

REFERENCES

- Adeli, H and Cheng, N.T. (1994), "Augmented Lagrangian genetic algorithm for structural optimization", *Aerospace Engineering*, Vol. 7, No. 1, pp. 104-118.
- Adeli, H. (1994), "*Advances in Design Optimization*", Chapman & Hall, London.
- Adeli, H. and Hung, S.L. (1995), "*Machine Learning: Neural Network, Genetic algorithm and Fuzzy Systems*", John Wiley & Sons, Inc. New York.
- Adeli, H. and Kumar, S. (1995), "Distributed genetic algorithm for structural optimization", *Journal of Aerospace Engineering*, Vol. 8, No. 3, pp. 156-163.
- Allen, H.G. and Bulson, P.S. (1980). "*Background to Buckling*", McGraw-Hill Book Company Limited, Maidenhead, England.
- Al-Salloum, Y. (1995). "Pseudo-fully stressed design approach for optimum design of steel frames", *International Journal for Numerical Methods in Engineering*, Vol. 38, No. 20, pp. 3513-3527.
- Al-Salloum, Y. and Siddiqi, H. (1993), "Optimum design of frames under alternate loading condition", *Canadian Journal of Civil Engineering*, Vol 20, No. 5, pp. 778-786.
- Al-Sarraf, S.Z. (1979), "Upper and lower bounds of elastic critical loads", *The structural Engineer*, Vol. 57, No. 12, pp. 415-420.
- Ambrose, J. (1997), "*Simplified Design of Steel Structures*", John Wiley & Sons, Inc., New York.
- Anderson, D. (1980), "Simple calculation of elastic critical loads for unbraced multi-story steel frames", *The Structural Engineer*, Vol. 58, No. 8, pp. 243-245.
- ANSYS. 5.3. (1996), "*ANSYS Users Manual*", ANSYS, Inc., Houston, USA.

- Appeltaure, J.W. and Barta, T.A. (1964), "Critical loads of plane frames", *Concrete and Constructional Engineering*, pp. 293-296.
- Arakawa, M. and Hagiwara, I. (1997), "Development of revised adaptive real range genetic algorithms" *Proceeding of the 2nd World Congress of Structural and Multidisciplinary Optimization 1*, In: Gutkowski, W.; Morz, Z. (ed.), Wydawnictwo Ekoinżynieria, pp 15-20, Lublin, Poland.
- Arora, J. S. (1989), "*Introduction to Optimum Design*", McGraw-Hill Book Company.
- Arora, J. S. and Govil, A.K. (1977), "An efficient method for optimal structural design by substructures", *Computers and Structures*, Vol. 7, pp. 507-515.
- Arora, J. S. and Huang, M. W (1996), "Discrete structural optimization with commercially available sections", *Structural Engineering/Earthquake Engineering*, Vol. 13, No. 2, pp.105-122.
- Arora, J.S., Haug, E. J. and Rim, K. (1975), "Optimal design of plane frames" *Journal of Structural Division, ASCE*, Vol. 101, No. 10, pp. 2063-2078.
- Arora, J.S., Huang, M.W. and Hsieh, C.C. (1994), "Methods for optimization of nonlinear problems with discrete variables: A review", *Structural Optimization*, No. 8, pp. 69-85.
- Awadalla, E.S. (1983), "Elastic critical load of multi-storey rigid frames", *Journal of Structural Engineering, ASCE*, Vol. 109, No. 5, pp. 1091-1106.
- Baker, J.E. (1985), "Adaptive selection methods for genetic algorithms", *Proceeding of the 3rd International Conference on Genetic Algorithms and Applications*, In: Grefenstette, J.J. (ed.), New Jersey, Lawrence Erlbaum: Hillsdale, pp. 100-111.
- Baker, J.E. (1987), "Reducing bias and inefficiency in the selection algorithm. J.J. Grefenstette", *Proceeding of the 2nd International Conference on Genetic Algorithms*, ed. By Grefenstette, J.J., New Jersey, Lawrence Erlbaum: Hillsdale, pp. 14-21.
- Balling, R. J. (1991), "Optimal steel frames design by simulated annealing", *Journal of Structural Engineering*, Vol. 117, No. 6, pp. 1780- 1795.
- Bathe, K. J. (1996), "*Finite Element Procedures*", Prentic Hall, Englewood Cliffs, New Jersey, U.S.A.
- Bigelow, R. H. and Gaylord, E. H. (1967), "Design of steel frames for minimum weight", *Journal of Structural Division, ASCE*, Vol. 93, No. St6, pp. 109-131.
