CURRICULUM VITAE

James Leslie Beck

George W. Housner Professor of Engineering and Applied Science
Department of Computing and Mathematical Sciences
Department of Mechanical and Civil Engineering
California Institute of Technology, Mail Code 9-94
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University Education:

1967–1971	B.Sc. and M.Sc. with First Class Honors in Mathematics, University of Auckland, Auckland, New Zealand
1974–1978	Ph.D., Civil Engineering, California Institute of Technology, Pasadena, USA

Professional Experience:

2012-present	George W. Housner Professor of Engineering and Applied Science, Caltech
2005-2011	Professor of Engineering and Applied Science, Caltech
2009	Visiting Scholar in Engineering Science, University of Auckland, New Zealand
1996–2005	Professor of Applied Mechanics and Civil Engineering, Caltech
2002	Visiting Scholar in Civil Engineering, University of Auckland, New Zealand
1993–1998	Executive Officer for Applied Mechanics and Civil Engineering, Caltech
1995–1996	Visiting Researcher, Hong Kong University of Science and Technology
1990–1993	Option Representative for Graduate Student Affairs in Applied Mechanics, Civil and Mechanical Engineering, Caltech
1989–1990	Visiting Associate Professor of Civil Engineering, University of Southern California
1987–1996	Associate Professor of Civil Engineering, Caltech
1981–1987	Assistant Professor of Civil Engineering, Caltech
1971–1981	Research Scientist, Physics and Engineering Laboratory, D.S.I.R., Lower Hutt, New Zealand (On leave for graduate studies, 1974-1978)
1967–1970	Summer Student, Physics and Engineering Laboratory, D.S.I.R., Lower Hutt

Honors and Awards:

Hojjat Adeli Award for Innovation in Computing: Best paper in Computer-Aided Civil and Infrastructure Engineering Journal in 2010 (with S.H. Cheung).

Special Issue of Structural Safety Journal: Probabilistic Methods for Modeling, Simulation and Optimization of Engineering Structures under Uncertainty in Honor of Jim Beck's 60th Birthday, L.S. Katafygiotis and C. Papadimitriou (Eds), 32, No. 5, 2010

Senior Research Prize in Computational Structural Dynamics, European Association of Structural Dynamics, Southampton, UK, July 2008

Senior Research Prize in Computational Stochastic Mechanics, International Association of Structural Safety and Reliability, Rome, June 2005

Graduate Student Council Teaching Award, California Institute of Technology, 1997

New Zealand National Research Advisory Council Fellowship, 1974–78

Fulbright Fellowship, 1974

Fowlds Memorial Prize for Most Distinguished Student in the Faculty of Science, University of Auckland, New Zealand, 1970

Senior Scholar in Mathematics, University of Auckland, New Zealand, 1970

New Zealand University Scholarship (8th overall, 1st in Mathematics), 1966

Dux, Mt Albert Grammar School, Auckland, New Zealand, 1966

Membership of Professional Societies:

American Society of Civil Engineers

Consortium of Universities for Research in Earthquake Engineering

Earthquake Engineering Research Institute

International Association of Structural Safety and Reliability

Seismological Society of America

Editorial Board Membership:

Computer-aided Civil and Infrastructure Engineering

International Journal of Reliability and Safety

Probabilistic Engineering Mechanics

Public and Professional Service (partial list):

President, Consortium of Universities for Research in Earthquake Engineering (1998); Director (1995–1998); Vice President (1997); Past President (1999)

Vice President, Board of Governors, Engineering Mechanics Institute, ASCE (2010-2011); Governor (2007-2011)

Board of Directors, International Association for Structural Control and Monitoring (2010–present)

Associate Editor, Journal of Engineering Mechanics, ASCE (1999–2002)

Vice Chair, Executive Committee, Engineering Mechanics Division, ASCE (2006-2007; Member, 2004-2007)

Chair, Dynamics Committee, ASCE Engineering Mechanics Division, ASCE (1999–2001; Vice Chair 2001-2003; Member 1986–1994, 1998-2006)

Chair, ASCE–IASC Task Group on Structural Health Monitoring (1999-2001; Member 1999-2005)

Control Member, Probabilistic Methods Committee, Engineering Mechanics Division, ASCE (2002-2005; Member 2000-2008).

