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**Professor of Applied Mathematics**

**Institution address:**

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**University education:**

Ph.D. in Mathematics (Combinatorics) 1992, University of Northeastern- Boston, MA., U.S.A.

Thesis Topic: Tenacity and its Properties in Stability Calculation

M.Sc in Applied Mathematics 1978, University of Quebec á Montreal, Canada.

Thesis Topic: Application of Hyperstability Theory in some Economics Systems.

B.sc. in Pure Mathematics 1976, University of Quebec á Montreal, Canada.

### **Employment:**

1993-present, College of Engineering, Faculty of Engineering Science, University of Tehran, IRAN.

1991-1993. Department of Mathematics and Computer Science, University of Barry, Fulltime Faculty, Miami, Florida, USA.

1987-1991, lecturer in Mathematics, Department of Mathematics University of Northeastern-Boston, MA. U.S.A.

1989-1991, lecturer in Mathematics, Wentworth Institute of Technology, Boston, MA. U.S.A.

1993-2003, Mathematics Researcher, Center for Theoretical Physics and Mathematics, AEOI, Tehran, Iran.

2002- present, Engineering Optimization Research Group, "http:eorg.ut.ac.ir"

### **Executive Experiences**

2000-2003, Head of Engineering Library, University of Tehran.

2003-2006, Associate Dean, College of Engineering, University of Tehran.

2006-2008, Deputy of Undergraduate and Graduate studies, Department of Engineering Science, College of Engineering, University of Tehran.

2009-Present, Chairman of Faculty of Engineering Science, College of Engineering, University of Tehran.

### **Visiting Professor**

2010-2011, Visiting Professor at UCLA (University of California Los Angeles) Mathematics Department, USA.

2011-2012, Visiting Professor at UCLA (University of California Los Angeles) Mathematics Department, USA.

**Subjects Taught:**

**Undergraduate Level:** Combinatorics, Discrete Mathematics, Graph Theory, Algebra, Linear Algebra, Ordinary Differential Equations, Calculus 1, 2 and 3, Numerical Analysis, Algorithm.

**Postgraduate Level:** Graph Theory and Applications, Advance Algorithm, Complexity theory, Approximation Algorithm, Advance Engineering Mathematics.

**Selected Publications:**

- 1) Cozzens, M.B., D. Moazzami, S. Stueckle, "The tenacity of the Harary Graphs", **J. Combin. Math. Combin. Comput.** **16** (1994), 33-56.
- 2) Cozzens, M.B., D. Moazzami, S. Stueckle, "The tenacity of a Graph", **Graph Theory, Combinatorics, and Algorithms** (Yousef Alavi and Allen Schwenk eds.)Wiley, New York, (1995), 1111-1112.
- 3) Moazzami, D., "The NSM of a Graph", **Combinatorics Advances**, (C. J. Colbourn and E. S. Mahmoodian, eds.) Kluwer, (1995), 243-250.
- 4) Moazzami, D., "Vulnerability in Graphs - a Comparative Survey", **J. Combin. Math. Combin. Comput.** **30** (1999), 23-31.
- 5) Moazzami, D., "Stability Measure of a graph - a Survey, **J. Utilitas Mathematica** **57** (2000), 171-191.
- 6) Moazzami, D., "On Networks with Maximum Graphical Structure, Tenacity T", **J. Combin. Math. Combin. Comput.** **39** (2001) 121-126.
- 7) Moazzami, D. "A note on Hamiltonian properties of tenacity", Paul Erdős and his Mathematics, (1999), 174-178.
- 8) Moazzami, D., B. Ostadi, and K. Rezaie, "A non-linear programming model for optimization of the electrical energy consumption in typical factory", **Applied Mathematics and Computation** **187**

(2007) 944-950.

9) Moazzami, D. and B. Salehian, "On the Edge-Tenacity of Graphs" **International Mathematical Forum** 3, 2008, no. 19, 926-936.

10) Moazzami, Dara; B. Salehian, Some results related to the tenacity and existence of  $k$ -trees. **Discrete Applied Mathematics**, 157 (2009), no. 8, 1794–1798. 05C05

11) Moazzami, D., "An Algorithm for the Computation of Edge Integrity,  $I'(T)$ " **Int. J. Contemp. Math. Sciences**, Vol. 6, 2011, no. 11, 507 - 516.

