

# Ted Belytschko

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McCormick Professor of Computational Mechanics  
Walter P. Murphy Professor of Computational Mechanics  
Chairman, Department of Mechanical Engineering, 1998-2002  
Departments of Civil and Mechanical Engineering  
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## EDUCATION

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B.S., Engineering Sciences, Illinois Institute of Technology (1965)

Ph.D. Mechanics, Illinois Institute of Technology (1968)

## HONORS

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Honorary Doctorate, INSA, Lyon, September 2006

American Academy of Arts and Sciences, 2002

U. S. National Academy of Engineering, elected 1992

Gauss Newton Medal, 2002, International Association for Computational Mechanics

Timoshenko Medal, 2001, American Society of Mechanical Engineers

Named in ISI Database of 93 most highly cited engineering researchers – 2000/2001

4<sup>th</sup> most cited researcher in engineering in past decade, ISI, January 2004

Named in original ISI Database of 200 most highly cited researchers in their field – 2000/2001

John von Neumann Medal, U.S. Association for Computational Mechanics, August 2001

Theodore Von Karman Medal, American Society of Civil Engineers (ASCE), 1999

Melvin Baron Medal, Shock and Vibration Information Analysis Center, 1999

Honorary Doctorate, University of Liege, 1997

Honorary Doctorate, Ecole Normale, Paris 2004

ASME/Boeing 2003 Structures & Materials Award for Best Paper, “Large Deformation Atomistic-Based Continuum Analysis of Carbon Nanotubes,” co-authored with Dr. Marino Arroyo, presented by ASME, April 2003

Structural Computational Mechanics Award, U.S. Assn for Computational Mechanics, 1997

ICES Medal (Int. Conf. on Computational Engineering and Sciences), 1997

Computational Mechanics Award, Japanese Soc. of Mechanical Engineers, 1994

AIAA/ASCE

ASCE Structural Dynamics and Materials Award, 1990

Thomas Jaeger Prize, International Assn for Structural Mechanics in Reactor Technology, 1983

Walter Huber Research Prize, American Society of Civil Engineers, 1977

Pi Tau Sigma Gold Medal, American Society of Mechanical Engineers, 1975  
Fellow, American Academy of Mechanics, elected 1979  
Fellow, American Society of Mechanical Engineers, elected 1978  
Fellow, American Association for Advancement of Science, elected 1989  
NDEA Fellow, 1965-1968  
First in class, IIT, 1965

