References

[1] K. Alvin, H. M. de la Fuente, B. Haugen and C. A. Felippa, Membrane triangles with corner drilling freedoms: I. The EFF element. *Finite Elements in Analysis & Design*, **12**, 167-188, 1992.

[2] J. H. Argyris, Continua and Discontinua, *Proceedings 1st Conference on Matrix Methods in Structural Mechanics*, AFFDL-TR-66-80, Air Force Institute of Technology, Dayton, Ohio, 1965.

[3] J. H. Argyris, H. Balmer, J. St. Doltsinis, P. C. Dunne, M. Haase, M. Klieber, G. A. Malejannakis, J. P. Mlejenek, M. Muller, and D. W. Scharpf, Finite element method – the natural approach, *Comput. Methods Appl. Mech. Engrg.*, **17/18**, 1-106, 1979.

[4] J. H. Argyris, An Excursion into Large Rotations, *Comput. Methods Appl. Mech. Engrg.*, **32**, 85-155, 1985.

[5] K. J. Bathe and A. P. Cimento, Some practical procedures for the solution of nonlinear finite element equations, *Comp. Methods Appl. Mech. Engrg.*, **22**, 59-85, 1980.

[6] K. J. Bathe and E. N. Dvorkin, On the automatic solution of nonlinear finite element equations, *Computer and Structures*, **17**, 871-879, 1983.

[7] K. J. Bathe and E. N. Dvorkin, A four-node plate bending element based on Mindlin-Reissner plate theory and a mixed interpolation, *Int. J. Numer. Methods Engrg.*, **21**, 367-383, 1985.

[8] J. L. Batoz and G. Dhatt, Incremental displacement algorithms for nonlinear problems, *Int. J. Numer. Methods Engrg.*, **14**, 1262-1266, 1979.

[9] G. B. Bazeley, Y. K. Cheung, B. M. Irons and O. C. Zienkiewicz, Triangular elements in plate bending – conforming and nonconforming solutions, *Proceedings 1st Conference on Matrix Methods in Structural Mechanics*, AFFDL-TR-66-80, Air Force Institute of Tecnology, Dayton, Ohio, 547-584, 1966.

[10] T. Belytschko and B. J. Hsieh, Non-linear transient finite element analysis with convected co-ordinates, *Int. J. Numer. Methods Engrg.*, **7**, 255-271, 1973.

[11] P. G. Bergan and L. Hanssen, A new approach for deriving "good" finite elements, MAFELAP II Conference, Brunel University, 1975, in *The Mathematics of Finite Elements and Applications – Volume II,* ed. by J. R. Whiteman, Academic Press, London, 483-497, 1976.

[12] P. G. Bergan and G. Horrigmoe, Incremental variational principles and finite element models for nonlinear problems, *Comput. Methods Appl. Mech. Engrg.*, **7**, 201-217, 1976.

[13] P. G. Bergan, I. Holand and T. H. Søreide, Use of the current stiffness parameter in solutions of nonlinear problems, In: R. Glowinski, E. Y. Rodin and O. C. Zienkiewicz (Eds.), *Energy Methods in Finite Element Analysis*, John Wiley & Sons, London, 1979.

[14] P. G. Bergan and M. K. Nygård, Finite elements with increased freedom in choosing shape functions, *Int. J. Numer. Methods Engrg.*, **20**, 643-664, 1984.

[15] P. G. Bergan and C. A. Felippa, A triangular membrane element with rotational degrees of freedom, *Comput. Methods Appl. Mech. Engrg.*, 1985.

[16] P. G. Bergan and M. K. Nygård, Nonlinear shell analysis using Free Formulation finite elements, in *Finite Element Methods for Nonlinear Problems*, Springer Verlag, Berlin, 317-338, 1989.

[17] R. O. Bjærum, Finite element formulations and solution algorithms for buckling and collapse analysis of thin shells. *Dr. Ing. Thesis,* Div. of Structural Mechanics, Norwegian Institute of Technology, Trondheim, Norway, 1992.

[18] R. L. Burden and J. D. Faires, *Numerical Analysis*, 4th ed., PWS-KENT Publishing Company, 1988.

[19] A. Cardona, An integrated approach to mechanism analysis, *Ph.D thesis*, University of Liege, Belgium, 1989.

[20] M. A. Crisfield, A fast incremental/iterative solution procedure that handles "snap-through", *Computers and Structures* , **13**, 55-62, 1981.

[21] M. A. Crisfield, Accelerating and damping the modified Newton-Raphson method, *Computers and Structures*, **18**, 395-407, 1984.

