CURRICULUM VITAE

A. Kaveh
Professor of Iran University of Science and Technology

1. PERSONAL IDENTITIES

Name:	Ali
Family name:	Kaveh
Date and place of birth:	02.03.1948, Tabriz, Iran
Nationality:	Iranian
Positions:	Assistant Professor, IUST, 1974-1979. Associate Professor, IUST, 1979-1985. Guest Professor, TU-Wien, 1985-1986. Full Professor, IUST, 1985-1991. Guest Professor, TU-Wien, 1991-1992. Full Professor, IUST, 1992-May 1993. Guest Professor, GH-Essen, June 1993-September 1993. Full Professor, IUST, October 1993-1994. Guest Professor, TU-Wien, 1995-1996. Full Professor, IUST, October 1996-2003. Guest Professor, TU-Wien, 2003-2004. Visiting Researcher at LMC for a month in 2004 Full Professor, IUST, October 2003-2008. Guest Professor, TU-Wien, 2008-2009. Full Professor, IUST, October 2008-till now. Guest Professor, TU-Wien, April 2015-August 2015. Full Professor, IUST August 2015-till now.

2. EDUCATIONAL BACKGROUND

B.Sc.	Civil Engineering	Department of Civil Engineering	Tabriz University	1969
M.Sc.	Structures	Imperial College	London University	1971
DIC	Structures	Imperial College	London University	1971
Ph.D.	Structures	Imperial College	London University	1974
Dipl. Ing.	Bauwesen	Department of Civil Engineering	Technical University of Vienna	1991

Dr. Tech.	Bauwesen	Department of Civil Engineering	Technical University of Vienna	1993

3. MEMBERSHIPS

3.1 Academies

a) Fellow of the Iranian Academy of Science (IAS) since 1369.
b) Fellow of The World Academy of Sciences (TWAS) since 1385.
c) Active Member of the European Academy of Sciences and Arts (EASA) since 1394.

3.2 Socities

d) Fellow of the Iranian Society of Civil Engineering (FISCE).
e) Associate Fellow of the Institute of Mathematics and its Applications (AFIMA).
f) Member of International Society for the Interaction of Mechanics and Mathematics (ISIMM).
g) Member of Association for Computational Mechanics (European Section).
h) Member of American Mathematical Society (AMS).
i) Ex-Member of the Iranian Mathematical Society (IMS).
j) Ex-Member of Gesellschaft für Angewandte Mathematik und Mechanik (GAMM).
k) Ex-Member of the American Society of Civil Engineering (ASCE).
l) Ex-Member of the Society for Industrial and Applied Mathematics (SIAM).

4. COMMUNICATIONS WITH NATIONAL AND INTERNATIONAL JOURNALS

1. Asian Journal of Civil Engineering (Editor-in-Chief)
2. International Journal of Optimization in Civil Engineering (Editor-in-Chief)
3. Computers and Structures (Editorial Advisory Board)
4. Periodica Polytechnica (Editorial Board; Associate Editor)
5. Scientia Iranica (Advisory Board; Executive Editor)
6. Civil Engineering Journal of Sharif (Editorial Board)
7. Iranian Journal of Science and Technology (Ex-Advisory Board)
8. Asian Journal of Structural Engineering (Ex-Editor-in-Chief)
9. Amirkabir Journal of Science and Technology (Ex-Advisory Board)
10. Journal of Tabriz University (Advisory Board)
11. International Journal of Engineering, IUST (Fonder and Ex-Editor-in-Chief)
12. International Journal of Engineering, (Editorial Board)
13. The Open Civil Engineering Journal (Ex-Editorial Board)
14. The Open Construction and Building Technology Journal (Editorial Board)
15. International Journal for Engineering and Applied Sciences (Editorial Board)
16. Intelligent Information Management (Editorial Board)
17. Applied Mathematics (Member of the Editorial Board)
18. Engineering Education, Iranian Academy of Sciences (Ex-Edior-in-Chief, and present Editorial Board Member)
19. Quarterly of Education of Technology (Editorial Board)
20. Civil Engineering and Urban Planning: An International Journal (Editorial Board)
21. I.J. Water Resources Engineering (Ex-Editorial Board)