## PROFESSIONAL ACTIVITIES

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Editor, *International Journal for Numerical Methods in Engineering*, (1997-present)  
Honorary Editor, *International Journal of Computational Methods*, (2003-present)  
Editor, *Nuclear Engineering and Design*, (1980-1997)  
Editor, *Engineering with Computers*, *International Journal for Computer-aided Structural and Mechanical Engineering*, (January 1984-1998)  
President, American Academy of Mechanics, 2004  
Vice President of the Americas, International Association for Computational Mechanics (2002-2006)  
Chairman, U.S. National Committee on Theoretical and Applied Mechanics, 2005-2006  
NSF Panel on Simulation Based Engineering Science, January 2005 - present  
Co-Chairman, U.S. Paper Selection Committee, International Congress for Theoretical & Applied Mechanics, 2004  
Associate Editor, *Computer Methods in Applied Mechanics and Engineering* (1977-1997)  
Editorial Boards, *International Journal of Solids and Structures* (2005– present), *International Journal of Computational Methods* (2004-); *Multiscale Computational Engineering* (2002-present); *Acta Mechanica Solida Sinica* (1997-present); *Numerical and Analytical Methods in Geomechanics* (formerly *Mechanics of Cohesive-Frictional Materials and Structures* (1995-present); *Archives of Computational Methods in Engineering* (1994-present); *Manufacturing Engineering Review* (1991-present); *Computational Mechanics*, (1990-present); *Computers and Structures* (1990-present); *Mathematical Modeling and Scientific Computing*(1990-present); *Computer-Aided Civil and Infrastructure Engineering*, (formerly *Microcomputers in Civil Engineering*, 1986-1997) 1986-present); *Engineering Computations*, (1984-present); *Communications in Numerical Methods in Engineering*, (1984-present); *SIAM series on Computational Science and Engineering* (2006 – present); *Structural Mechanics Software Series*, (1976-86); *Nuclear Engineering and Design*, (1977-1981); *Journal of Engineering Mechanics*, ASCE, (1977-1981), *Interaction and Multiscale Mechanics* (2007 – present)  
Review Committee, Department of Mechanical Engineering, University California, San Diego, (Jan. 2006 – present)  
International Associate Editor, *Latin American Journal of Solids and Structures*, (2003 -present)  
Associate Editor, *Journal of Applied Mechanics*, (1979-1985 and 1990-1991)  
Associate Editor, *Applied Mechanics Reviews*, (1988-1997)  
Member, Case School of Engineering External Strategic Advisory Committee (2004 - 2005)  
Chairman, Engineering Mechanics Division, ASCE, (1981-1982)  
Chairman, Applied Mechanics Division, ASME, (1990-1991)  
President, U.S. Association for Computational Mechanics, (1992-1994)  
U.S. National Committee of Theoretical and Applied Mechanics, (1985-1995)  
*U.S. National Research Council Committees*: Computational Mechanics Committee, (1981-1984); Committee for Earthquake Engineering Facilities and Instrumentation, (1984); Chairman,

Planning Committee for National Earthquake Hazard Models, (1985); Underground Structures Technology, (1990)  
Chairman, Technical Program Committee for Joint ASME/ASCE Mechanics Conference, (June 1981, Boulder, Colorado)  
Director, Seminar on "Fluid-Structure Interaction of LWR System" and related titles, (August 1979, Berlin; August 1981, Paris; August 1983, Chicago)  
Chairman, Computational Methods in Applied Mechanics Committee, Applied Mechanics Division, ASME, (1978-1980)  
Chairman, Computational Methods Committee, Society of Engineering Science, (1978-81)  
Charter Member, International Society for the Study of the Lumbar Spine  
Division Coordinator, Division B: Thermal and Fluid Structure Dynamic Analysis, Structural Mechanics in Reactor Technology Conference, (1977-1991)  
Member, American Society of Civil Engineers  
Mechanical Engineering Advisory Board, Illinois Institute of Technology, 2000-present  
Nominated as a Member of the Executive Council of the International Association for Computational Mechanics 1/28/00  
Member of the International Scientific Committee of ICHMM-2008 (2006-)  
Member of the International Scientific Committee for the first Asian Pacific Congress on Computational Mechanics (2000)  
Member, International Scientific Committee, 9th International Conference on Computational Plasticity - COMPLAS 2007, (2006-)  
Member of the new session of the International Advisory Editorial Board (IAEB) on *Acta Mechanica Sinica Sinica* (2000)  
Member of the Board of Visitors of the Institute for Computational Engineering and Sciences (ICES), (2003 – present)  
Scientific Advisory Board, 7<sup>th</sup> World Congress on Computation Mechanics (WCCM-VII) (2004-2006)  
Scientific Committee, 10<sup>th</sup> National Congress on Computational Mechanics (USNCCM-X) (2007)  
Scientific Committee, 8<sup>th</sup> National Congress on Computational Mechanics (USNCCM8) (2003-2005)  
Scientific Advisory Board, 16<sup>th</sup> European Conference of Fracture (ECF16) (2003-2006)  
Scientific Advisory Board, 2004 WCCM6 MiniSymposium on Meshfree Methods, Beijing, China 2004 (2003-2004)  
Technical Advisory Panel, Complas 2003, VII International Conference on Computational Plasticity, Barcelona, Spain  
Scientific Committee, 4<sup>th</sup> South African Conference on Applied Mechanics, SACAM '04 (2003-2004)  
Member, Scientific Committee for the 2003 International Workshop on Meshfree Methods, Bonn, Germany  
Member, Scientific Committee for the 2001 International Workshop on Meshfree Methods, Bonn, Germany  
Member, Scientific Committee, EASEC International Advisory Committee (EASEC-ISC), 2006