12) Moazzami, D., "Tenacity of a Graph with Maximum Connectivity" **Discrete Applied Mathematics**, 159 (2011) 367–380.

12) Lotfi Shahreza, M., D. Moazzami, B. Moshiri, M.R. Delavar, "Anomaly Detection by using Self-Organizing Map and Particle Swarm Optimization" **Scientica Iranica**, Transactions D: Computer Science and Electrical Engineering 2011, doi:10.1016/j-scient-2011.08.025

13) Vafadar, S., D. Moazzami, "New Approximation Algorithm for Minimum Steiner Tree problem" **Int. J. Contemp. Math. Sciences**, Vol. 6, 2011, no. 53, 2625-2636.

14) Vafadar, S., Assarreh, I., D. Moazzami, "Computing the Integrity, Toughness and Tenacity of Networks using Imperialist Competitive Algorithm" **Canadian Journal of Computing in Mathematics, Natural Sciences, Engineering and Medicine**, Vol. 3, No. 7, December 2012, 238-246.

15) Jelodar, D., D. Moazzami, "New Bounds on Tenacity of Graphs with Small Genus" **open Journal of Discrete Mathematics** 4 (02), 28, 2014.

16) Dadvand, M., D. Moazzami, A. Moeini, "RECOGNIZING TENACIOUS GRAPHS IS NP-HARD" **ARS Combinatoria** 115, 163-174, 2014.

17) Bafandeh, B. , D. Moazzami, "On the higher-order edge-tenacity of a graph", accepted **ARS Combinatoria**.

18) Mohamadi, I., D. Moazzami, "Online Scheduling of Jobs for D-benevolent instances on Identical Machines, **Journal of Algorithms and Computation** 47 (2016) PP. 27 - 36.

- 19) Rezaei, S. , A. Ghodousian, D. Moazzami, "A Mathematical Optimization Model for solving ordering Problem with Constraint Analysis and some generalizations", submitted 2016.
- 20) Saadatmand, S. , D. Moazzami, A. Moeini,"A Cellular Automata Based Algorithm for Mobile Sensor Gathering", submitted 2016.
- 21) Jelodar, D. , D. Moazzami, "Tenacity of Cycle Permutation Graph", **Journal of Algorithms and Computation**, 48 (2016) PP. 37 - 44.
- 22) Bafandeh, B. , D. Moazzami, "On the first-order edge tenacity of a graph", **Discrete Applied Mathematics**, 205 (2016), 8-15.
- 23) Moazzami, D., "Toughness of the Harary Graphs", submitted 2016.
- 24) Moazzami, D., "Toughness of the Networks with Maximum Connectivity", **Journal of Algorithms and Computation**, Vol 46 (2015), PP. 51-71.
- 25) Golshani, A., D. Moazzami, S. Akhondian, "On the complexity of recognizing tenacious graphs", accepted **ARS Combinatoria**, publish 2017.
- 26) Jabari, S., D. Moazzami, A. Ghodousian "Heuristic and exact algorithms for Generalized Bin Covering Problem",**Journal of Algorithms and Computation** 47 (2016) PP. 65 - 74.

**Papers published in the Proceeding and Professional Lectures:**

1. "T-sets and its Properties in Stability Calculation", 23<sup>rd</sup> South International Conference on Combinatorics, Graph Theory and Computing, February 3-7, 1992 at Florida Atlantic University in Boca Raton, Florida, U.S.A.
2. "Vulnerability in Graphs, A Comparative Survey", Summer School and International Conference on Combinatorics (SSICC'97) from may 25-June 1, 1997, in Hefei, Anhui, the People's Republic of China.
3. "On the Vulnerability Parameters of Networks", Optimal Discrete Structures and Algorithms 97 Conference, Rostock, Germany, September 1997.
4. "Stability Measure of a Graph - a Survey", Combinatorics 98 Conference, June 1997, Palermo, Italy.