[22] M. A. Crisfield, A consistent co-rotational formulation for nonlinear three-dimensional beam element, *Comput. Methods Appl. Mech. Engrg.*, **81**, 131-150, 1990.

[23] P. H. Feenstra and J. C. J. Schellekens, Self-adaptive solution algorithm for a constrained newton-raphson method, TNO Building and Construction Research, Report nr. BI-91-124, TNO-Bouw, Delft, The Netherlands, 1991.

[24] C. A. Felippa, Refined finite element analysis of linear and nonlinear two-dimensional structures, *Ph.D Dissertation*, Department of Civil Engineering, University of California, Berkeley, CA, 1966.

[25] C. A. Felippa, Parametrized multifield variational principles in elasticity: I. Mixed functionals, *Comm. Appl. Numer. Methods*, **5**, 79-88, 1989.

[26] C. A. Felippa, Parametrized multifield variational principles in elasticity: II. Hybrid functionals and the free formulation, *Comm. Appl. Numer. Methods*, **22**, pp 79-88, 1989.

[27] C. A. Felippa and C. Militello, Membrane triangles with corner drilling freedoms: II. The ANDES element, *Finite Elements in Analysis & Design*, **12**, 189-201, 1992.

[28] C. A. Felippa and S. Alexander, Membrane triangles with corner drilling freedoms: III. Implementation and performance evaluation. *Finite Elements in Analysis & Design*, **12**, 203-239, 1992.

[29] C. A. Felippa, B. Haugen and C. Militello, From the individual element test to finite element templates: Evolution of the patch test, accepted for publication in *Int. J. Numer. Meth. Engrg.*

[30] B. M. Fraeijs de Veubeke, The dynamics of flexible bodies, *Int. J. Engrg. Sci.*, Pergamon Press, 895-913, 1976.

[31] I. Fried, Orthogonal trajectory accession on the non linear equilibrium curve, *Comput. Methods Appl. Mech. Engrg.*, **47**, 283-297, 1984.

[32] F. Gruttmann, E. Stein and P. Wriggers, Theory and numerics of thin elastic shells with finite rotation, *Ing. Arch.*, **59**, 54-67, 1989.

[33] B. Haugen and C. A. Felippa, A tetrahedron element with rotational degrees of freedom based on the ANDES-formulation, *Internal report*, 1992.

[34] G. Horrigmoe and P. G. Bergan, Instability analysis of free-form shells by flat finite elements, *Comput. Methods Appl. Mech. Engrg.*, **16**, 11-35, 1978.

[35] A. Hrennikoff, Solution of problems of elasticity by a framework method, *J. Appl. Mech.*, **8**, 169-175, 1941.

[36] H. C. Huang and E. Hilton, A new nine node degenerated shell element with enhanced membrane and shear interpolation, *Int. J. Numer. Methods Engrg.*, **22**, 73-92, 1986.

[37] J. V. Huddlestone, Finite deflections and snap-through of high circular arches, *J. Appl. Mech.*, ASME, **35**, 763-769, 1968.

[38] T. J. R. Hughes, *The Finite Element Method: Linear Static and Dynamic Finite Element Analysis*, Prentiss-Hall, Englewood Cliffs, N.J., 1987.

[39] B. M. Irons and S. Ahmad, *Techniques of Finite Elements*, Ellis Horwood Limited, Chichester, 1980.

[40] E. Levold, Solid mechanics and material models including large deformations, *Dr. Ing. Thesis,* Div. of Structural Mechanics, Norwegian Institute of Technology, Trondheim, Norway, 1990.

[41] R. H. MacNeal, Derivation of element stiffness matrices by assumed strain distribution, *Nuclear Engrg. Design*, **70**, 3-12, 1978.

[42] K. M. Mathisen, Large displacement analysis of flexible and rigid systems considering displacement-dependent loads and nonlinear constraints. *Dr. Ing. Thesis,* Div. of Structural Mechanics, Norwegian Institute of Technology, Trondheim, Norway, 1990.

[43] K. M. Mathisen, T. Kvamsdal and K. M. Okstad, Adaptive strategies for nonlinear finite element analysis of shell structures, In: *Numerical Methods in Engineering '92,* C. Hirchs et al. (Eds.), Elsevier Science Publishers B. V., 1992.

[44] C. Militello and C. A. Felippa, Variational formulation of high performance finte elements: Parametrized variational principles, *Computers and Structures,* **36**, 1990, 1990.