- Bolton, A. (1955), "The critical load of portal frames when sidesway is permitted", *Structural Engineer*, Vol. 33, pp. 229-238.
- Bolton, A. (1976), "A simple understanding of elastic critical loads", *Structural Engineer*, Vol. 54, No. 6, pp. 213-218.
- Bowles, R.E. and Merchant, W. (1956), "Critical loads of tall building frames Part III", *Structural Engineer*, Vol. 36, pp. 324-329.

- Bowles, R.E. and Merchant, W. (1958), "Critical loads of tall building frames Part IV", *Structural Engineer*, Vol. 36, pp. 187-190.
- Brandt, A. M. (1989), "*Foundations of Optimum Design in Civil Engineering*", Martinus Nijhoff Publishers, London.
- Brebbia, C.A. and Ferrante, A.J. (1986), "*Computational Methods for the Solution of Engineering Problems*", Pentech Press, London.
- Bremicker, M., Papalambros, P.Y. and Loh, H.L. (1990), "Solution of mixed-discrete structural optimization problems with a new sequential linearization algorithm", *Computers and Structures*, Vol. 37, pp. 451-461.
- Brindle, A. (1981), "*Genetic Algorithms for Function Optimization*", Ph. D. thesis, Department of Computer Science of the University of Alberta, Canada.
- British Standard 449, (1969), "*Specification for the use of structural steel in building. Part 2. Metric units*", British Standard Institution.
- British Standards Institution, (1990), "*British Standard. Structural use of steelwork in building. Part 1. Code of practice for design in simple and continuous construction: Hot rolled sections*", BS 5950: Part 1.
- British Standards Institution, (1993), "*British Standard. Specification for hot-rolled sections*", BS 4: Part 1.
- British Standards Institution, (1995), "*British Standard. Loading for Building Part 2. Code of practice for wind loads*", BS 6399: Part 2
- British Standards Institution, (1996), "*British Standard. Loading for Building Part 1. Code of practice for dead and imposed loads*", BS 6399: Part 1.
- British Standards Institution. (1991), "*British Standard. Specification for circular hollow sections*" BS 4848: Part 2.
- Brown, D. M. and Ang, A. H. (1966), "Structural optimization by non-linear programming", *Journal of Structural Division, ASCE*, Vol. 92, No. ST6, pp. 319-340.
- Calafell, D. O. and Willmert, K. D. (1977), "Automated resizing optimization of generally loaded frames via linear programming techniques", *Proceedings of the symposium on application of computer methods in engineering*, University of Southern California, Los Angeles.
- Cameron, G. E, Xu, L and Grierson, D. E. (1991), "Discrete optimal design of 3D frameworks", *ASCE Structural Congress - 10th Electronic Computation Conference*, pp. 181-188, Indianapolis, Indiana.
- Cammaert, A. B. (1971), "*The Optimal Design of Multi-storey Frames Using Mathematical Programming*", Ph.D. thesis, University of Cambridge, Queens College, Cambridge, UK.

- Camp, C., Pezeshk, S. and Cao, G. (1998), "Optimized design of two-dimensional structures using a genetic algorithm" *Journal of Structural Engineering*, Vol. 124, No. 5, pp. 551-559.
- Carr, P. (1985), "Critical load program", *Civil Engineering, ASCE*, Vol. 55, pp. 62-64.
- Chajes, A. (1974), "*Principles of Structural Stability Theory*", Prentice-Hall Inc., Englewood Cliffs, New Jersey, U.S.A.
- Chan, C., Grierson, D. E. and Sherbourne, A. N. (1995), "Automatic optimal design of tall steel building frameworks" *Journal of Structural Engineering*, Vol. 121, No. 5, pp. 838-847.
- Chan, C., Sherbourne, A. N. and Grierson, D. E. (1994), "Stiffness optimization technique for 3D tall steel building frameworks under multiple lateral loadings", *Engineering Structures*, Nov., Vol.16, No.8, pp.570-576.
- Chang, C. and Liu, I. W. (1989), "Optimal design based on optimality criterion for frame structures including buckling constraint", *Computers and Structures*, Vol 31, No. 4, pp. 535-544.
- Chen, W.F., and Lui, E.M. (1991), "*Stability Design of Steel Frames*", CRC Press, Inc., Boca Raton, Florida.
- Chen, W.F., Goto, Y. and Richard J.Y. (1996), "*Stability Design of Semi-Rigid Frames*". John Wiley & sons, Inc., New York.
- Coates, R.C. and Kong, F.K. (1988), "*Structural Analysis*", Van Nostrand Reinhold Co. LTD., Wokingham, Berkshire, England.