Member, Committee on Structural Control, Structural Engineering Institute, ASCE (1996–2003)

Member, Committee on Structural Identification and Health Monitoring of Constructed Facilities, ASCE Structural Engineering Institute (1994–2000)

Chair, Committee on System Identification and Structural Control, International Association of Structural Safety and Reliability (2001–present; Member 1998-present)

Member, Committee on Computational Stochastic Mechanics, International Association of Structural Safety and Reliability (1998-present)

Plenary Lecturer, Member of Scientific Committee and Mini-Symposium Organizer, 8th European Conference on Structural Dynamics, Leuven, Belgium (July 2011)

Keynote Lecturer, 12th East Asia-Pacific Conference on Structural Engineering and Construction, Hong Kong, China (January 2011)

Keynote Lecturer, International Conference on Engineering Mechanics, Los Angeles, USA (June 2010)

Semi-Plenary Lecturer, Member of International Advisory Board and Mini-Symposium Co-Organizer, 2nd International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Rhodes, Greece (June 2009)

Member of Scientific Committee and Mini-Symposium Organizer, 10th International Conference on Structural Safety and Reliability, Osaka, Japan (September 2009)

Keynote Lecturer, 8th World Congress on Computational Mechanics, Venice, Italy (July 2008)

Semi-Plenary Lecturer, Member of International Advisory Board and Mini-Symposium Co-Organizer, 1st International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Rethymno, Crete (June 2007)

Keynote Lecturer, 6th European Conference on Structural Dynamics, Paris, France (September 2005)

Member of Scientific Committee and Mini-Symposium Co-Organizer, 9th International Conference on Structural Safety and Reliability, Rome, Italy (June 2005)

Member of Scientific Committee and Session Organizer, 8th International Conference on Structural Safety and Reliability, Newport Beach, California (June 2001)

Doctoral Students Supervised (Theses at http://caltecheerl.library.caltech.edu/):

Jayakumar, Paramsothy, "Modeling and Identification in Structural Dynamics", 1987

Levine, Marie B., "Accelerogram Processing Using Reliability Bounds and Optimal Correction Methods", 1990

Papadimitriou, Konstantinos, "Stochastic Characterization of Strong Ground Motion and Applications to Structural Response", 1990

Katafygiotis, Lambros S., "Treatment of Model Uncertainties in Structural Dynamics", 1991

Beck, Robert T., "Fundamental Problems in the Application of Structural Identification Procedures to Damage Detection", 1991

Chiang, Dar–Yun, "Parsimonious Modeling of Inelastic Structures", 1992

Yang, Chi–Ming, "Statistical System Identification and Application to Seismic Response of Structures", 1996

Zaremba, Slawomir, "Dynamical Signatures of Gearbox Vibrations", 1997 (joint with T.K. Caughey)

Chan, Eduardo, "Optimal Design of Building Structures using Genetic Algorithms", 1997

Vanik, Michael W., "A Bayesian Approach to Structural Health Monitoring", 1997

May, B. Scott, "Probabilistic Robust Control: Theory and Applications", 1997

Polidori, David C., "Probabilistic Treatment of Uncertainty in Nonlinear Dynamical Systems", 1997

Irfanoglu, Ayhan, "Structural Design under Seismic Risk Using Multiple Performance Objectives", 2000

Au, Siu-Kui, "On the Solution of First-Excursion Problems by Simulation with Applications to Probabilistic Seismic Performance Assessment", 2001

Yuen, Ka-Veng, "Model Selection, Identification and Robust Control for Dynamical Systems", 2002

Camelo, Vanessa S., "Dynamic Characteristics of Woodframe Buildings", 2003 (joint with J.F. Hall)

Shaikhutdinov, Rustem V., "Structural Damage Evaluation: Theory and Applications to Earthquake Engineering", 2004

Muto, Matthew M., "Application of Stochastic Simulation Methods to System Identification", 2006

Mitrani-Reiser, Judith, "An Ounce of Prevention: Probabilistic Loss Estimation for Performance-based Earthquake Engineering", 2007

Oh, Chang Kook, "Bayesian Learning for Earthquake Engineering Applications and Structural Health Monitoring", 2007

Taflanidis, Alexandros, "Stochastic System Design and Applications to Stochastically Robust Structural Control", 2007