5. MEMBER OF SCIENTIFIC COMMETTEES

1. 3rd International Conference on Space Structures, Surrey, UK, 1984.
2. International Conference on Applied Mathematics, IUST, Tehran, 1991.
3. 4th International Conference on Space Structures, Surrey, UK, 1993.
4. Iranian Congress on Numerical Methods in Engineering, Shiraz, 1993.
5. Civil-Comp 93, Edinburgh, UK, 1993.
6 1st International Conference on Graphs and Mechanics, Poland, 1993.
7 International Conference on Applications of Fussy Systems, Iran, 1994.
8 Civil-Comp 95, Cambridge, UK, 1995.
9 Computational Structures Technology, Budapest, Hungary, 1996.
1 Mouchel Centenary Conference on Innovation in Civil Engineering, Cambridge, 1997.
k Civil-Comp 98, Edinburgh, UK, 1998.
l International Conference on Theoretical, Applied, Computational and Experimental Mechanics, Indian Institute of Technology, Kharagpur, India, 1998.
m 4^{th} International Conference on Civil Engineering, Iran, 2000.
n Civil and Structural Engineering Computing, Oxford, 1999.
o 2nd International Conference on Graphs and Mechanics, Poland, 1999.
p Civil and Structural Engineering Computing, Belgium, 2000.
q Civil and Structural Engineering Computing, Austria, 2001.
r 5th International Conference on Space Structures, Surrey, UK, 2002.
s The first M.I.T. Conference on Computational Fluid and Solid Mechanics, USA, 2001.
t The second M.I.T. Conference on Computational Fluid and Solid Mechanics, USA, 2003.
u Civil and Structural Engineering Computing, Prague, 2002.
v 6^{th} Int. Conference on Civil Engineering, Isfahan-Iran, 2003.
w Civil and Structural Engineering Computing, Netherlands, 2003.
x Civil and Structural Engineering Computing, Lisbon, 2004.
y The Tenth International Conference on Civil, Structural and Environmental Engineering Computing, Rome, Italy, 2005.
z Civil and Structural Engineering Computing, Spain, 2006.
aa The Eleventh International Conference on Civil, Structural and Environmental Engineering Computing, St. Julians, Malta 2007.
bb Third International Conference on Computational Mechanics, Cape Town, South Africa 2007.
cc The Ninth International Conference on Computational Structures Technology, Athens, Greece, 2008.
dd The Twelfth International Conference on Civil, Structural and Environmental Engineering Computing, Madeira, Portugal, 2009.
ee 2nd Conference on Domestic Technology, IUST, Tehran, 2009.
ff Fourth International Conference on Structural Engineering, Mechanics and Computation, Cape Town, South Africa, 2010.
gg International Conference on Advances in Materials and Techniques in Civil Engineering India, 2010.
hh The Tenth International Conference on Computational Structures Technology, Valencia, Spain from 14-17 September, 2010.
ii The 1st International Conference on Structural and Building Materials, Guangzhou, China, 7-9 January, 2011.
jj The Thirteenth International Conference on Civil, Structural and Environmental Engineering Computing, Chania, Crete, Greece, 6-9 September 2011.
kk International Conference on Civil, Architectural and Hydraulic Engineering., Member of Scientific Committee, Zhangjiajie, China, 10-12 August, 2012.
ll The 2nd International Conference on Structural and Building Materials, Hangzhou, China, March 10-12, 2012.
mm The Eleventh International Conference on Computational Structures Technology, Dubrovnik, Croatia 4-7 September 2012.
nn Innovations in Concrete Construction Congress, Jalandhar Punjab India, 5-8 March 2013.

qq The Fourteenth International Conference on Civil, Structural and Environmental Engineering Computing (CC2013) is to be held in Cagliari, Sardinia, Italy from 3-6 September 2013.

rr The Third International Conference on Soft Computing Technology in Civil, Structural and Environmental Engineering, Cagliari, Sardinia, Italy, 3-6 September 2013.

ss Conference on Engineering and Applied Sciences Optimization (OPTI 2014) , Kos Island, Greece on 4-6 June 2014.

tt The 15th EU/ME European Metaheuristics Community Workshop, Metaheuristics and Engineering, Istanbul, 24-25 March 2014.

xx The Twelfth International Conference on Computational Structures Technology (CST2014) Naples, Italy, 2-5 September 2014.

Yy 2014 International Conference on Environmental Protection and Sustainable Ecological Development [EPSED2014], Wuhan, Hubei, China, 30 - 31 August, 2014.

Aaa 3rd International Conference "Graph Modelling In Engineering", 22 - 24 June 2015, University of Bielsko-Biala , Poland.

Bbb The Seventh International Conference of Seismology and Earthquake Engineering (SEE7), Member of the Scientific Committee.

Ccc The Sixth International Conference on Structural Engineering, Mechanics and Computation, 5-7 September 2016, Cape Town, South Africa, International Advisory Board for SEMC 2016.

Ddd Fifth International Conference on Parallel, Distributed Computing Technologies and Applications (PDCTA-2016), Program Committee Member, Zurich, Switzerland, 2~3 January, 2016.

Eee International Conference on Structural Dynamics EURODYN 2017, Member of the Scientific Committee, Rome, Italy, 10-13 September, 2017.

Fff The 4th International Conference on Applied Mechanics, Mechatronics and Intelligent System (AMMIS-2016), Member of the Scientific Committee, Beijing, China , April 16-17, 2016.

Ggg 2nd International & 6th National Conference on Earthquake & Structures, Member of the Scientific Committee, October 14-15, 2015, ACECR of Kerman, Kerman, Iran.