- Cornell, C. A. (1966), "*Examples of Optimization in Structural Design*", Report R65-26, University of Waterloo, Canada.
- CSC (UK) Ltd. (1998), "*S-Frame 3D/2D Analysis*", Product bulletin No. [PFR/1.0/03].
- Darwin, C. (1929), "*The Origin of Species by Means of Natural Selection or the Preservation of Favored Races in the Struggle for Life*", The Book League of America. Originally published in 1859.
- Davis, L. (1991), "*Handbook of Genetic Algorithms*", Van Nostrand Reinhold, New York.
- DeJong, K.A. (1975), "*Analysis of the Behaviour of a Class of Genetic Adaptive Systems*", Ph.D. thesis, University of Michigan, Ann Arbor.
- Ding, Y. and Esping, D. J. (1986), "Optimum design of beams with different cross sectional shapes", *Computers and Structures*, Vol. 24, pp. 707-726.
- Duan, L. and Chen, W.F. (1988), "Effective length factor for columns in braced frames", *Journal of structural Engineering, ASCE*, Vol. 114, No. 10, pp. 2357-2370.
- Duan, L., and Chen, W.F. (1989), "Effective length factor for columns in unbraced frames", *Journal of structural Engineering, ASCE*, Vol. 115, No. 1, pp. 149-165.

- Elperin, T. (1988), "Monte Carlo structural optimization in discrete variables with annealing algorithm", *International Journal of Numerical Methods in Engineering*, Vol. 26, pp. 815-821.
- Eshelman, L.J. and Schaffer, J.D. (1993), "Real-coded genetic algorithms and terval-schemata" In: WHITLY, L.D. (ed), *Foundation of Genetic Algorithms 2*, pp. 187-202, San Mateo, California, Morgan Kaufmann. Publishers, Inc.
- Eshelman, L.J., Caruana, R. A. and Schaffer, J. D. (1989), "Biases in the crossover landscape", *Proceeding of the 3rd Genetic Algorithms Conference*, pp. 11-19, San Mateo, California: Morgan Kaufman Publishers, Inc.
- Essa, H.S. (1997), "Stability of columns in unbraced frames", *Journal of Structural Engineering*, Vol. 123, No. 7, pp. 952-957.
- Euler, L. (1759), "Sur la force des colonnes", *Memoires de l' Académie de Berlin*, Berlin.
- Fiacco, V. And McCormick, G. P. (1968), "*Nonlinear Programming: Sequential Unconstrained Minimization Techniques*", John Wiley, New York.
- Fletcher R. (1993), "*Practical Methods of Optimization*", John Wiley & Sons, New York.
- Fletcher, R. (1975), "An ideal penalty function for constrained optimization", *Journal of the Institute of Mathematics and its Applications*, No. 15, pp. 319-342.
- Frbatur, F. and Al-Hussainy, M. M. (1992), "Optimum design of frames", *Computers and Structures*, Vol. 45, No. 5-6, pp. 887-891.
- Galambos, T.V. (1968), "*Structural Members and Frames*". Prentice-Hall, Inc., Englewood Cliffs, New Jersey.
- Galambos, T.V. (1988), "*Guide to Stability Design Criteria for Metal Structures*", John Wiley & Sons, Inc., New York
- Galante, M. (1996), "Genetic algorithms as a approach to optimize real world trusses", *International Journal for Numerical Methods in Engineering*, Vol. 39, pp. 361-382.
- Gallagher, R.H. and Gellatly, R. A. (1966), "Automated Minimum weight Design of Framework Structures", *International Symposium on the Use of Computer in Structural Engineering*, University of Newcastle, UK.
- Ghasemi, M. R. (1996), "*Structural Optimization of Trusses and Axisymmetric Shells Using Gradient-Based Methods and Genetic Algorithm*", Ph.D thesis, University of Wales, Swansea, UK.
- Goldberg, D. E. and Deb, K. (1991), "A comparison of selection schemes used in genetic algorithms", In: Rawlins G. E. (ed), *Foundation of Genetic Algorithms*, pp. 69-93, Morgan Kaufmann, San Mateo, California.
- Goldberg, D.E. (1989), "*Genetic Algorithms in Search, Optimization and Machine Learning*", Addison-Wesley, Reading, MA.

- Goldberg, D.E. (1990), "*Real-Coded Genetic Algorithms, Virtual Alphabets and Blocking*", Technical report 90001, University of Illinois at Urbana-Champaign, Urbana, Illinois.
