at the 29th IMC.
- 2022-Present Organizer of UNNC Undergraduate Seminar in Mathematics.
- 2019 Guest Lecturer, Moscow Institute of Physics and Technology, Delivered a mini-course on topological combinatorics.
- 2010-2015 Mathematical Olympiad Instructor, Allameh-Heli 11 High School (Farzanegan Branch) and Mofid High School. Prepared students for national and international mathematics competitions.
- 2011-2013 Cryptanalyst in a Cryptography Company, Tehran, Iran.
- 2008-2011 Team Leader and Mathematical Olympiad Instructor, K. N. Toosi University of Technology.
Achievements: Students won two silver medals and one bronze medal at the Iranian National Mathematics Competition for University Students. Team ranked third among nearly 40 participating teams.

Undergraduate Research Supervision

Summer 2025:

An Open Problem in Graph Colorings

Supervising 3 undergraduate students in investigating some unsolved problems in graph colorings.

2025–Present:

Algebraic Topology

Mentoring 5 undergraduate students in exploring fundamental concepts and applications of algebraic topology.

2023–2024:

Keakeya Problem

Guided 7 students in studying the Keakeya needle problem and its finite field variant.

2022–2023:

Fair Division: Sperner's Lemma & Brouwer's Fixed-Point Theorem

Supervised 15 students in analyzing fair cake-cutting problems using fixed-point theorems.

Peer Review

Journal of Graph Theory

Journal of Combinatorial Theory, Series B.

Discrete & Computational Geometry.

Discrete Mathematics.

Discussiones Mathematicae Graph Theory.

Journal of Fixed Point Theory and Applications.

The Bulletin of the Iranian Mathematical Society.

Conferences and Workshops

2023

Convex and Discrete Geometry Summer School

August 28 – September 1 | Budapest, Hungary

2020

Topological Combinatorics Seminar (Online)

June 30 – August 30

2019

International Conference on Mathematical Optimization for Fair Social Decisions (Tribute to Michel Balinski)
December 3–4 | Paris, France

Workshop on Graphs, Networks, and Their Applications
May 13–18 | Moscow, Russia

Combinatorics and Computing Conference
April 16–18 | Tehran, Iran

2018

Workshop on Graphs, Networks, and Their Applications
May 14–16 | Moscow, Russia

2017

International Mini-Workshop: Extremal Combinatorics
September 5 | Moscow, Russia

1st Russian-Hungarian Workshop on Discrete Mathematics
April 21–23 | Moscow, Russia

2015

5th German-Russian Week of the Young Researcher (Discrete Geometry)
September 7–11 | Moscow, Russia

IPM Combinatorics and Computing Conference
April 29–30 | Tehran, Iran

2014

Frontiers in Mathematical Sciences (3rd Conference)
December 29 – January 1, 2015 | Tehran, Iran

References

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