Curriculum Vitae

Gholamreza Omidi

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Educations

• Ph.D. in Pure Mathematics; December 2006;
University of Tehran, Iran.
• M.Sc. in Pure Mathematics; March 2002;
University of Tehran, Iran.
• B.Sc. in Electrical Engineering; September 1999;
University of Shahid Beheshti, Iran.

Teaching Experience:

Undergraduate Courses:

- Calculus I, II
- Differential Equations
- Discrete Mathematics
- Graph Theory
- Number Theory

Graduate Courses:

- Advanced Graph Theory
- Algebraic Graph Theory
- Combinatorial Analysis
- Design Theory
- Extremal Combinatorics
- Probabilistic Methods in Combinatorics
- Spectral Graph Theory

• Topics in Combinatorics

Research Interest

Extremal Combinatorics, Ramsey theory, algebraic and probabilistic methods in combinatorics and number theory.

Awards

• Selected by Open Arms travel grants program for a financial support to attend the Internatinal Congress of Mathematicians (ICM) 2018 in Rio de Janeiro, Brazil.

• Selected by Internatinal Mathematical Union (IMU) for a grant to attendance in Internatinal Congress of Mathematicians (ICM) 2014 in Coex, Seoul , Korea.

• Isfahan University of Technology Distinguished researcher, 2011.

• Received "Institute for Studies in Theoretical Physics and Mathematics (IPM)" Young Mathematician Prize of 2009.

• IPM Graduate Fellowship, September 2002–September 2005.

• Isfahan University of Technology Graduate Fellowship, March 2004–September 2005.

• Winner of a Borenz Medal of National Mathematics Olympiad, 1993.

Honorary Activities:

• Editor of Transactions on Combinatorics.

Referee for:

• Journal of Combinatorial Theory, Series A
• Journal of Algebraic Combinatorics
• Journal of Graph Theory
• Electronic Journal of Combinatorics
• European Journal of Combinatorics
• Linear Algebra and its Applications
• Linear and Multilinear Algebra
• Electronic Journal of Linear Algebra
• Discrete Mathematics
• Discrete Appl. Mathematics
• Graphs and Combinatorics
• Ars Combinatorics

- Acta Mathematica Sinica
- Applied Mathematics Letters
- Bulletin of the Iranian Mathematical Society
- Discussiones Mathematicae Graph Theory
- International Journal of Computer Mathematics
- Journal of Combinatorial Mathematics and Combinatorial Computing
- Computers and Mathematics with Applications

Visits:

- University of Waterloo, Waterloo, Canada, September-December 2018.

- Alfrd Rnyi Institute of Mathematics, Budapest, Hungary, July-August 2018.

- Alfrd Rnyi Institute of Mathematics, Budapest, Hungary, July-August 2017.

- The Abdus Salam International Center for Theoretical Physics (ICTP), Trieste, Italy, September 2012.

- University of Tilburg, Tilburg, The Netherlands, June-July 2010.

Student Supervision:

- **PhD**

- Size Ramsey number of graphs, Maysam Miralaei, 2020 (Supervisor).

- Some problems on decomposition of graphs and uniform hypergraphs, Afsaneh khodadadpour, 2019 (Supervisor).

- The size Ramsey numbers of sparse graphs, Farideh Khoeini, 2019 (Co-Supervisor).

- Ramsey numbers and Turan numbers of Berge hypergraphs, Laila Maherani, 2018 (Supervisor).

- Monochromatic paths and cycles in edge-colored dense graphs, Zahra Rahimi, 2018 (Supervisor).

- Minimum cuts of distance-regular digraphs, Fatemeh Shafei, 2018 (Supervisor).

- Ramsey numbers of loose paths and cycles in uniform hypergraphs, Maryam Shahsiah, 2014 (Supervisor).

- Bounds for sums and products of Laplacian and signless Laplacian eigenvalues of graphs, Firouzeh Ashraf, 2014 (Co-Supervisor).

• On Ramsey numbers of graphs and hypergraphs, Ghaffar Raeisi, 2012 (Supervisor).

• Spectral graph embedding in vector space using graph signal, Hoda Bahonar, 2018 (Advisor).

• Clique coverings and clique partitions of graphs, Akbar Davoodi, 2016 (Advisor).