[45] C. Militello, Application of parametrized variational principles to the finite element method. *Ph.D Dissertation*, Department of Aerospace Engineering Sciences, University of Colorado, Boulder CO, 1991.

[46] B. Nour-Omid and C. C. Rankin, Finite rotation analysis and consistent linearization using projectors, *Comput. Methods App. Mech.*, **93**, 353-384, 1991.

[47] M. K. Nygård, The free formulation for nonlinear finite elements with application to shells, *Dr. Ing. Thesis,* Div. of Structural Mechanics, Norwegian Institute of Technology, Trondheim, Norway, 1986.

[48] H. Parisch, An investigation of a finite rotation four node assumed strain shell element, *Int. J. Numer. Methods Engrg.*, **31**, 127-150, 1991.

[49] K. C. Park and G. M. Stanley, A curved C^0 shell element based on assumed natural-coordinate strains, *J. Appl. Mech.*, **53**, 278-290, 1986.

[50] D. Perić and D. R. J. Owen, The Morley thin shell finite element for large deformations problems: Simplicity versus sophistication. *Proc. 4th Int. Conf. on Nonlin. Engrg. Comput. (NEC-91)*, 121-142, 1991.

[51] E. Ramm, Strategies for tracing the nonlinear response near limit points. In: W. Wunderlich, E. Stein and K. J. Bathe (Eds.), *Nonlinear Finite Element Analysis in Structural Mechanics*, Springer-Verlag, Berlin and Heidelberg, 63-89, 1981.

[52] C. C. Rankin and F. A. Brogan, An element-independent corotational procedure for the treatment of large rotations, *ASME J. Pressure Vessel Technology*, **108**, 165-174, 1986.

[53] C. C. Rankin and B. Nour-Omid, The use of projectors to improve finite element performance, *Computers and Structures*, **30**, 257-267, 1988.

[54] E. Riks, The application of Newton's method to the problem of elastic stability, *J. Appl. Mech.*, **39**, 1060-1066, 1972.

[55] E. Riks, Bifurcation and stability, a numerical approach. In: W. K. Liu, T. Belytschko and K. C. Park (Eds.), *Innovative Methods for Nonlinear Problems*, Pineridge Press Ltd., Swansea, 313-344, 1984.

[56] P. Sharifi and E. P. Popov, Nonlinear buckling analysis of sandwich arches, *Proc. ASCE, J. Engrg. Div.*, **97**, 1397-1412, 1971.

[57] J. C. Simo, A finite strain beam formulation. The tree dimensinonal dynamic problem. Part I., *Comput. Methods Appl. Mech. Engrg.*, **49**, 55-70, 1985.

[58] J. C. Simo and T. J. R. Hughes, On the variational foundations of assumed strain methods, *J. Appl. Mech.*, **53**, 51-54, 1986.

[59] J. Simons, P. G. Bergan and M. K. Nygård, Hyperplane displacement control methods in nonlinear analysis. In: W.K. Liu, T. Belytschko and K.C. Park (Eds.), *Innovative Methods for Nonlinear Problems*, 345-364, Pineridge Press Ltd., Swansea, 1984.

[60] N. Stander, A. Matzenmiller and E. Ramm, An assessment of assumed strain methods in finite rotation shell analysis, *Engrg. Comput.*, **6**, 58-66, 1989.

[61] G. M. Stanley, Continuum-based shell elements, *Ph.D Dissertation*, Department of Applied Mechanics, Stanford University, Stanford, CA, 1985.

[62] M. L. Szwabowicz, Variational formulation in the geometrically non-linear thin elastic shell theory, *Int. J. Solids Structures*, **22**, 1161-1175, 1986.

[63] S. P. Timoshenko and J. M. Gere, *Theory of Elastic Stability*, 2nd ed., McGraw-Hill, New York., 1963.

[64] G. A. Wempner, Finite elements, finite rotations and small strains of flexible shells, *Int. J. Solids Structures*, **5**, 117-153, 1969.

[65] G. A. Wempner, Discrete approximations related to non-linear theories of solids, *Int. J. Solids Structures*, **7**, 1581-1599, 1971.

[66] P. Wriggers and J. C. Simo, A general procedure for the direct computation of turning and bifurcation points, *Int. J. for Numer. Methods in Engrg.*, **30**, 155-176, 1990.

[67] E. W. Wright and E. H. Gaylord, Analysis of unbraced multistory steel rigid frames. *Proc. ASCE, J. Struct. Div.*, **94**, 1143-1163, 1968.

[68] O. C. Zienkiewicz, *The Finite Element Method*, 3rd ed., McGraw-Hill, London, 1976.