## CONSULTANCIES

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**Argonne National Laboratory**, Argonne, Illinois (1972-present); **IIT Research Institute**,

Chicago, Illinois (1968-1977); **Sargent & Lundy Engineers**, Chicago, IL (1974-1977); **Fluor Pioneer Service and Consulting**, Chicago, Illinois (1968-1970); **Atlantic Richfield, Inc.**, Hanford, Washington (1968); **U.S. Army-Rock Island Arsenal**, Rock Island, Illinois (1970); **General Motors**, Detroit, Michigan (1974-1978); **J.J. Woolley, Co.**, Chicago, Illinois (1975); **Pratt-Whitney Aircraft**, East Hartford, Connecticut (1975-1985); **Science Applications, Inc.**, Oakland, California (1975-1980); **Siemens, A.G.**, Erlanger, Germany (1975-1978); **Engineering Systems International**, Paris, France (1976); **Stanford Research Institute**, Palo Alto, California (1977-1981); **Defense Nuclear Agency** (1973-present); **John Deere**, Waterloo, Iowa (1977-1979); **Defense Intelligence Agency** (1981-1985); **United Technologies Research Center**, East Hartford, Connecticut (1977-1980); **Westinghouse Advanced Reactor Division** (1980-present); **Battelle Memorial Laboratories**, Columbus, Ohio (1980-present); **BDM Inc.(Merritt - Cases, Inc.)**, Redlands, California (1980-present); **U.S. National Regulatory Commission** (1984-1980); **MacNeal Schwendler** (1984-1989); **I.B.M.** (1990)

### **BOOKS, CHAPTERS IN BOOKS AND SPECIAL ISSUES OF JOURNALS (EDITED)**

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T. Belytschko, J. R. Osias and P. V. Marcal, *Finite Element Analysis of Transient Nonlinear Structural Behavior*, ASME, AMD-Vol. 14, New York (1975)

T. Belytschko and T. L. Geers, *Computational Methods for Fluid-Structure Interaction Problems*, ASME, AMD-Vol. 26, New York (1977)

T. Ting, R. J. Clifton and T. Belytschko, *Proc. of Workshop on Nonlinear Wave Propagation* (1979)

T. Belytschko and T. J. R. Hughes, *Computational Methods for Transient Analysis*, North-Holland, Amsterdam (1983)

W. K. Liu, T. Belytschko and K. C. Park, *Innovative Methods for Nonlinear Problems*, Pineridge Press, Swansea, U. K. (1984)

S. N. Atluri, T. Belytschko, J. T. Oden and J. N. Reddy, *Adaptive Methods*, special issue of *Computer Methods in Applied Mechanics and Engineering* North-Holland, Amsterdam, Vol. 55, Nos. 1-2 (1986)

T. Belytschko, *Topical Issue Dedicated to Dr. Stanley H. Fistedis*, special issue of *Nuclear Engineering and Design*, North-Holland Physics Publishing, Amsterdam, Vol. 106, No. 1 (1988)

W. K. Liu and T. Belytschko, *Computational Mechanics of Probabilistic and Reliability Analysis*, Elmepress International, Lausanne, Switzerland (1989)

A. K. Noor, T. Belytschko and J. C. Simo, *Analytical and Computational Models of Shells*, ASME, CED-Vol. 3, New York (1989)

T. Aizawa, T. Belytschko, and W. K. Liu, "ALE Finite Elements with Hydrodynamic Lubrication for Metal Forming," *Nuclear Engineering and Design*, North-Holland Physics, Amsterdam, Vol. 138, N o. 1 (1992)