5. "A Note on Hamiltonian Properties of Tenacity", Paul Erdős and his Mathematics Conference, July 1999, Budapest, Hungary.
6. "On Networks with Maximum Graphical Structure, tenacity  $T$ , and number of vertices  $p$ ", 17<sup>th</sup> British Combinatorial Conference, July 1999, University of Kent at Canterbury, UK.
7. "A Survey on Tenacity Parameter in Graphs", Optimal Discrete Structures and Algorithms 2000, September 2000, Rostock, Germany.
8. "On the tenacity of a graph: a comparative survey", 18th British Combinatorial Conference, University of Sussex, 1 to 6 July 2001, UK.
9. "A Survey on Tenacity and its Properties in Stability Calculation", International Congress of Mathematicians, August 20-28, 2002, Beijing, China.
10. "Towards a measure of vulnerability, tenacity of a Graph", Combinatorics 2004, September 12-18, 2004, Catania Italy.
11. "Tenacity of  $n$ -connected Graph" September 5-9, 2005, European Conference on Combinatorics, Graph Theory and Applications at Technische Universität Berlin, Germany.
12. "On the Edge-Tenacity of Graphs" Combinatorics 2006, 25 June - 1 July, 2006, Ischia, Naples, Italy.
13. "Measures of Vulnerability - the Tenacity Family" International Congress of Mathematicians, August 22-30, 2006, Madrid, Spain.
14. "Tenacity and Edge-tenacity in Networks" 21st British Combinatorial Conference, University of Reading, July 8-13, 2007, UK.
15. "A Survey on Tenacity Parameter of Networks" 1st Istanbul Design Theory and Combinatorics Conference in Honor of 70th Birthday of Curt Lindner June 15-21, 2008, Istanbul, Turkish.
16. "Tenacity of  $n$ -connected graph", Fete of Combinatorics and Computer Science An international conference on combinatorics and computer science, August 11-15 2008, Keszthely Lake Balaton, Hungary.
17. "Tenacity and Spectrum of a Graph" The 20th Workshop on Topological Graph Theory, Yokohama National University, Nov. 24 to 28, 2008, Yokohama, Japan

18. "Complexity of Tenacity Parameter in Networks" Joint Mathematics Meetings, January 4-7, 2012, Boston, MA. USA.
19. "On the Cth order Edge-Tenacity of a Graph" American Mathematical Society, Rochester Institute of Technology, (Fall Eastern Sectional Meeting) September 22-23, 2012, New York, USA.
20. "Tenacity of Cycle Permutation graph" Joint Mathematics Meetings, January 9-12, 2013, San Diego, CA, USA.
21. "On the tenacity parameter and complexity of recognizing tenacious Graphs", American Mathematical Society, sectional meeting, University of Wisconsin-eau Clair, WI, USA, September 20-21, 2014.
22. "Toughness of the Harary Graphs", Forty-sixth Southern International Conference on Combinatorics, Graph Theory and Computing, March 2-6, 2015 at Florida Atlantic University in BocaRaton, Florida, U.S.A.

**Paper in Persian Language and in Iranian Journals:**

- 1) "Analysis of Vulnerability Measures in Graphs", **J. Fani** 33, 2, Sept. 1999, pp. 1-7.
- 2) "Periodic Solution for third order Nonlinear Differential Equation - a Mathematical Model for Brick of Heavy Vehicle", **J. Fani** 32, 1999, pp. 1-13.
- 3) "calculation of tenacity of  $G_n^m$ " **J. Fani** , 2003, "Graph Theory Approach to Distribution System Management by Feeder Reconfiguration 83, 1, May, 2004, pp. 73-83.

**Books translations:**

- 1) "Differential and Integral Calculus" **Bu Ali Sina University Press**, (1986) (by Piskunov).
- 2) "Graph Theory with Applications", Center of Press, (1999)and (2002) and (2005), (2007), (2008), (2010), (2012), (2015). (By J.A. Bundy and U.S.R Murty).
- 3) "Combinatorics" **University of Tehran Press**, (2005), (By Bella Bolabash).

### **Books written in persian language**

1) " Differential Equation", **Nakhoda Press**, (2003) and (2005), (2008), (2014).

### **Reviewer:**

Discrete Applied Mathematics,

Zentralblatt Math, "http:// WWW.emis.de/ZMATH"

WWW-home page: <http://WWW.zblmath.fiz-karlsruhe.de>

### **Referee of the Journal:**

Discrete Applied Mathematics,

The Australasian Journal of Combinatorics,

### **Advisory of Graduate Thesis**

1)" Success Tree Method and Fuzzy set for Evaluation of Uranium Resources" by **Mohammad Reza Nik Goftar**, University of Tehran, College of Engineering, Department of Engineering Geology, 2000.