Hhh World Symposium on Civil Engineering 2017 WSCE 2017, Member of the Scientific Committee, Hong Kong, 22-24 February, 2017.

Iii **Member of European Research Committee (Engineering) for the year 2014.**

Jjj Member of TPC, International Conference on Mechanics, Civil Engineering and Transportation (ICMCT2016), November 4-6 of 2016, Guilin, China.

6. AWARDS

a Educational Gold Medal: awarded by the Iranian Ministry of Science and Education because of being the first class student during the four years of B.Sc. Course in Civil Engineering, 1965.

b Ministry of Science and Higher Education Award: During 1970-1974 for pursuing studies toward a Ph.D. at Imperial College, London University.

c Alborz Foundation Prize: awarded by Alborz Institute for the Distinguished Engineering Graduate of the Year in Iran, 1969.

d Research Price: awarded by the Ministry of Science and Higher Education for the selected research, 1977.

e Irano - British Fellowship: awarded by the Ministry of Higher Education, 1977.

f Book Prize: awarded by the Ministry of Culture for writing the best book in the field of Engineering, 1984.

g Research Prize: awarded by Iran University of Science and Technology, 1985.

h Research Prize: awarded by IUST, 1989,1990 and 1993.

i Kharazmi Research Prize, Ministry of Science and Higher Education, 1994.

j Research Prize: awarded by IUST, 1994.

k Press Media Prize for Scientific Publications: Ministry of Culture IRI, 1995.
l Distinguished Civil Engineering Research Award, Building and Housing Research Centre, 1996. Distinguished Civil Engineering Research Award, Building and Housing Research Centre, 1996.
m Book Prize for the Best Engineering book in English: Ministry of Culture IRI, 1997.
n Gold Medal of 2000, ABI, 1999.
o Research Prize, Iran University of Science and Technology, 1999.
p Distinguished Professor of Iran, Ministry of Science and Higher Education, 2000.
q Selected researcher of the Iran University of Science and Technology, 2000.
r National Project Award at IUST, 2000.
s Distinguished Researcher award of Iran, Ministry of Science and Research and Technology, 2000.
t Memorable Scientist of Iran in the field of Engineering, Academy of Sciences and Press Media, 2001.
u Selected researcher of the Iran University of Science and Technology, 2001 and 2002.
v Distinguished Researcher award of Iran, Ministry of Science and Research and Technology, 2004.
w Distinguished Researcher award, IUST, 2004 and 2005.
x Distinguished Researcher award, IUST, 2006.
y Distinguished Researcher award of Iran, Ministry of Science and Research and Technology, 2006.
z Distinguished Researcher award, IUST, 2007.
Winner of the Afzalipour Prize, an award was presented by University of Kerman, Iran, 2007.
a Rank 1, Research Section, the First Iranian Civil Engineering Festival, 2008.
bb Rank 1, International books Section, the First Iranian Civil Engineering Festival, 2008.
cc Rank 1, Fundamental Research Section, the Second Yadvaree (Festival) Iranian Civil Engineering, Building and Housing Research Centre, 2008.
dd Distinguished Researcher award, IUST, 2009.
ee Distinguished Researcher award, Civil Engineering, IUST, 2010.
ff Distinguished Professor and Researcher, Allameh Tabatabaie Award, 2012.
gg Distinguished Researcher award, Civil Engineering, IUST, 2013.
Distinguished Professor of Engineering Day of Azarbayejan Provence, Engineering NJO of Azarbayejan, 2013.
hh Distinguished Researcher award, Iran University of Science and Technology, 2014.
ii Books award (Springer Books), Iran University of Science and Technology, 2014
jj Distinguished Researcher award of Iran, Ministry of Science and Research and Technology, 2014.
kk Distinguished Researcher award, Rank 1 of Iran University of Science and Technology and Rank 1 of department of civil Engineering, 2015.

7. EXPERIENCE

a) Analysis and design of structures for more than 3 years.
b) Lecturing the following subjects for the last 36 years in different Universities in undergraduate and postgraduate levels:
c) Strength of materials I and II.
d) Theory of structures I and II.
e) Matrix analysis of structures with an introduction to FEM.
f) Plastic analysis and design of structures.
g) Optimal strucural analysis
h) Graph theoretical approaches to matrix analysis of structures.
i) Application of graph theory and topology in Civil Engineering.

j) Supervision of M.Sc. Seminars.
k) Supervision of M.Sc and Ph.D. thesis.
l) Consultant of the Iranian Building and Housing Research Centre, 1993-till now.
m) Consultant of Nir Pars, 1994-1996.

8. MAIN RESEARCH ACHIEVEMENTS

1. Graph theory and its generalization for structural mechanics:
Kaveh has extensively applied graph theory to conceptual analysis of structures with particular attention to combinatorial properties of structures.

2. Force method of structural analysis:
The main development of this method is due to Kaveh. Two of his books cover these developments.