T. Belytschko, W. K. Liu, and B. Moran, Nonlinear Finite Elements for Continua and Structures, John Wiley & Sons, Ltd., Chichester, England (2000)

T. Belytschko, G. Ventura, J. Xu, "New Methods for Discontinuity and Crack Modeling in EFG," in Meshfree Methods for Partial Differential Equations, Michael Griebel and Marc Alexander Schweitzer, editors, Springer Verlag, Berlin, Germany (2000)

T. Belytschko, G. Zi, J. Xu and J. Chessa, "The extended finite element method for arbitrary discontinuities," in Computational Mechanics – Theory and Practice, K.M. Mathisen, T. Kvamsdal, and K.M. Okstad, editors, CIMNE, Barcelona, Spain (2004).

J. Xu, T. Belytschko, "Discontinuous Radial Basis Function Approximations for Meshfree Methods" in Meshfree Methods for Partial Differential Equations II, Michael Griebel and Marc Alexander Schweitzer, editors, Springer Verlag, Berlin, Germany (2005)

J. Fish, T. Belytschko, A First Course in Finite Elements, John Wiley & Sons, Ltd., Chichester, England (2007)

## **REFEREED PAPERS**

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T. Belytschko and P.G. Hodge, "A Program for the Yield Point Load of Arches," Journal of the Structure Engineering Division, ASCE 94, 1383-1396 (1968)

P.G. Hodge and T. Belytschko, "Numerical Methods for the Limit Analysis of Plates," Journal of Applied Mechanics, 35, 796-801 (1968)

M.A. Salmon and T. Belytschko, "The Effect of Reinforced Openings on the Burst Strength of Plates," Proceedings of International Conference on Press Vessel Technology, Part I, Design and Analysis, ASME, 175-185 (1969)

P. G. Hodge, T. Belytschko and C.T. Herakovich, "Quadratic Programming and Plasticity," Computer Approaches in Applied Mechanics, ASME, 73-84 (1969)

P.G. Hodge and T. Belytschko, "Discussion of Discrete Model Analysis of Elastic-Plastic Plates," Journal of the Structure Engineering Division, ASCE, 317-318 (1969)

T. Belytschko and P.G. Hodge, "Plane Stress Limit Analysis by Finite Elements," Journal of the Engineering Mechanics Division, ASCE 96, 931-944 (1970)

P.G. Hodge and T. Belytschko, "Numerical Methods for Limit Analysis of Plates," Mechanics, 1969, ed. N.C. Lind (1970)

T. Belytschko and M. Velebit, "Error Bounds In Elastic-Plastic Finite Element Analysis of Plates," Proceedings on Computer Aided Engineering, Waterloo, 31-44 (1971)

T. Belytschko and M. Velebit, "Finite Element Method for Elastic-Plastic Plates," Journal of the Engineering Mechanics Division, ASCE, 227-242 (1972)

T. Belytschko, "Plane Stress Shakedown Analysis by Finite Elements," International Journal Mechanics Sciences, 14, 619-625, (1972)

T. Belytschko, "Finite Elements for Axisymmetric Solids Under Arbitrary Loadings with Nodes on Origin," AIAA Journal, 10, 1532-1533 (1972)

L. Loziuk, J. Anderson and T. Belytschko, "Hydrothermal Analysis by the Finite Element Method," Journal of Hydraulics Division, ASCE 98, HY11, 1983-1998 (1972)

L. Loziuk, J. Anderson and T. Belytschko, "Transient Hydrothermal Analysis of Small Lakes," ASCE Annual National and Environmental Meeting, #1799 (1972) Journal of Power Division, ASCE 99, 349-364 (1973)

T. Belytschko, T.P. Andriacchi, A.B. Schultz and J.O. Galante, "Analog Studies of Forces in the Human Spine - Computational Techniques," Journal of Biomechanics, 6, 361-371 (1973)