Cheung, Sai-Hung, "Stochastic Analysis, Model and Reliability Updating of Complex Systems with Applications to Structural Dynamics", 2009

PUBLICATIONS

[1] **"A New Reflecting Microscope Objective with Two Concentric Spherical Mirrors," J.L. Beck, *Applied Optics*, 8, 1503, July 1969.**

[2] **"Convection in a Box of Porous Material Saturated with Fluid," J.L. Beck, *Physics of Fluids*, 15, 1377-1383, August 1972.**

[3] **"The Seismic Response of a Reinforced Concrete Bridge Pier Designed to Step," J.L. Beck and R.I. Skinner, *International Journal of Earthquake Engineering and Structural Dynamics*, 2, 343–358, June 1974.**

[4] "Anisotropic Theory of Growth Stresses in Trees," J.L. Beck, Report No. 452, Physics and Engineering Laboratory, DSIR, Lower Hutt, New Zealand, August 1974.

[5] **"A Practical System for Isolating Structures from Earthquake Attack," R.I. Skinner, J.L. Beck and G.N. Bycroft, *International Journal of Earthquake Engineering and Structural Dynamics*, 13, 297–309, March 1975.**

[6] **"Weight-Induced Stresses and the Recent Seismicity at Lake Oroville, California," J.L. Beck, *Bulletin of the Seismological Society of America*, 66, 1121–1131, August 1976.**

[7] **"**Oroville Reservoir, California and the Earthquakes of August 1, 1975," J.L. Beck and G.W. Housner, *Proceedings 6th World Conference on Earthquake Engineering*, New Delhi, January 1977.

[8] "An Optimal Filter Approach to Identification in Structural Dynamics," J.L. Beck and P.C. Jennings, *Proceedings Symposium on Applications of Computer Methods in Engineering*, **1**, 251–260, University of Southern California, Los Angeles, August 1977.

[9] "Application of System Identification Techniques for Local Site Characterization," J.L. Beck, *Proceedings NSF Seminar–Workshop on Strong Ground Motion*, 14–18, Rancho Santa Fe, February 1978.

[10] "Determining Models of Structures from Earthquake Records," J.L. Beck, Report No. EERL 78–01 (Doctoral Thesis), California Institute of Technology, Pasadena, June 1978.

[11] "Identification of Linear Structures from Earthquake Records," G.H. McVerry, J.L. Beck and P.C. Jennings, *Proceedings 2nd U.S. National Conference on Earthquake Engineering*, Stanford University, August 1979.

[12] **"The New Zealand Strong Motion Earthquake Recorder Network," R.T. Hefford, P.M. Randal, R.I. Skinner, J.L. Beck and R.G. Tyler, *Bulletin of the New Zealand National Society of Earthquake Engineering*, 12, 256–263, September 1979.**

[13] **"Structural Identification Using Linear Models and Earthquake Records," J.L. Beck and P.C. Jennings, *International Journal of Earthquake Engineering and Structural Dynamics*, 8, 145–160, April 1980.**

[14] "Applications of System Identification Techniques to Recorded Earthquake Responses," J.L. Beck, G.H. McVerry and P.C. Jennings, *Proceedings 7th World Conference on Earthquake Engineering*, Istanbul, September 1980.

[15] "Earthquake Engineering Research at the Physics and Engineering Laboratory, DSIR," R.G. Tyler and J.L. Beck, *Proceedings Conference on Large Earthquakes*, Napier, February 1981. Miscellaneous Series No. 5, Royal Society of New Zealand, Wellington, 1981.

[16] "Computer Analyses of New Zealand Earthquake Accelerograms–**1,**" J.L. Beck, P.M. Randall and R.T. Hefford, Physics and Engineering Laboratory Report, DSIR, Lower Hutt, New Zealand, October 1981.

[17] "Software for Engineering Seismology's LSI-11 Controlled HP 9874A Digitizing System," J.L. Beck and G.H. McVerry, PEL Report No. 774, Physics and Engineering Laboratory, DSIR, Lower Hutt, New Zealand, August 1982.

[18] "Comments on: Covariance–Invariant Digital Filtering–A Better Digital Processing Technique for Ground Motion Studies; by J.E. Ehrenberg and E.N. Hernandez," J.L. Beck, *Bulletin of the Seismological Society of America*, **72**, 1445–1446, August 1982.