3. Sparse matrix technology for efficient structural analysis:
Many new approaches are developed by Kaveh for bandwidth, profile and fronwidth reduction of sparse matrices.

4. Configuration processing:
Graph theory, set theoretical methods, and graph product methods are developed by Kaveh for configuration processing of space structures and finite element models.

5. Conditioning of structural matrices:
Suitable statical basis and kinematical basis are developed for improving the conditioning of flexibility (mesh) and stiffness (node) matrices of structures by Kaveh.

6. Decomposition of large-scale models:
Graph and algebraic methods are developed by Kaveh for suitable decomposition of structural and finite element models suitable for parallel computing.

7. Optimal analysis of structures:
Optimal analysis originally defined and developed by Kaveh leading to sparse, well structured and well conditioned structural and graph matrices. A book is published with this title for the first time.

8. Canonical forms of linear algenra and applications in structural mechanics:
Canonical methods are developed by Kaveh and students for eigensolution of special block matrices involved in structural mechanics.

9. Graph products and their extensions and applications:
Graph products are utilized in characterization of regular graphs and eigensolution of regular graph and structural matrices by Kaveh and his students. Some of these products are generalized for configuration processing of complex finite element models.

10. Symmetric and regular structures:
Concepts of symmetry and regularity are developed and utilized in swift analysis of structures and finite difference models by Kaveh and his students. A book is written with this title.

11. Finite element force method
Many elements are developed by Kaveh and his students for analysis of continuums by the finite element force methods.

12. Optimal design of structures using novel meta-heuristic algorithms:
Many new meta-heuristic algorithms are developed by Kaveh and his research students. Examples are Charged System Search, Magnetic Charged System Search, Democratic PSO, Ray Optimization, Dolphin Optimization, Colliding Bodies Optimization, Enhances Colliding Bodies Optimization, Tug of War Optimization method, Water Evaporation Optimization WEO. These algorithms are used for different optimization problems. Two books are written based on some of these algorithms.

13. Plastic design of frame structures:
Mathematical programming methods and meta-heuristic algorithms are applied to plastic analysis and design of frame structures.

14. Multi-objective optimization and seismic design of structures:
Methods are developed and applied to seismic design of frame structures.

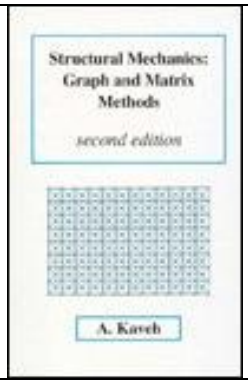
15. Optimal analysis for optimal design:
To make the optimal design of large-scale problems feasible, optimal analyses are incorporated to optimal design of structures by Kaveh and his students.

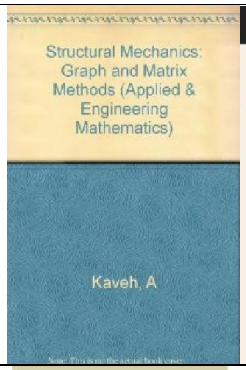
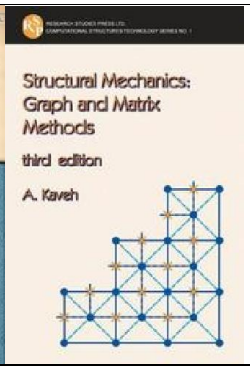
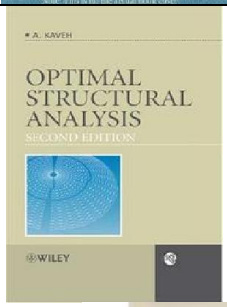
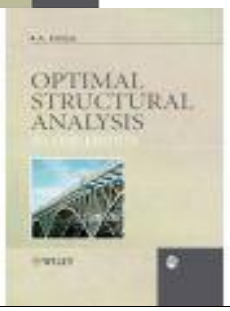
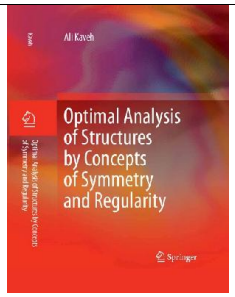
9. PUBLICATIONS

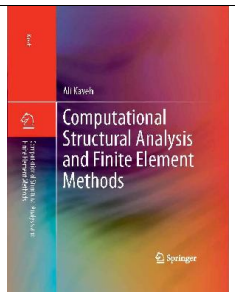
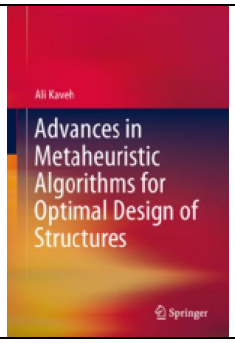
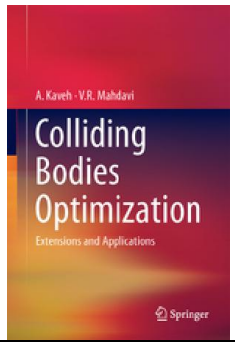
9a) Thesis

1. Lateral Torsional Buckling of H-section Beam Columns, M.Sc. thesis, Imperial College, London University, 1970.
2. Applications of Topology and Matroid Theory to the Analysis of Structures, Ph.D. thesis, Imperial College of Science and Technology, London University, 1974.