A.B. Schultz, T. Belytschko, T.P. Andriacchi and J.O. Galante, "Analog Studies of Forces in the Human Spine; Mechanical Properties and Motion Segment Behavior," Journal of Biomechanics, 6, 373-383 (1973)

T. Belytschko and R.F. Kulak, "A Finite Element for a Solid Enclosing Inviscid Incompressible Fluid," Journal of Applied Mechanics, 40, 609-610 (1973)

T. Belytschko and B.J. Hsieh, "Nonlinear Transient Analysis of Shells and Solids of Revolution by Convected Elements," International Journal of Numerical Methods in Engineering, 7, 255-271 (1973)

T. Belytschko, B.J. Hsieh, "Non-linear Transient Finite Element Analysis with Convected Coordinates," International Journal for Numerical Methods in Engineering, (7): 255-271 (1973)

T.P. Andriacchi, A.B. Schultz, T. Belytschko and J.O. Galante, "A Model for Studies of Mechanical Interactions Between the Human Spine and Rib Cage," Journal of Biomechanics, 7, 1974, 497-507, also presented at the 7th U.S. National Congress of Applied Mechanics, Boulder, Colorado (1974)

T. Belytschko, E. Welch and R. Bruce, "Large Displacement Nonlinear Transient Analysis by Finite Elements," Proceedings of International Conference on Vehicle Structural Mechanics, SAE, New York, 1974, 188-197; SAE Transaction, 1461-1468 (1974)

T. Belytschko and A.H. Marchertas, "Nonlinear Finite Element Method for Plates and its Application to Dynamic Response of Fuel Subassemblies," Trans. ASME J. Press Tech., 251-257; Paper No. 74-NE-10, 1st National Congress of Pressure Vessel and Piping, Miami (1974)

T. Belytschko, "Transient Analysis," Structure Mechanics Computer Programs, ed. W. Pilkey, et al., University Press of Virginia, 255-276 (1974)

- T. Belytschko, E. Welch and R. Bruce, "Finite Element Analysis of Automotive Sheet Metal Under Impact Loading," Proceedings of 3rd International Conference on Vehicle Systems Dynamics, ed. H.K. Sacks, Swets and Zitlinger, Amsterdam, 232-252 (1974)
- T. Belytschko, "Finite Element Approach to Hydrodynamics and Mesh Stabilization," Computational Methods in Nonlinear Mechanics, ed. Oden, J.T., et al., Texas Institute for Comp. Mech., 231-238 (1974)
- T. Belytschko, J.M. Kennedy and A.H. Marchertas, "Dynamic Response of Fast-Reactor Core Subassemblies," Nuclear Engineering and Design, 28, 31-41 (1974)
- T. Belytschko, R. Kulak, A.B. Schultz and J.O. Galante, "Finite Element Stress Analysis of an Intervertebral Disc," Journal of Biomechanics, 7, 277-285 (1974)
- T. Belytschko, "Discussion of Elastic-Plastic Analysis by Quadratic Programming," Proceedings of the American Society of Civil Engineering, Journal of the Engineering Mechanics Division, 100 (EMI), 130-131 (1974)
- T. Belytschko, E. Welch and R. Bruce, "Sheet-Metal Behavior in Crash," Aircraft Crashworthiness, ed. K. Saczalski, et al., University of Virginia Press, 549-560 (1975)
- R.F. Kulak, A.B. Schultz, T. Belytschko and J. O. Galante, "Biomechanical Characteristics of Vertebral Motion Segments and Intervertebral Discs," Orthopaedic Clinics of North America, 6, 121-134 (1975)
- L. Glaum, T. Belytschko and E.F. Masur, "Buckling of Structures with Finite Prebuckling Deformations - A Perturbation, Finite Element Analysis," International Journal of Solids and Structures, 11, 1023-1033 (1975)
- T. Belytschko and D. Schoeberle, "On the Unconditional Stability of an Implicit Algorithm for Nonlinear Structural Dynamics," Journal of Applied Mechanics, 42, 865-869 (1975)
- T. Belytschko and J.M. Kennedy, "Finite Element Study of Pressure Wave Attenuation by Reactor Fuel Subassembly," Journal of Pressure Vessel Technology, 97, 172-177 (1975)
- T. Belytschko, "Nonlinear Analysis - Description and Stability," Computer Programs in Shock and Vibration, ed. W. Pilkey, and B. Pilkey, and Vibration Information Center, Washington, D.C., 537-562 (1975)
- T. Belytschko, R. Mullen and N. Holmes, "Explicit Integration, Stability, Solution Properties, and Costs," Finite Element Analysis of Transient Nonlinear Structure Behavior, ASME, 1-21 (1975)
- T. Belytschko, R.E. Welch and R. Bruce, "Finite Element Analysis of Automotive Sheet Metal Under Impact Loading," ed. S.K. Sachs, Vehicle Systems Dynamics, Swets and Zitlinger, Amsterdam, 232-252 (1975)