• The locating chromatic number of graphs, Ali Behtoei, 2012 (Advisor).

• The metric dimension of graphs, Mohsen Jannesary, 2012 (Advisor).

• Detecting community structures in complex networks, Mina Zarei, 2009 (Advisor).

• **Msc**

• 21 Msc students in Isfahan University of Technology, 2006-2017 (Supervisor).

• 15 Msc students in Isfahan University of Technology, 2006-2017 (Advisor).

Collaboration in Conference Organizing:

• Member of the Scientific Committee of IPM Combinatorics and Computing Conference 2021 (IPMCCC2021), May 17-20, 2021, IPM, Tenran, Iran.

• Organizer of the Iranian-Hungarian Workshop on Combinatorics, May 12-14, 2018, Isfahan University of Technology, Isfahan, Iran.

• Member of the Scientific Committee of IPM Combinatorics and Computing Conference 2017 (IPMCCC2017), May 16-18, 2017, IPM, Tenran, Iran.

• Organizer of the first IPM-Isfahan Workshop on Combinatorics, May 20-22, 2014, IPM-Isfahan Branch, University of Isfahan, Isfahan, Iran.

• Member of the Scientific Committee of The Third Algebraic Combinatorics Conference of Iran, 2011, University of Isfahan.

Academic Positions:

Positions in IUT:

Associate Professor, Department of Mathematical Sciences, Isfahan University of

Technology (2010-Present).

Assistant Professor, Department of Mathematical Sciences, Isfahan University of Technology (2006-2010).

Graduate Program Advisor, Department of Mathematical Sciences, Isfahan University of Technology (2012-2013).

Positions in IPM:

Member of Scientific Committee of Mathematics Section (in Isfahan) of Institute for Studies in Fundamental Sciences (IPM), (2014-present).

Senior Associate Researcher (resident in Isfahan), School of Mathematics, Institute for Research in Fundamental Sciences (IPM), (2013 - 2020).

Resident Researcher (resident in Isfahan), School of Mathematics, Institute for Research in Fundamental Sciences (IPM), (2012 - 2013).

Non Resident Researcher (non-resident), School of Mathematics, Institute for Research in Fundamental Sciences (IPM), (2008 - 2012).

Student Researcher, School of Mathematics, Institute for Research in Fundamental Sciences (IPM), (2001 - 2006).

Selected Publications and Preprints

• E.R. van Dam and G.R. Omidi, Strongly walk-regular graphs,
J. Combin. Theory Ser. A 120 (2013) 803-810.

• G.R. Omidi and M. Shahsiah, Ramsey numbers of 3-uniform loose paths and loose cycles, J. Combin. Theory Ser. A 121 (2014) 64-73.

• G.R. Omidi and M. Shahsiah, Diagonal Ramsey numbers of loose cycles in uniform hypergraphs, SIAM J. Discrete Math. 31 (2017) 1634-1669.

• R. Javadi and G.R. Omidi, On a question of Erdos and Faudree on the size Ramsey numbers, SIAM J. Discrete Math. 32 (2018) 2217-2228.

• G.R. Omidi, A proof for a conjecture of Gyárfás, Lehel, Sárközy and Schelp on Berge-cycles, Combinatorics Probability and Computing, article in press.

• R. Javadi, F. Khoeini, G.R. Omidi and A. Pokrovskiy, On the size-Ramsey

number of cycles, Combinatorics Probability and Computing 28 (2019), 871-880.

• D. Gerbner, A. Methuku, G.R. Omidi, M. Vizer, Ramsey problems for Berge hypergraphs, SIAM J. Discrete Math. 34 (2020) 351-369.

Papers

Design theory

1– P.J. Cameron, H.R. Maimani, G.R. Omidi and B. Tayfeh-Rezaie, 3-designs from PSL$(2, q)$, Discrete Math. 306 (2006), 3063–3073.

2– P.J. Cameron, G.R. Omidi and B. Tayfeh-Rezaie, 3-designs from PGL$(2, q)$, Electron. J. Combin. 13 (2006).

3–G.R. Omidi, M.R. Pournaki and B. Tayfeh-Rezaie, 3-designs with block size 6 from PSL$(2, q)$ and their large sets, Discrete Math. 307 (2007), 1580–1588.