9b) Books (in English)

1	A. Kaveh, Structural Mechanics: Graph and Matrix Methods, *Research Studies Press (John Wiley),* Exeter, U.K., 1992 (first edition), 1995 (second edition), 2004 (third edition). ISBN 0-86380-186-2/0-471-96028-4			

		 
2	A. Kaveh, Optimal Structural Analysis, *John Wiley (Research Studies Press)* Chichester, U.K., 1997 (first edition), 2006 (second edition). **Optimal Force Method of Structural Analysis** Published Online: 5 SEP 2014 DOI: 10.1002/9780470033326.ch3 ISBN: 978-0-470-03015-8	  
3	A. Kaveh, Recent Developments in the Force Method of Structural Analysis, *ASME Press*, **45** , September 1992	
4	A.Kaveh, Optimal Analysis of Structures by Concepts of Symmetry and Regularity, *Springer Verlag*, GmbH, Wien-NewYork, 2013. ISBN 978-3-7091-1564-7 ISBN 978-3-7091-1565-7 (eBook) DOI 10.1007/978-3-7091-1565-7	

5	A.Kaveh, Computational Structural Analysis and Finite Element Methods, *Springer Verlag*, Springer International Publishing, Switzerland, 2014. ISBN 978-3-319-02963-4 ISBN 978-3-319-02964-1 (eBook) DOI 10.1007/978-3-319-02964-1	
6	A.Kaveh, Advances in Metaheuristic Algorithms for Optimal Design of Structures, Springer International Publishing, Switzerland, 2014. ISBN 978-3-319-05548-0 ISBN 978-3-319-05549-7 (eBook) DOI 10.1007/978-3-319-05549-7	
7	A.Kaveh & V.R. Mahdavi, Colliding Bodies Optimization: Extensions and Applications Springer, Switzerland, 2015. ISBN 978-3-319-19658-9 ISBN 978-3-319-19659-6 (eBook) DOI 10.1007/978-3-319-19659-6	

7. A. Kaveh, Topological Transformation in Structural Mechanics, 2015 (in preparation).

9c) Books (in Farsi)

1. A. Kaveh, Moment Distribution Methods, 1981,1984,1987.
2. A. Kaveh, Structural Analysis, Markaz Nashr, 1981,1982,1985,1989,1994,1997,2000, 2004,2006,2008,2011,2015 (12th edition).
3. A. Kaveh, Finite Element Methods, IUST Press, 1981,1987,1991, 1994, 2003, 2011,2015.
4. A. Kaveh, Matrix Analysis of Structures, IUST Press,1982,1987,1991,1997, 2011.
5. A. Kaveh, Applied Strength of Materials, Jahad Daneshgahi, 1983,1984, 1987.
6. A. Kaveh, Constants of Frames, Yazd University Press, 1982,1987,1991, 1994.
7. A. Kaveh, Computer Analysis of Structures, Markaz Nashr, 1983,1986,199, 2008.
8. A. Kaveh, Matrix Theory of Structures, IUST Press, 1979,1987,1993, 2000.
9. A. Kaveh, Plastic Analysis and Design of Frames, Vol. 1, IUST, 1989, 1993.
10. A. Kaveh, Mechanics of Materials, Yazd University Press, 1992.
11. A. Kaveh, Practical Introduction to Finite Elements (with B. Amini), IUST,1988, 1997.
12. A. Kaveh, M.A. Barkhordari and B. Hakima, Principles of Structural Stability, Markaz Nashr, 1988.

13. A. Kaveh and V. Kalartjary, Reliability and Safety of Structures, IUST, 1995.
14. A. Kaveh, MR. Mogadassi and M. Katebi Bonab, Simplified Structural Analysis, IUST Press, 1995.
15. A. Kaveh and A. Mokhtar-zadeh, Plastic Analysis and Design of Frames, Vol. **2**, IUST Press, 1995.
16. A. Kaveh, MR. Mogadassi and M. Katebi Bonab, Matrix Analysis of Structures, MEEF Press, 1997.
17. A. Kaveh, Energy Methods in Structural Mechanics, MEEF Press, 1997.
18. A. Kaveh and A. Iranmanesh, Neural Networks for Structural Optimization, Building and Housing Research Centre, 1999, 2006, 2011.
19. A. Kaveh and H. Servati, Neural Networks for the Analysis and Design of Space Structures, Building and Housing Research Centre, 2000, 2001, 2006, 2011.
20. A. Kaveh, F. Karrobi, and J. Keyvani, Analysis, Design and Construction of Steel Space Frames;, Building and Housing Research Centre, 2004,2008, 2012.
21. A. Kaveh, Optimal Plastic Analysis and Design of Frames, Building and Housing Research Centre, 2006, 2008.
22. A. Kaveh and P. Sharafi, Ant Colony Optimization, Basic Principles, Building and Housing Research Centre, 2007.