- T. Belytschko, T.P. Andriacchi, A.B. Schultz, W. Rostoker and J.O. Galante, "Femoral Stem Failure in Total Hip Replacement," The Hip, (The Hip Society), 231-244 (1975)
- T. Belytschko, R.L. Chiapetta and H. Bartell, "Efficient Large Scale Nonlinear Transient Analysis by Finite Elements," International Journal for Numerical Methods in Engineering, 10, 579-596 (1976)
- T. Belytschko, "A Survey of Numerical Methods and Computer Programs for Dynamic Structural Analysis," Nuclear Engineering and Design, 37, 23-24 (1976)
- T. Belytschko and J.M. Kennedy, "A Fluid-Structure Finite Element Method for the Analysis of Reactor Safety Problems," Nuclear Engineering and Design, 38, 71-81 (1976)
- N. Holmes and T. Belytschko, "Postprocessing of Finite Element Transient Response Calculations By Digital Filters," Computers and Structures, 6, 211-216 (1976)
- R.F. Kulak, T. Belytschko, A.B. Schultz and J.O. Galante, "Nonlinear Behavior of the Human Intervertebral Disc Under Axial Load," Journal of Biomechanics, 9, 377-386 (1976)
- T.P. Andriacchi, J.O. Galante, T. Belytschko and S. Hampton, "A Stress Analysis of the Femoral Stem in Total Hip Prostheses," Journal of Bone Jt. Surg., 58A, 618-624 (1976)
- T.P. Andriacchi, A. Schultz, T. Belytschko and R. Dewald, "Milwaukee Brace Correction of Idiopathic Scoliosis: A Biomechanical Analysis and a Retrospective Study," Journal of Bone Jt. Surg., 58A, No. 6, 806-815 (1976)
- T. Belytschko, "Computer Methods in Shock and Wave Propagation Analysis," Computing in Applied Mechanics, ed. R.F. Hartung, ASME, New York, 139-162 (1976)
- T. Belytschko and R.W. Mullen, "Mesh Partitions of Explicit-Implicit Time Integration," Formulations and Computational Algorithms in Finite Element Analysis, ed. by J. Bathe et al., MIT Press (1977)
- T. Belytschko, L. Schwer and M. Klein, "Large Displacement, Transient Analysis of Space Frames," International Journal for Numerical Methods in Engineering, 11, 65-84 (1977)
- T. Belytschko, "Methods and Programs for Analysis of Fluid-Structure Systems," Nuclear Engineering and Design, 42, 41-52 (1977)
- T. Belytschko and R.W. Mullen, "Explicit Integration of Structural Problems," Finite Elements in Nonlinear Solid and Structural Mechanics, ed. by P. Bergan et al., Trondheim, Norway (1977)
- T. Belytschko, L. Schwer and E. Privitzer, "Theory and Applications of a Three-Dimensional Model of the Human Spine," Aviation, Space and Environmental Medicine, 158-165 (1978)
- T. Belytschko and R. Mullen, "On Dispersive Properties of Finite Element Solutions," Modern Problems in Elastic Wave Propagation, ed. by J. Achenbach and J. Miklowitz, Springer-Verlag, 67-82 (1978)