4– R. Laue, G.R. Omidi, B. Tayfeh-Rezaie and A. Wassermann, New large sets of t-designs with prescribed groups of automorphisms, J. Combin. Des. 15 (2007), 210–220.

5– G.R. Omidi, 3-Designs and Large Sets of PSL$(2; 2^n)$ with Block Sizes 6, Ars Combin. 94 (2010), 3–11.

6– R. Laue, G.R. Omidi and B. Tayfeh-Rezaie, Large sets of t-designs from t-homogeneous groups, Ars Combin 97 (2010), 333–342.

Algebraic graph theory Theory

1– G.R.Omidi and K. Tajbakhsh, Starlike trees are determined by their Laplacian spectrum, Linear Algebra Appl. 422 (2007), 654–658.

2– N. Ghareghani, G.R. Omidi and B. Tayfeh-Rezaie, Spectral characterization of graphs with index at most $\sqrt{2+\sqrt{5}}$, Linear Algebra Appl. 420 (2007), 483–489.

3– G.R. Omidi, The spectral characterization of graphs of index less than 2 with no path as a component, Linear Algebra Appl. 428 (2008), 1696–1705.

4– G.R. Omidi, On a Laplacian spectral characterization of graphs of index less than 2, Linear Algebra Appl. 429 (2008), 2724–2731.

5– H. Chuang and G.R. Omidi, Graphs with three distinct eigenvalues and largest eigenvalue less than 8, Linear Algebra Appl. 430 (2009), 2053–2062.

6–G.R. Omidi, On the Nullity of Bipartite Graphs, Graphs Combin., 25 (2009), 111–114.

7– G.R. Omidi, The characterization of graphs with largest Laplacian eigenvalue at most 4, Australas J. Combin., 44 (2009), 163–170.

8– G.R. Omidi, On a signless Laplacian spectral characterization of T-shape-trees, Linear Algebra Appl. 431 (2009), 1607–1615.

10– G.R. Omidi and K. Tajbakhsh, The spectral characterization of graphs of index less than 2 with no Z_n as a component, Ars Combin. 94 (2010), 135–145.

11– G.R. Omidi, The characterization of graphs with largest Laplacian eigenvalue at most $\frac{5+\sqrt{13}}{2}$, Ars Combin. 94 (2010), 423–430.

12– G.R. Omidi, On integral graphs with few cycles, Graphs Combin. 25 (2010), 841–849.

13– G.R. Omidi and E. Vatandoost, Starlike trees with maximum degree 4 are determined by their signless Laplacian spectra, Electron. J. Linear Algebra 20 (2010), 274–290.

14– F. Ayoobi, G.R. Omidi and B. Tayfeh-Rezaie, A note on graphs whose signless Laplacian has three distinct eigenvalues, Linear Multilinear Algebra 59 (2011), 701-706 .

15– E.R.van Dam and G.R. Omidi, Graphs whose normalized Laplacian has three eigenvalues, Linear Algebra Appl. 435 (2011), 2560–2569.

16– W.H. Haemers and G.R. Omidi, Universal adjacency matrices with two eigenvalues, Linear Algebra Appl. 435 (2011), 2520–2529.

17– F. Ashraf, G.R. Omidi and B. Tayfeh-Rezaie, On the sum of signless Laplacian eigenvalues of a graph, Linear Algebra Appl. 438 (2013), 4539-4546.

Strongly regular graphs and their generalizations

1– E.R. van Dam and G.R. Omidi, Strongly walk-regular graphs, J. Combin. Theory Ser. A 120 (2013) 803-810.

2– G.R. Omidi, A spectral excess theorem for normal digraphs, J. Algebraic Combin. 42 (2015), 537–554.

3– E.R. van Dam and G.R. Omidi, Directed strongly walk-regular graphs, J. Algebraic Combin. 47 (2018), 623–639.

4– S. Ashkboos, G.R. Omidi, F. Shafei and K. Tajbakhsh, Minimum cuts of distance-regular digraphs, Electron. J. Combin. 24 (2017), P4.2

Graph coloring

1– G.R. Omidi, A note on group choosability of graphs with girth at least 4, Graphs Combin. 27 (2011), 269–273.

2– G.R. Omidi and M. Shahsiah, On the choice number of packings, J. Combin. Des. 20 (2012), 504-507.