[19] "System Identification Applied to Strong Motion Records from Structures," J.L. Beck, *in Earthquake Ground Motion and Its Effects on Structures*, S.K. Datta (Ed.), AMD-53, 109–134, ASME, New York, 1982.

[20] **"An Earthquake Alarm System for the Maui A Offshore Platform, New Zealand," R.G. Tyler and J.L. Beck, *Bulletin of the Seismological Society of America*, 73, 297–305, February 1983.**

[21] "Structural Identification of JPL Building 180 Using Optimally Synchronized Earthquake Records," G.H. McVerry and J.L. Beck, Report No. EERL 83–01, California Institute of Technology, Pasadena, August 1983.

[22] "Optimal Algorithms for Calculating the Response of Linear Oscillators to Digitized Ground Accelerations," J.L. Beck and H. Park, *Proceedings 8th World Conference on Earthquake Engineering*, San Francisco, July 1984.

[23a] "Seismic Response Characteristics of Meloland Road Overpass During 1979 Imperial Valley Earthquake," S.D. Werner, J.L. Beck and M.B. Levine, Report by Agbabian Associates, El Segundo, California, March 1985.

[23b] "Use of Measured Strong Motion Data to Assess Seismic Response of Meloland Road Overpass," S.D. Werner, M.B. Levine and J.L. Beck, *Proceedings Joint U.S./New Zealand Workshop on Seismic Resistance of Highway Bridges*, San Diego, California, May 1985.

[24] "Analysis of Elastic Pseudodynamic Test Data from a Full-Scale Steel Structure Using System Identification," J. Beck and P. Jayakumar, *Proceedings 6th JTCC Conference, U.S.-Japan Cooperative Earthquake Research Program Utilizing Large Scale Testing Facilities*, Hawaii, June 1985.

[25] "Comparison Between Transfer Function and Modal Minimization Methods for System Identification," R. Beck and J.L. Beck, Report No. EERL 85–06, California Institute of Technology, Pasadena, November 1985.

[26] "Engineering Features of the Recent Mexican Earthquake," J.L. Beck and J.F. Hall, *Engineering and Science*, California Institute of Technology, Pasadena, January 1986.

[27] "System Identification Applied to Pseudodynamic Test Data: A Treatment of Experimental Errors," J.L. Beck and P. Jayakumar, *Proceedings 3rd ASCE Engineering Mechanics Conference on Dynamic Response of Structures*, University of California, Los Angeles, March 1986.

[28] "Application of System Identification to Pseudodynamic Test Data from a Full-Scale Six-Story Steel Structure," J.L. Beck and P. Jayakumar, *Proceedings International Conference on Vibration Problems in Engineering*, Xian, China, June 1986.

[29] **"Structural Damage in Mexico City," J.F. Hall and J.L. Beck, *Geophysical Research Letters*, 13, 589–592, June 1986.**

[30] **"Factors Contributing to the Catastrophe in Mexico City During the Earthquake of September 19, 1985," J.L. Beck and J.F. Hall, *Geophysical Research Letters*, 13, 593–596, June 1986.**

[31] "Pseudo-dynamic Testing and Model Identification," J.L. Beck and P. Jayakumar, *Proceedings 3rd U.S. National Conference on Earthquake Engineering*, Charleston, South Carolina, August 1986.

[32] "Effects of Recorder Nonsynchronization on Interpretation of Strong-Motion Records at Meloland Road Overpass," S.D. Werner and J.L. Beck, *Proceedings 3rd U.S. National Conference on Earthquake Engineering*, Charleston, South Carolina, August 1986.

[33] **"Seismic Response Evaluation of Meloland Road Overpass Using 1979 Imperial Valley Earthquake Records," S.D. Werner, J.L. Beck and M.B. Levine, *International Journal of Earthquake Engineering and Structural Dynamics*, 15, 249–274, February 1987.**

[34] **"Quick Algorithms for Computing Either Displacement, Velocity or Acceleration of an Oscillator," J.L. Beck and M. Dowling, *International Journal of Earthquake Engineering and Structural Dynamics*, 16, 245-253, February 1988.**

[35] "System Identification Using Nonlinear Structural Models," P. Jayakumar and J.L. Beck, *Structural Safety Evaluation Based on System Identification Approaches*, H.G. Natke and J.T.P. Yao (Eds.), Vieweg-Verlag, Wiesbaden, 1988.