9d) Papers in Journals

[1] A.C. Cassell, J.C. de C. Henderson and A. Kaveh, Cycle bases for the flexibility analysis of Structures, *International Journal of Numerical Methods in Engineering,* **8**(1974)521-528.
[2] A. Kaveh, Improved cycle bases for the flexibility analysis of structures, *Computer Methods in Applied Mechanics and Engineering*, **9**(1976)267-272.
[3] A. Kaveh, Static and kinematic indeterminacy of skeletal structures, *Iranian Journal of Science ad Technology*, **7**(1978)37-45.
[4] A. Kaveh, A combinatorial optimization problem; optimal generalized cycle bases, *Computer Methods in Applied Mechanics and Engineering*, **20**(1979)39-52.
[5] A. Kaveh, Topological study for bandwidth reduction of structural matrices, *Journal of Science and Technology*, **1**(1977)27-36.
[6] A. Kaveh, Cycle selection for system analysis-A review, *Journal of Science and Technology*, **1**(1977)88-96.
[7] A. Kaveh, A note on two-step approach to finite element ordering, *International Journal of Numerical Methods in Engineering*, **2**(1984)1553-1554.
[8] A. Kaveh, Multiple use of a shortest route tree for ordering, *Communications in Numerical Methods in Engineering*, **2**(1986)213-215.
[9] A. Kaveh, An efficient program for generating subminimal cycle bases for the flexibility analysis of structures, *Communications in Numerical Methods in Engineering*, **2**(1986)339-344.
[10] A. Kaveh, An efficient flexibility analysis of structures, *Computers and Structures*, **22**(1986) 973-977.
[11] A. Kaveh, Statical bases for a flexibility analysis of planar trusses, *Z. Angew. Math. Mech*., **66**(1986) T149-T150.
[12] A. Kaveh, Statical bases for an efficient flexibility analysis of planar trusses, *J. Struct. Mech*., **14**(1986)475-488.
[13] A. Kaveh and A.M. Behzadi, An efficient algorithm for nodal ordering of networks, *Iranian Journal of Science and Techn ology*, **11**(1987)11-18.
[14] A. Kaveh, A combinatorial study of the rigidity of planar structures, *Acta Mechanica*, **59**(1986)189-196.
[15] A. Kaveh, Graph-theoretical methods for efficient flexibility analysis of planar trusses,