3– H.-J. Lai, G.R. Omidi and G. Raeisi, "On group choosability of total graphs", Graphs Combin. 29 (2013), 585–597.

4– H. Chuang, H.-J. Lai, G. R. Omidi, K. Wang and N. Zakeri, On group choosability of graphs II, Graphs Combin. 30 (2014), 549–563.

5– G.R. Omidi and K. Tajbakhsh, Decomposing hypergraphs into k-colorable hypergraphs. Trans. Comb. 3 (2014), 31–33.

6–H. Chuang, H.-J. Lai, G.R. Omidi and N. Zakeri , "On group choosability of graphs I", Ars Combin. 126 (2016), 195–209

Ramsey theory

1– G.R. Omidi and G. Raeisi, A note on the Ramsey number of stars-complete graphs, European J. Combin. 32 (2011), 598–599.

2– G.R. Omidi and G. Raeisi, On multicolor Ramsey number of paths versus cycles, Electron. J. Combin. 18 (2011), 1–16.

3– A. Khamse and G.R. Omidi, A generalization of Ramsey theory for linear forests, Int. J. Comput. Math. 89 (2012), 1303-1310

4– L. Maherani, G.R. Omidi, G. Raeisi and M. Shahsiah, The Ramsey number of loose paths in 3-uniform hypergraphs, Electron. J. Combin. 20(1) (2013), P12.

5– G.R. Omidi and M. Shahsiah, Ramsey numbers of 3-uniform loose paths and loose cycles, J. Combin. Theory Ser. A 121 (2014) 64-73.

6– L. Maherani, G.R. Omidi, G. Raeisi and M. Shahsiah, On three-color Ramsey number of paths, Graphs Combin 31 (2015) 2299-2308

7– A. Khamseh and G.R. Omidi, A generalization of Ramsey theory for stars and one matching, Math. Reports 19 (2017) 85-92.

8– A. L. Maherani and G.R. Omidi, Monochromatic Hamiltonian Berge-cycles in col-

ored hypergraphs, Discrete Math. 340 (2017) 2043-2052.

9– G.R. Omidi and M. Shahsiah, Ramsey numbers of uniform loose paths and cycles, Discrete Math. 340 (2017) 1426-1434.

10-G.R. Omidi and M. Shahsiah, Ramsey numbers of 4-uniform loose cycles, Discrete Appl. Math. 230 (2017) 112–120.

11– G.R. Omidi and M. Shahsiah, Diagonal Ramsey numbers of loose cycles in uniform hypergraphs, SIAM J. Discrete Math. 31 (2017) 1634-1669.

12– G.R. Omidi, G. Raeisi and Z. Rahimi, Stars versus stripes Ramsey numbers, European J. Combin. 67 (2018) 268–274.

13– R. Javadi and G.R. Omidi, On a question of Erdos and Faudree on the size Ramsey numbers, SIAM J. Discrete Math. 32 (2018) 2217-2228.

14– R. Javadi, F. Khoeini, G.R. Omidi and A. Pokrovskiy, On the size-Ramsey number of cycles, Combinatorics Probability and Computing 28 (2019), 871-880.

15– M. Miralaei, G.R., Omidi and M., Shahsiah, Size Ramsey numbers of stars versus cliques, J. Graph Theory 92 (2019), 275-286.

16– D. Gerbner, A. Methuku, G.R. Omidi, M. Vizer, Ramsey problems for Berge hypergraphs, SIAM J. Discrete Math. 34 (2020) 351-369.

17–G.R. Omidi, A proof for a conjecture of Gyárfás, Lehel, Sárközy and Schelp on Berge-cycles, Combinatorics Probability and Computing, article in press.

Other areas

1– M. Zarei, K. Aghababaei and G.R. Omidi, Complex eigenvectors of network matrices give better insight into the community structure, J. Stat. Mech-Theory E. (2009), P10018.

2– G.R. Omidi and E. Vatandoost, On the commuting graph of rings, J. Algebra Appl. 10 (2011), 521-527.

3– R. Javadi, A. Khodadadpour and G.R. Omidi, Decompositions of complete uniform multi-hypergraphs into Berge paths and cycles of arbitrary lengths, J. Graph Theory 88 (2018), 507-520.