- Goldberg, J.E. (1968), "Lateral buckling of braced multistory frames", *Journal of the Structural Division, ASCE*, Vol. 94, No. ST12, paper 2963.
- Goto, Y. and Chen, W.F. (1987), "Second-order elastic analysis for frame design", *Journal of Structural Engineering, ASCE*, Vol. 113, No. 4, pp. 1501-1519.
- Graves Smith, T.R. (1983), "*Linear Analysis of Frameworks*", Ellis Horwood Limited, Chichester, England.
- Grierson, D. E. (1996). "Automated conceptual design of structural systems", In: Topping, B. H. V. (ed.), *Advances in Computational Structures*, pp. 157-162, Civil-Comp Press, Edinburgh.
- Grierson, D. E. and Chan, C. M. (1993), "Optimality criteria design method for tall steel buildings", *Advances in Engineering Software*, Vol. 16, No. 2, pp.119-125.
- Grierson, D. E. and Pak, W. H. (1993), "Discrete optimal design using a genetic algorithm", In: Bendsoe, M.P. and Mota Soares, C.A. (eds.), *Topology Design of Structures*, pp. 89-102, Kluwer Academic Publishers, The Netherlands.
- Gulay, G. and Boduroglu, H. (1989), "An algorithm for the optimum design of braced and unbraced steel frames under earthquake loading", *Earthquake Engineering and Structural Dynamics*. Vol. 18, pp. 121-128.
- Haftka, R. T. and Gurdal, Z. (1993), "*Elements of Structural Optimization*", Kluwer Academic Publishers, London.
- Haftka, R.T. and Starnes, J.H. (1976), "Applications of a quadratic extended interior penalty function for structural optimization", *AIAA Journal*, Vol. 14, No. 6, pp. 718-724.
- Hajela, H. and Yoo, J. (1995), "Constraint handling in genetic search – a comparative study", *Proceeding of the 36th Structures, Structural Dynamics and Material Conference, AIAA/ASME/ASCE/AHS*, New Orleans, Vol. 4, pp. 2176-2186, AIAA, Reston.
- Hajela, P. (1989), "Genetic search – an approach to the nonconvex optimization problem", *Proceeding of the 30th conference AIAA/ASME/ASCE/AHS/ASC Structures, Structural dynamics and Materials*, Mobile, Atlanta, pp. 165-175, AIAA, Reston.
- Hajela, P. (1990), "Genetic search – an approach to nonconvex optimization problem", *AIAA Journal*, Vol. 28, No 7, pp. 1205-1210.
- Hajela, P. and Lin, C.Y. (1992a), "Genetic search strategies in multicriterion optimal design", *Structural Optimization*, Vol. 4, pp. 99-107.
- Hajela, P. and Lin, C.Y. (1992b), "Genetic Algorithms in optimization problems with discrete and integer design variables", *Engineering Optimization*, Vol. 19, pp. 309-327.

- Hajela, P. and Lin, C.Y. (1993a), "Genetic search strategies in large scale optimization", *Proceeding of the 34th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, AIAA/ASME, Adaptive Structures Forum*, April, la Jolla, CA.
- Hajela, P. and Lin, C.Y. (1993b), "Evolve: A genetic search based optimization code with multiple strategies", *Proceeding of the 3rd International Conference on Computer Aided Optimum Design of Structures*, pp. 639-654.
- Hajela, P. and Shih, C.J. (1990), "Multiobjective optimum design in mixed integer and discrete design variable problems", *AIAA Journal*, Vol. 28, pp. 670-675.
- Hashemi, H.B. (1993), "A Consistent Approach to the Buckling Design Analysis of Rigid Jointed Steel-Frames", Ph.D. Thesis, University College London, University of London.
- Hayalioglu, M. S. and Saka, M. P. (1992), "Optimum design of geometrically nonlinear elastic-plastic steel frames with tapered members", *Computers and Structures*, Vol. 44, No. 4, pp. 915-924.
- Hernandez, S. (1998), "Optimum design of steel structures", *Journal of Construction Steel Research*, Vol. 46, No. 1-3, pp. 374-378.
- Holland, J.H. (1975), "Adaptation in Natural and Artificial Systems", University of Michigan, Ann Arbor.
- Holland, J.H. (1992), "Adaptation in Natural and Artificial Systems. An Introductory Analysis with Applications to Biology, Control and Artificial Intelligence", MIT press.
- Horne M.R. (1975), "An approximate method for calculating the elastic critical loads of multi-story plane frames", *Structural Engineer*, Vol. 63, No. 6, pp. 242-248.