Computers and Structures, **59**(1986)559-563.
[16] A. Kaveh, Ordering for bandwidth reduction, *Computers and Structures*, **25**(1986)413-419.
[17] A. Kaveh, Element ordering for bandwidth and frontwidth optimization, *Z. Angew. Math. Mech*., **67**(1987)T482-T484.
[18] A. Kaveh, Subminimal cycle bases for the force method of structural analysis, *Communications in Numerical Methods in Engineering*, **3**(1987)277-280.
[19] A. Kaveh, Topological properties of skeletal structures, *Computers and Structures*, **29**(1988)403-411.
[20] A. Kaveh, Suboptimal cycle bases of a graph for mesh analysis of networks, *International Journal of NETWORKS*, **19**(1989)273-279.
[21] A. Kaveh, Topology and skeletal structures, *Z. Angew. Math. Mech*., **68**(1988)344-356.
[22] A. Kaveh, On subminimal cycle bases of a graph for the force method, *Computers and Structures*, **30**(1988)1215-1217.
[23] A. Kaveh, A note on ordering; transversal of a shortest route tree, *Iranian Journal of Science ad Technology*, **11**(1987)281-287.
[24] A. Kaveh, On minimal and optimal cycle bases of graphs for sparse flexibility matrices, *Z. Angew. Math. Mech*., **69**(1989)T212-T214.
[25] A. Behravesh, A. Kaveh, S. Sabet and M. Nani, A set theoretical approach for configuration generation, *Computers and Structures*, **30**(1988) 1293-1302.
[26] A. Kaveh, Suboptimal cycle bases of graphs for the flexibility analysis of skeletal structures, *Computer Methods in Applied Mechanics and Engineering*, **71**(1988)259-271.
[27] A. Kaveh, Space structures and their planar drawings, *ZAMM*, **70**(1990)T225-T228.
[28] A. Kaveh, Graphs and structures, *Computers and Structures*, Issue 4, **40**(1991)893-901.
[29] A. Kaveh, Planar drawing of space structures, *Iranian Journal of Science ad Technology*, **14**(1992) 23-32.
[30] A. Kaveh and A. Behravesh, Iterative analysis of large structures, *Computers and Structures*, **35**(1990)279-282.
[31] A. Kaveh, Algebraic graph theory for ordering, *Computers and Structures*, **37**(1990)51-54.
[32] A. Behravesh and A. Kaveh, Direct-iterative analysis of large structures, *International Journal of Engineering IUST*, **1**(1990)1-10.
[33] A. Kaveh, Algebraic graph theory for optimization, *International Journal of Engineering IUST*, **1**(1990)41-49.
[34] A. Kaveh, A connectivity coordinate system for node and element ordering, *Computers and Structures*, **41**(1991)1217-1223.
[35] A. Kaveh, Graphs and Structures, *Computers and Structures*, **40**(1991)893-901.
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92. F. Masteri Farahani, Estimating the Vulnerability of the Concrete Structures Using Artificial Neural Networks, Building and Housing Research Center, 2005.
93. S.M. Dashti Zand, Concrete Properties Containing Recycled Rubber Waste, Building and Housing Research Center, 2006.
94. H. Gholami, The Role of Symmetry in Dynamic Behavior of Frames, Building and Housing Research Center, 2006.
95. B. Dadfar, Design for controlling the seismic collapse mechanism of frame structures using genetic algorithms, IUST, 2007.
96. M. Ebtehaj, Plastic analysis of structures; applications and extensions, IUST, 2007.
97. M. Njimi, Variation Theorems for Static and Dynamic Analysis of Structures, Building and Housing Research Center, 2006.
98. M.A. Abbaszadeh Mashad, Artificial Neural Network Modeling of Confinement for Axially Loaded Circular Concrete Column Retrofitted by Fiber-Reinforced Polymer Wrapping, Building and Housing Research Center, 2005.
99. M. Asadi, Evaluation of Epicentre and Magnitude of Earthquake by Acceleration Data, Building and Housing Research Center, 2004.
100. S.R. Pashanejati, Eigen-solution of Tall Building, Building and Housing Research Center, 2004.
101. A. Jahanmohammadi, Applicatins of group theory in structural mechanics, University of Yazd, 2007.
102. B. Alinejadi, Canonical Forms Expressible as the Sum of Kroneker Products and Application in Free and Forced Vibration of Structures, IUST, 2008.
103. E. Ebrahimi, Force Method for Finite Element Analysis, Amol University, 2008.
104. A. Massomi, Applications of combined genetic algorithm and ant colony for layout optimization of steel braced frames, BHRC, 2008.
105. R. Rezvani Asl, Numerical investigation for the role of partitioning walls in concrete frames, BHRC, 2008.
106. P. Sharafi, Ant colony meta-heuristic in combinatorial optimization; Applications in Civil Engineering, BHRC, 2008.
107. M.A. Fatolah Pour Kami, Applications of p-median of weighted graphs for finding facility centers using meta-heuristic algorithms, BHRC, 2008.
108. Farmanbar, IUST, 2008.
109. Hamidi, IUST, 2008.
110. K. Laknejadi, Nodal Ordering for Profile Reduction Using a Differential Equation, IUST, 2008.
111. N. Farhoodi, Optimal designe of steel structures, Khajeh Nassir University, 2008.
112 R. Alizadeh, Decomposition and healing for the force method, IUST, 2009.
113 M. Hasani , Mixed analysis and design using ant colony optimization, IUST, 2009.
114 Sheyda Shoghi, Graph theoretical method for rigidity of planar and space trusses, IUST, 2009.
115 H. Palizvan, Well structured structural matrices using ant colony algorithms, IUST, 2009.