- T. Belytschko and J.M. Kennedy, "Computer Models for Subassembly Simulation," Nuclear Engineering and Design, 49, 17-38 (1978)
- R.F. Kulak, T. Belytschko, J.M. Kennedy and D.F. Schoeberle, "Finite Element Formulation for Thermal Stress Analysis of Thin Reactor Structures," Nuclear Engineering and Design, 49, 39-50 (1978)
- A.H. Marchertas, S.H. Fistedis, Z.P. Bazant and T. Belytschko, "Analysis and Application of Prestressed Concrete Reactor Vessels for LMFBR Containment," Nuclear Engineering and Design, 49, 155-174 (1978)
- T. Belytschko and R. Mullen, "Stability of Explicit-Implicit Mesh Partitions in Time Integration," International Journal for Numerical Methods in Engineering, 12 (1978)
- T. Belytschko, J.M. Kennedy and D.F. Schoeberle, "Quasi-Eulerian Finite Element Formulation for Fluid Structure Interaction," J. of Press Vessel Technology, 102, 62-69 (1979)
- T. Belytschko and R. Mullen, "WHAMS: A Program for Transient Analysis of Structures and Continua," Structural Mechanics Software Series, 2, ed. by N. Perrone and W. Pilkey, University Press of Virginia (1978)
- T. Belytschko, H.J. Yen and R. Mullen, "Mixed Methods for Time Integration," Computer Methods in Applied Mechanics and Engineering, 17, 259-275 (1979)
- J.M. Kennedy and T. Belytschko, "Response of the UIS to Core Disruptive Accidents," Trans. Am. Nucl. Soc., 33, 465 (1979)
- T. Belytschko and L.W. Glaum, "Applications of Higher Order Corotational Stretch Theories to Nonlinear Finite Element Analysis," Computer and Structures, 10, 175-182 (1979)
- T. Belytschko and I. Eldib, "Analysis of a Finite Element Upwinding Scheme," Finite Element Methods for Convection Dominated Flows, ed. by T.J.R. Hughes, Applied Mechanics Series, Vol. 34, Amer. Soc. of Mech. Eng., 195-200 (1979)
- J.M. Kennedy and T. Belytschko, "Structural Response of the Upper Internals," Trans. Am. Nuc. Soc., 32, 513, June 1979.
- J.M. Kennedy and T. Belytschko, "Formulation and Application of a Three-Dimensional Structural Model for Upper Internal Structures," Nuclear Engineering and Design, 55, 173-184 (1979)
- H. Stolarski and T. Belytschko, "Large Deformation, Rigid-Plastic Dynamics by an Extremum Principle," Computers Methods in Applied Mechanics and Engineering, 21, 217-230 (1980)
- Z. Bazant, T. Tsubaki and T. Belytschko, "Concrete Reinforcing Net: Safe Design," ASCE J. Struct. Div., 106, No. ST9, 1899-1906 (1980)