- Huang, M. W. and Arora J. S. (1995), "Engineering optimization with discrete variables", *Proceeding of the 36th Conference AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials*, New Orleans, pp. 1475-1485 AIAA, Reston.
- Huang, M. W. and Arora, J. S. (1997), "Optimal design of steel structures using standard sections", *Structural Optimization*, No. 14, pp. 24-35.
- Jenkins, W. M. (1997), "On the application of natural algorithms to structural design optimization", *Engineering Structures*, Vol. 19, No. 4, pp. 302-308.
- John, K.V., Ramakrishnan, C.V. and Sharma, K.G. (1988), "Optimum design of trusses from available sections-use of sequential linear programming with branch and bound algorithm", *Engineering Optimization*, Vol. 13, pp. 119-145.
- Karihaloo, B. L. and Kanagasundaram S. (1989), "Minimum weight design of structural frames", *Computers and Structures*, Vol. 31, No. 5, pp. 647-655.
- Khan, M.R., Willmert, K. D. and Thornton, W. A. (1979), "An optimality criterion method for large scale structures", *AIAA Journal*, Vol. 17, pp. 753-761.

- Khumbah, F.M (1992), "*Instability of Three-Dimensional Frameworks*", Ph.D Thesis, University of Southampton, UK.
- Kincaid, R.K. and Padula, S.L. (1990), "Minimising distortion and internal forces in truss structures by simulated annealing", *Proceeding of the AIAA/ASME/ASCE/AHS/ASC 31st Structures, Structural Dynamics, and Materials Conference*, Long Beach, CA., Part 1, pp. 327-333.
- Kirsch, U. (1993), "*Structural Optimization: Fundamental and Application*", Springer-Verlag, London.
- Kirsch, U., Reiss, M. and Shamir, U. (1972), "Optimum design by partitioning into substructures", *Journal of Structural Division*, No. St1, pp. 249-267.
- Kishi, N. Chen, W.F. and Goto, Y. (1997), "Effective length factor of columns in semirigid and unbraced frames", *Journal of Structural Engineering*, Vol. 123, No. 3, pp. 313-320.
- Koza, J. R. (1992), "*Genetic programming. On the Programming of Computers by Means of Natural Selection*", MIT press.
- Kuhn, H. W. and Tucker, A. W. (1951), "Nonlinear programming", *Proceedings of the 2nd Berkeley Symposium on Mathematics, Statistics and Probability*, University of California Press, Berkeley, California, pp. 481-492.
- Lamarle, E. (1846), "*Mémoire sur la flexion du bois*", *Annuaire Des Travaux Publiques de Belgique*.
- Land, A.M. and Doig, A.G. (1960), "An automatic method of solving discrete programming problems", *Econometrica*, Vol. 28, pp. 497-520.
- Lassen, T. (1993), "Optimum design of three-dimensional framework structures", *Journal of Structural Engineering*, Vol. 119, No.3, pp.713-727.
- Leite, J.P. and Topping, B.H.V. (1996), "Parallel simulated annealing models for structural optimization" In: Topping, B.H.V. (ed.), *Advances in Computational Structures Technology*, pp. 411-427, Civil-comp. Press, Edinburgh.
- Livesley, R.K. and Chandler, D.B. (1956), "*Stability Functions for Structural Frameworks*", University Press, Manchester.
- Lokkas, P. (1996), "*A Consistent Approach to the Buckling Design Analysis of Rigid Jointed Steel-Frames Subject to Sidesway*". Ph.D Thesis, University College London, University of London.
- Lokkas, P. and Croll, J.G. (1998), "Experimental investigation of combined sway and non-sway buckling of frames", Allison, I.M. (ed.), *Experimental Mechanics. Advances in Design, Testing and Analysis. Proceeding of the 11th International Conference on Experimental Mechanics*, Oxford, Vol. 1, pp. 341-348, A.A. Balkema, Rotterdam
- MacGinley, T.J. (1997), "*Steel Structures: Practical Design Studies*", E & FN Spon, London.

- MacLeod, I.A. and Zalka, K. A. (1996), "The global critical load ratio approach to stability of building structures", *The Structural Engineer*, Vol. 74, No. 16, pp. 249-254.
- Mahfouz, S.Y. (1993), "*Stability of Steel Structure Frameworks*", M.Sc. Thesis. Military Technical College, Cairo, Egypt.
- Mahfouz, S.Y., Salem, A.H. and Raslan, M.S. (1994), "Best location of stiff elements in multi-bay frameworks for maximum buckling strength", *Annual Conference of the Canadian Society for Civil Engineering*, Winnipeg, Manitoba, Canada, P. 512-541.