116 Esmaeel Naseri , Finite element analysis via pure force method, IUST, 2009.
117 Somayeh Malakouti Rad , Hybrid of genetic algorithm and particle swarm optimization for the force method-based simultaneous analysis and design of skeletal structures, IUST, 2009.
118 R. Khaleghi , Applications of meta-heuristic algorithms for decomposition of graphs and finite element models, IUST, 2009.
119 S. Khaligh,, Application of optimization for predicting the yield lines of slabs, IUST, 2009.
120 A. Haddadzadeh Group theory for analysis of dome structures, BHRC, 2009.
121 Naseri Fard, Meta heuristic for structural optimization, BHRC, 2009.
122 Ali Shariat, IUST, 2009.
123 Mohammad Kalateh-Ahani, Plastic analysis and design of frames using safe theorem via ant colony optimization, IUST, November 2009.
124 Roya Shoghi, Rigidity od planar and space trusses, IUST, November 2009.
125 Mohammad Sajjad Masoudi, Finite element force method using graph theoretical and metaheuristic algorithms, IUST, 2010.
126 Mohammad Javad Tolou Kian, Dynamic analysis of structures using graph theoretical force method, BHRC, 2010.
127 Behzad Eftekhar, Size and geometry optimization of barrel vaults, IUST, 2010.
128 Saeed Tahmasebi, Distributed evolutionary muti-objective mesh partitioning algorithm for parallel finite element computations by CSS, IUST, December 2010.
130 Hamed Nasr, Facility location finding by genetic algorithm, ant colony and harmony search algorithm, IUST, July 2010.
131 Sepehr Beheshti, Graph products for configuration processing, IUST, December 2010.
132 Mojtaba Khayatazad, IUST, October 2012.
133 Pooya Zakian, IUST, September 2012.
134 Mohsen Khoshkebari, BHRC, October 2012.
135 Babak Ahmadi, IUST, Analysis, design and optimal design of structures using charged system search and force method, January 2013.
136 Farnoud Shokohi, IUST, Optimal design castellated beams using charged system search and its enhanced version, January 2013.
137 Massoud Mehdad, Bandwidth, profile and wavefront optimizarion using charged system search, IUST, January 2013.
138 Vahid Reza Mahdavi, IUST, Optimal design of arch dams using endurance time acceleration functions, wavelet transform, charged system search and particle swarm optimization, January 2013.
139 M. Ilchi Ghazaan, Hybridizing meta-heuristic algorithms for optimum design of skeletal structures with frequency and resistance constraints, IUST, October 2013.
140 Mohsen Maniat, Structural Damage Identification in Skeletal Structures via Metaheuristic Algorithms, IUST, June 2013.
141 S.M. Javadi, Optimization of structural problems with multiple frequency constraints using a hybrid Ray optimization algorithm, June 2013.
142 Mohammad Naiemi, BHRC, 2013, completed.
142 Ali Shams Talaei, BHRC, 2013, completed.
143 Nafiseh Soleimani, IUST, 2014, completed.
144 Sh. Bijary, IUST, 2014, completed.
145 Shakiba Hasana, IUST 2014, completed.
146 Parvin Asadi, IUST, 2015, completed.
147 Sharnaz Ardalani, IUST, 2015, completed.
148 Sara Nazarpour, IUST, 2015, completed.
149 Masoud Rezaei, BHRC, 2016, completed
150 Mehran Moradveisi, Optimal design of double-layer grids Using CBO and ECBO algorithms considering nonlinear behavior, BHRC, 2016.
151 Ali Bolandgerami, IUST, 2015, completed.
152 Shadi Fatabadi, IUST, 2015.

12. PROJECTS

Some of the recent projects:

1. Symmetry in Structural Mechanics, INSF, 2005.
2. Applications of Graph Theory in Optimal Analaysis of Structures. INSF, 2006.
3. Optimal Analysis and Design Using Genetic and Ant Colony Algorithms, INSF, 2007.
4. Optimal Analysis and Design of Structures, INSF, 2008.
5. Applications of Graph Theory and Meta-heuristic Algorithms in Optimal Analysis and Design, INSF, 2009.
6. Meta-heuristic Algorithms in Optimal Analysis and Design of Structures, Part 1, INSF, 2010.
7. Meta-heuristic Algorithms in Optimal Analysis and Design of Structures, Part 2, INSF, 2011.
8. Meta-heuristic Algorithms in Optimal Analysis and Design of Structures, Part 3, INSF, 2011.
9. Meta-heuristic Algorithms in Optimal Analysis and Design of Structures, Part 4, INSF, 2012.
10. Meta-heuristic Algorithms in Optimal Analysis and Design of Structures, Part 5, INSF, 2012.
11. Meta-heuristic Algorithms in Optimal Analysis and Design of Structures, Part 6, INSF, 2013.
12. Meta-heuristic Algorithms in Optimal Analysis and Design of Structures, Part 7, INSF, 2013.
13. Meta-heuristic Algorithms in Optimal Analysis and Design of Structures, Part 8, INSF, 2014.
14. Meta-heuristic Algorithms in Optimal Analysis and Design of Structures, Part 9, INSF, 2015.

Research projects: 37
Supervisor of Ph.D. thesis: 35 completed and 11 in the process.
Supervisor of M.Sc. thesis: over 150 (some are listed)

13. Adminstrative activities

Research vice Chancellor of the Building and Hosing Research Centre (1 year)
Head of Centre of Excellence for Studies in Structural Engineering (12 years)
Head of Department of Engineering, Iranian Academy of Sciences (2 year)
Head of Civil Engineering Branch of the Iranian Academy of Sciences (4 year)
Member of the committee for Research, Iranian Academy of Sciences (3 year)
Member of the committee for Foresight, Iranian Academy of Sciences (1 year)
Member of the engineering committee of journal publications, Iranian Ministry of Science, Technology and Research (5 Years).
Member of the Engineering Committee for Centers of Excellences, Iranian Ministry of Science, Technology and Research (4 Years).
Member of the Promotion Committee in Engineering, Iranian Ministry of Science, Technology and Research (8 Years).
Head of Structural Section, Iran University of Science and Technology (12 years).
Head of Civi Engineering Department, Iran University of Science and Technology (1/2 year).
Head of the Office for Research, Iran University of Science and Technology (1 year).