- T. Belytschko, "Explicit Time Integration of Structure-Mechanical Systems," Advanced Structural Dynamics, ed. by J. Donea, Applied Science Publishers, 97-122 (1980)
- T. Belytschko and W.L. Mindle, "The Treatment of Damping in Transient Computations," Damping Applications for Vibration Control, ed. by P.J. Torvik, ASME, New York, 123-132 (1980)
- T. Belytschko and U. Schumann, "Fluid-Structures Interactions in Light Water Reactor Systems," Nuclear Engineering and Design, 60, No. 2, 173-195 (1980)
- T. Belytschko, "Fluid-Structure Interaction," Computers and Structures, 12, 459-469 (1980)
- T. Belytschko and W.L. Mindle, "Flexural Wave Propagation Behavior of Lumped Mass Approximations," Computers and Structures, 12, 805-812 (1980)
- J.M. Kennedy, T. Belytschko and D.F. Schoeberle, "A Quasi-Eulerian Fluid-Structure Code for Simulation of High Pressure Transient Analysis of Core Components," Nuclear Technology, 51, No. 3, 290-302 (1980)
- A.M. Marchertas and T. Belytschko, "Transient Analysis of a Prestressed Concrete Reactor Vessel for Liquid-Metal Fast Breeder Reactor Primary Containment," Nuclear Technology, 51, No. 3, 433-442 (1980)
- T. Belytschko, "Partitioned and Adaptive Algorithms for Explicit Time Integration," in Nonlinear Finite Element Analysis in Structural Mechanics, ed. by W. Wunderlich, et al., Springer-Verlag, 572-584 (1980)
- E. Privitzer and T. Belytschko, "Impedance of Three Dimensional Head-Spine Model," Mathematical Modelling, 1, 189-209 (1980)
- H. Stolarski and T. Belytschko, "Reduced Integration for Shallow-Shell Facet Elements," New Concepts in Finite Element Analysis, ed. by T.J.R. Hughes, et. al., ASME, New York, 179-194 (1981)
- D.P. Flanagan and T. Belytschko, "A Uniform Strain Hexahedron and Quadrilateral with Orthogonal Hourglass Control," International Journal for Numerical Methods in Engineering, 17, 679-706 (1981)
- T. Belytschko, H. Stolarski and C.S. Tsay, "Corotational Velocity Strain Formulations for Nonlinear Analysis of Beams and Axisymmetric Shell," Research in Nonlinear Structural Mechanics, NASA 2147, 263-274 (1981)
- T. Belytschko, "On Explicit Time Integration Partitions for Fluid-Structure Interaction Problems," in Interdisciplinary Finite Elements, College of Engineering, Cornell University, ed. by J. Abel, et al., 679-696 (1981)
- T. Belytschko and C.S. Tsay, "Explicit Algorithms for Nonlinear Dynamics of Shells," in Nonlinear Finite Elements Analysis of Plates and Shells, ed. by T.J.R. Hughes.

- T. Belytschko, C.S. Tsay and W.K. Liu, "A Stabilization Matrix for the Bilinear Mindlin Plate Element," Computer Methods in Applied Mechanics and Engineering, 29, 313-327 (1981)
- T. Belytschko and R. Mullen, "Two Dimensional Fluid-Structure Impact Computations with Regularization," Computer Methods in Applied Mechanics and Engineering, 27, 193-194 (1981)
- D.P. Flanagan and T. Belytschko, "Simultaneous Relaxation in Structural Dynamics," Journal of the Engineering Mechanics Division, ASCE 107, 1039-1055 (1981)
- J.M. Kennedy and T. Belytschko, "Theory and Application of a Finite Element Method for Arbitrary Lagrangian-Eulerian Fluids and Structures," Nuclear Engineering and Design, 68, 119-146 (1981)
- T. Belytschko and R. Mullen, "Coupled Quasi-Eulerian Fluid-Structures Analysis," in Finite Element Flow Analysis, ed. by T. Kawai, University of Tokyo Press, 783-789 (1982)
- R. Mullen and T. Belytschko, "Dispersion Analysis of Finite Element Semidiscretizations of the Two Dimensional Wave Equation," International Journal of Numerical Methods in Engineering, 18, 11-30 (1982)
- H. Stolarski and T. Belytschko, "Membrane Locking and Reduced Integration for Curved Elements," Journal of Applied Mechanics, 49, 172-177 (1982)
- W.K. Liu and T. Belytschko, "Mixed-Time Implicit-Explicit Finite Elements for Transient Analysis," Computers & Structures, 15, No. 4, 445-450 (1982)
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