2) "Mathematical Model for Analyzing of Deformation in Tunnels with non circular face, by **Sadegh Sadeghi**, University of Tehran, College of Engineering, Department of Engineering Geology, 2001.

3) "GIS Network Analysis for Rescue Optimization" by **Safa Khazai**, University of Tehran, College of Engineering, Department of Surveying and Geomatic Engineering, 2002.

4) "Distribution System Automation and Optimization for Loss Reduction with using Graph Theory" by **Hamid Reza Zare**, University of Tehran, College of Engineering, Faculty of Electrical and Computer Engineering, 2002.

5) "Tenacity and Spectrum of a Graph", by **Behzad Salehian**, University of Tehran, Department of Mathematics, 2008.

6) "Diagram Based Verification of Reactive and Real Time Systems Using Temporal Logic, Case Study: Fisher's Protocol", by **Mohammad Hatami Rashid**, University of Tehran, College of Engineering,



Faculty of Engineering Science, Department of Algorithms and Computation, 2008.

7) "Diagram Based Verification of Hybrid and Parameterized Systems, Using Temporal Logic", by **Farid Alghamand**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2008.

8) "Application of information fusion in crisis management" by **Maryam Lotfi Shahreza**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2009.

9) "Trust Measurement in Social Networks", by **Koorosh Khazai**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2009.

10) "An assimilating algorithm for recovery and abandoning two dimensional movement" by **Mir shahab edin razavi hesabi**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2009.

11) "Diagram based verification of reactive and real time systems using temporal logic, case study: Fischer's protocol", by **Farid Alghamand** University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2009.

12) "Find dense subgraphs in protein-protein interactions network by soft computing", by **Hamid Ravaee Bazafti** University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2010

13) "To pave a secure effective in ad hoc networks", by **Mohammad Zarei**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2010

14) "Text mining using the ontology containing key concepts of text", by **Mina Maleki Majd**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2010.

15) "Finding Dense Subgraph in Protein-Interactions Network" by **Hamid Ravaee Bazafti**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and

Computation, 2010.

16) "Analysis of approximation Algorithms for Steiner Trees", by **Safar Vafadar Dolagh** , University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2011.

17) "On thin tree of bounded tree-width and parallel series graphs", by **Saeed Akhoondian Amir**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2011.

18) "Analysis of Recommendation Algorithm in Networks with using Tenacity Parameter", by **Davoud Jelodar**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2011.

19) "Drawing General Undirected graphs", by **Ali Golshani Gharyeali**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2012.

20) "Increasing the Lifetime of Wireless Sensor Networks by Alleviating the Energy Hole Problem", by **Bahareh Bafandeh Mayvan**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2014.

21) "Vulnerability Parameters of Graphs", by **Bijan Jamali**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2014.

22) "Traffic Modeling using Cellular Automation" , by **Samad Saadatmand Feyzrasa**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2014.

23) " A Mathematical Optimization Model for Solving Ordering Problem with Constraint Analysis and some Generalizations" , by **Samira Rezaei**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2014.

24) " Primal-Dual Approximation Algorithms for Network Design Problems" , **Behnaz Bakhshizadeh**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms

and Computation, 2014.

25) "Scheduling of Jobs with Fixed Start Times on Machines", by **Iman Mohammadi**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2014.

26) "Evaluating Hardness Results of Profit Maximization Pricing Problems", by **Niloofar Vahdat**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2015.

27) "Survey the efficiency of only Approximation Algorithm on Generalized Bin Covering problem and Improvement Approximation Ratio", by **Somaye Jabari**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2015.

28) "Multiple Traveling Salesman in Asymmetric Metrics", by **Sepideh Payamani**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2015.

29) "Computing Vulnerability of Corona of Two Graphs", by **Mohammad Reza Ashouri**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2016.

30) "On Tenacity of Cycle Permutation Graphs", by **Zahra Zabeti**, University of Tehran, College of Engineering, Faculty of Engineering Science, Department of Algorithms and Computation, 2016.

### **Honors/Awards**

- Member of Editorial Board of Engineering Journal "Fani" University of Tehran.
- Editor - in Chief Journal of Algorithms and Computation.
- Member of Board of Center of Excellence in Geomatic Engineering and Disaster Management.
- Elite Professor of Tehran University.