- Mahfouz, S.Y., Salem, A.H. and Raslan, M.S. (1994), "Optimum location and proportioning of stiff elements in multistory frameworks for maximum buckling strength", *Second Alexandria Conference on Structural and Geotechnical Engineering*, pp. 611-626.
- Mahfouz, S.Y., Toropov, V.V. and Westbrook, R.K. (1998a), "Improvements in the performance of a genetic algorithm: application to steelwork optimum design", *Proceedings of 7th AIAA /USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization*, pp. 2037-2045.
- Mahfouz, S.Y., Toropov, V.V. and Westbrook, R.K. (1998b), "Optimum design of steelwork using a genetic algorithm", In: Parmee, I. (ed.), *Poster Proceedings of Adaptive Computing in Design and Manufacture*, pp. 13-16.
- Mahfouz, S.Y., Toropov, V.V. and Westbrook, R.K. (1999), "Modification, tuning and testing of a GA for structural optimization problems", In: Toropov, V. (ed.), *Proceedings of 1st AMSO UK/ISSMO Conference on Engineering Design Optimization*, pp. 271-278.
- Majid, K. I., and Elliott, D.W. (1971), "Optimum design of frames with deflection constraints by non-linear programming", *Structural Engineer*, Vol. 49, No. 4, pp. 179-188.
- May, S.A. and Balling, R. J. (1992), "A filtered simulated annealing strategy for discrete optimization of 3D steel frameworks", *Structural Optimization*, No. 4, pp. 142-146.
- McCormac, J. C. (1995), "*Structural Steel Design*", Harper Collins College Publishers, New York.
- McMinn, S.J. (1961), "The determination of the critical loads of plane frames", *Structural Engineer*, Vol. 39, pp. 221-227.
- Merchant, W. (1955), "Critical loads of tall building frames", *Structural Engineering*, London.
- Mesquita, L. and Kamat, M. (1987), "Optimization of stiffened laminated composite plates with frequency constraints", *Engineering Optimization*, No. 11, pp. 77-88.
- Metropolis, N., Rosenbluth, A.W., Rosenbluth, M. N., Teller, A. H. and Teller, E. (1953), "Equation of state calculations by fast computing machines", *Journal of Chemical Physics*, Vol. 21, No. 6, pp. 1087-1092.

- Michalewicz, Z. (1996), "*Genetic Algorithm + Data Structures = Evolution Programs*", Springer-Verlag, New York.
- Moe, J. (1973), "Penalty function methods in optimum structural design – theory and applications", In: Gallagher, R.H. (ed.), *Optimum Structural Design*, pp. 143-177, John Wiley, London.
- Muhlenbein, H. and Schlierkamp-Voosen, D. (1993), "Predictive models for the breeder genetic algorithm I. Continuous parameter optimization", *Evolutionary Computation*, Vol. 1, No. 1, pp. 25-49.
- Musschenbroek P. Van. (1729), "*Introductio da Cohaerentiam Corporum Firmorum*", Lugduni.
- Nakamura, Y. (1966), "*Optimum Design of Framed Structures using Linear Programming*", M.Sc. Thesis, Department of Civil Engineering, Massachusetts Institute of Technology, Cambridge, Mass.
- Nethercot, D.A. (1995), "*Limit States Design of Structural Steelwork*", Chapman & Hall, London.
- Norusis, M.J. (1996), "*SPSS: Guide to Data Analysis*", Prentice Hall, Inc., New Jersey.
- Owens, G.W., Knowles, P.R. and Dowling, P.J. (1992), "*Steel Designers' manual*", 5th Edition, The Steel Construction Institute, Oxford, Blackwell Scientific Publication, London.
- Palmer, A. C. (1968), "Optimal structure design by dynamic programming", *Journal of Structural Division, ASCE*, Vol. 94, No. ST8, pp. 1887-1906.
- Press, W.H., Teukolsky, S.A., Vetterling W.T. and Flannery, B.R. (1992), "*Numerical Recipes in Fortran: The Art of Scientific Computing*", Cambridge University Press, Cambridge.
- Prezemieniecki, J.S. (1968), "*Theory of Matrix Structural Analysis*", McGraw-Hill Book Company, New York.
- Quagliarella, D., Periaux, J., Poloni, C. and Winter, G. (1998), "*Genetic Algorithms and Evolution Strategies in Engineering and Computer Science*", John Wiley & Sons, London.
- Rajeev, S. and Krishnamoorthy, C. S. (1992), "Discrete optimization of structures using genetic algorithms", *Journal of Structural Engineering, ASCE*, Vol 118, No. 5, pp. 1233-1250.
- Ringertz, U.T., (1988), "On methods for discrete structural optimization", *Engineering Optimization*, No. 13, pp. 47-64.
- Reinschmidt, K. (1971), "Discrete structural optimization", *Journal of Structural Division, ASCE*, Vol. 94, pp.133-156.
- Reklaitis, G.V., Ravindran, A. and Ragsdell, K.M. (1983), "*Engineering Optimization: Methods and Applications*", John Wiley & Sons, New York.

- Renton, J.D. (1967), "Buckling of frames composed of thin-walled members", In: A.H. Chilver (ed.), *Thin-Walled Structures*, pp. 1-5, John Wiley & Sons, New York.
- Saka, M. P. (1991), "Optimum design of steel frames with stability constraints", *Computers and Structures*, Vol. 41, No. 6, pp.1365-1377.
- Saka, M. P. (1997), "Optimum design of steel frames with tapered members", *Computers and Structures*, Vol. 63, No. 4, pp.797-811.
- Saka, M. P. (1998), "Optimum design of grillage systems using genetic algorithms", *Computer-Aided Civil and Infrastructure Engineering*, Vol. 13, No. 4, pp.297-302.
- Saka, M. P. and Hayalioglu, M.S. (1991), "Optimum design of geometrically nonlinear elastic-plastic steel frames", *Computers and Structures*, Vol. 38, No. 3, pp. 329-344.
- Saka, M. P., and Kameshki, E. S. (1998), "Optimum design of unbraced rigid frames", *Computers and Structures*, Vol. 69, No. 4, pp. 433-442.
- Salajegheh, E. and Vanderplaats, G.N. (1993), "Optimum design of trusses with sizing and shape variables", *Structural Optimization*, No. 6, pp. 79-84.
- Salajegheh, E. (1995), "Optimum design of structures with reference to space structures", *International Journal of Space Structures*, Vol. 10, No. 4, pp.205-214
- Salajegheh, E. (1996), "Approximate discrete variable optimization of frame structures with dual methods", *International Journal for Numerical Methods in Engineering*, Vol. 39, pp. 1607-1617.
- Salajegheh, E. (1997), "Structural optimization using response approximation and optimality criteria methods", *Engineering Structures*, Vol. 19, No. 7, pp.527-532.
- Salem, A.H. (1968), "The sway critical loads of multi-storey frames with varying column sections and loaded at intermediate floor levels", Bulletin No. 4., Faculty of Engineering, Ain Shams University, Cairo, Egypt.
- Salem, A.H. (1973), "Stability of unbraced single-bay multi-storey frames", *Journal of Structural Division, ASCE*, Vol. 99, No. St2, paper 9552.
- Sandgren, E. (1990), "Nonlinear integer and discrete programming in mechanical design optimization", *ASME Journal of Mechanic design*, Vol. 112, pp. 223-229.
- Schittkowski, K., Zillober, C. and Zotemantel, R. (1994), "Numerical comparison of nonlinear programming algorithms for structural optimization", *Structural Optimization*, No. 7, pp. 1-19.
- Seegerlind, L.J. (1984), *Applied Finite Element Analysis*, John Wiley & sons, New York.
- Shin, D.K., Gurdal, Z. and Griffin, O.H. (1990), "A penalty approach for nonlinear optimization with discrete design variables", *Engineering Optimization*, No. 16, pp. 29-44.

- Simitses, G.J. and Vlahinos, A.S. (1986), "Sway buckling of unbraced multi-storey frames", *Computers & Structures*, Vol. 22, No. 6, pp. 1047-1054.
- Simoes, L. M. (1996), "Optimization of frames with semi-rigid connections", *Computers and Structures*, Vol. 60, No. 4, pp. 531-539.
- Smith, R.B., and Merchant, W. (1956), "Critical loads of tall building frames, Part. II", *Structural Engineer*, Vol. 34, No. 8, pp. 187-292.
- Sobieszanski-Sobieski, J. and Haftka, R.T. (1997), "Multidisciplinary aerospace design optimization: Survey of recent developments", *Structural Optimization*, Vol. 14, pp. 1-23.
- Soegiarso, R. and Adeli, H. (1997), "Optimum load and resistance factor design of steel space-frames structures", *Journal of Structural Engineering*, Vol. 123, No. 2, pp. 184-192.
- Stevens, L.K. (1967), "Elastic stability of practical multi-storey frames", *Proceedings Institute of Civil Engineers, ICE*, Vol. 36, pp. 99-117.
- Syswerda, G. (1989), "Uniform crossover in genetic algorithms", *Proceeding of the 3rd International Conference on Genetic Algorithms*, pp. 2-9, Morgan Kaufman Publisher, Inc., CA.
- Takewaki, I., Conte, J.P., Mahin, S.A. and Pister, K. S. (1991), "Probabilistic multi-objective optimal design of seismic resistance braced steel frames using ARMA models", *Computers and Structures*, Vol. 41, No. 4, pp. 687-707.
- The Steel Construction Institute (1988), "*SCI.P.069: Introduction to Steelwork Design to BS 5950: Part 1*", The Steel Construction Institute, UK.
- The Steel Construction Institute. (1985), "*Steelwork Design Guide to BS 5950: Part 1, Section Properties, Member Capacities Vol. 1*", The Steel Construction Institute, UK.
- Timoshenko, S. and Gere, J.M. (1963), "*Theory of Elastic Stability*", McGraw Hill, Inc., New York.
- Toropov, V.V. and Alvarez, L.F. (1998), "Approximation model building for design optimization using genetic programming methodology", *7th AIAA/USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization*, Part 1, pp. 490-498, AIAA, St. Louis, USA.
- Toropov, V.V., Mahfouz, S.Y. and Westbrook, R.K. (1999), "Discrete design optimization of 3-dimensional steel structures using a genetic algorithm", *3rd World Congress of Structural and Multidisciplinary Optimization*, Buffalo, NY, USA, May.
- Vanderplaats, G. N. (1984), "*Numerical Optimization Techniques for Engineering Design*", McGraw-Hill, Inc., London.
- Vanderplaats, G. N. and Salajegheh, E. (1989), "New approximation method for stress constraints in structural synthesis", *AIAA Journal*, Vol. 27, No. 3, pp. 352-358.

- Vanderplaats, G. N., and Salajegheh, E. (1993), "Efficient optimum design of structures with discrete design variables", *Space Structures*, Vol. 8, No. 3, pp. 199-208.
- Vanderplaats, G. N., and Thanedar, P.B. (1991), "A survey of discrete variable optimization for structural design", *Proceeding of the 10th ASCE Congress Conference on Electronic Computation*, pp. 173-180, Indianapolis, Indiana.
- Vanderplaats, G.N., and Sugimoto, H. (1986), "A general-purpose optimization program for engineering design", *Computers and Structures*, Vol. 24, No. 1, pp. 13-21.
- Wang, L. and Grandhi, R. (1994), "Optimal design of frame structures using multi-point spline approximation", *AIAA Journal*, Vol. 32, No. 10, pp. 2090-2098.
- Water, H. (1964 b), "A direct approximation to the critical loads of rigidly jointed plane structures", *Civil Engineering*, Vol. 59, pp. 355-357.
- Water, H. (1964a), "A direct approximation to the critical loads of rigidly jointed plane structures", *Civil Engineering*, Vol. 59, pp. 193-196.
- White, D.W. and Clarke, M.J. (1997), "Design of beam-columns in steel frames. I: Philosophies and procedures", *Journal of Structural Engineering*, Vol. 123, No. 12.
- Williams, F.W. and Sharp, G. (1990), "Simple elastic critical load and effective length calculations for multi-storey rigid sway frames", *Proceedings Institute of Civil Engineers*, Part 2, No. 89, pp. 279-287.
- Wood, R.H. (1974a), "Effective lengths of columns in multi-storey building, Part 1". *Structural Engineer*, Vol. 52, No. 7, pp. 235-244.
- Wood, R.H. (1974b), "Effective lengths of columns in multi-storey building, Part 2". *Structural Engineer*, Vol. 52, No. 7, pp. 295-302.
- Wood, R.H. (1974c), "Effective lengths of columns in multi-storey building, Part 3". *Structural Engineer*, Vol. 52, No. 7, pp. 341-346.
- Wright, A.H., (1991), "Genetic algorithms for real parameter optimization", In: Rawlins G. E. (ed), *Foundation of Genetic Algorithms*, pp. 69-93, Morgan Kaufmann, San Mateo, California.
- Xie, Y.M., and Steven, G.P. (1997), "*Evolutionary Structural Optimization*", Springer, London.
- Xu, L. and Grierson, D. E. (1993), "Computer-automated design of semi-rigid steel frameworks", *Journal of Structural Engineering*, Vol. 119, No. 6, pp. 1740-1760.
- Yunkiang, D. (1989), "Multilevel optimization of frames with beams including buckling constraints", *Computers and Structures*, Vol. 32, No. 2, pp. 249-261.