[36] "Probabilistic System Identification in the Time Domain," J.L. Beck, *Proceedings of USAF/NASA Workshop on Model Determination for Large Space Systems*, California Institute of Technology, Pasadena, March 1988.

[37] "Evaluation of a Methodology for Model Identification in the Time Domain," R.T Beck and J.L. Beck, *Proceedings of USAF/NASA Workshop on Model Determination for Large Space Systems*, California Institute of Technology, Pasadena, March 1988.

[38] "Treating Model Uncertainties in Structural Dynamics," J.L. Beck and L.S. Katafygiotis, *Proceedings 9th World Conference on Earthquake Engineering*, Tokyo, Japan, August 1988.

[39] "Accelerograms Recorded at Caltech During the Whittier Narrows Earthquakes of October 1, 1987: A Preliminary Report," M.B. Levine, J.L. Beck, W.D. Iwan, P.C. Jennings and R. Relles, Report No. EERL 88–01, Caltech, Pasadena, 1988.

[40] "Modal Parameter Identification of an Offshore Platform From Earthquake Response Records," A.B. Mason, J.L. Beck, J. Chen and R.R. Ullmann, *Proceedings of Sessions Related to Seismic Engineering at Structures Congress*, 271–226, ASCE, New York, 1989.

[41] **"Representing Imprecision in Engineering Design – Comparing Fuzzy and Probability Calculus," K.L. Wood, E.K. Antonsson and J.L. Beck, *Research in Engineering Design, 1,* 187–203, 1990.**

[42] "Statistical System Identification of Structures," J.L. Beck, *Proceedings of International Conference on Structural Safety and Reliability*, San Francisco, August 1989; 1395–1402, ASCE Publications, New York, 1990.

[43] "A New Approach to Processing Accelerograms Based on Probability," M.B. Levine and J.L. Beck, *Proceedings of the Fourth U.S. National Conference on Earthquake Engineering*, Palm Springs, California, EERI, May 1990.

[44] "Nonstationary Stochastic Characterization of Strong-Motion Accelerograms," K. Papadimitriou and J.L. Beck, *Proceedings of the Fourth U.S. National Conference on Earthquake Engineering*, Palm Springs, California, EERI, May 1990.

[45] "Dynamic Tests and Seismic Excitation of a Bridge Structure," S.D. Werner, J.L. Beck and A. Nisar, *Proceedings of the Fourth U.S. National Conference on Earthquake Engineering*, Palm Springs, California, EERI, May 1990.

[46] "Modal Identification of a Large Flexible Structure," J.L. Beck and D.Y. Chiang, *Proceedings USAF/NASA Workshop on System Identification and Health Monitoring*, Caltech, Pasadena, March 1990.

[47] "Seismic Analysis of a Low–Rise Shear Wall Building Using Actual Recorded Earthquake Motions," P.S. Hashimoto, J.L. Beck and J.F. Costello, *Proceedings Third Symposium on Current Issues Related to Nuclear Power Plant Structures, Equipment and Piping*, Electric Power Research Institute, Palo Alto, December 1990.

[48] "Uniqueness in Structural System Identification," L.S. Katafygiotis and J.L. Beck, *Proceedings U.S. National Workshop on Structural Control Research*, University of Southern California, October 1990.

[49] "An Experimental Study of the Active Control of a Building Model," I. Nishimura, A. Abdel-Ghaffar, J.L. Beck, T.K. Caughey, W.D. Iwan, S.F. Masri and R.K. Miller, *Proceedings First U.S./Japan Conference on Adaptive Structures*, Maui, Hawaii, November 1990.

[50] "Structural Properties of a Low–Rise Shear Wall Building Obtained from Recorded Earthquake Motions," P.S. Hashimoto, L.W. Tiong, J.L. Beck and J.F. Costello, *Proceedings Structural Mechanics in Reactor Technology Conference*, Tokyo, Japan, August 1991.

[51] "Updating of a Model and its Uncertainties Utilizing Dynamic Test Data," J.L. Beck and L.S. Katafygiotis, *Proceedings First International Conference on Computational Stochastic Mechanics*, 125-136, Computational Mechanics Publications, Boston, September 1991.

[52] "An Efficient Treatment of Model Uncertainties for the Dynamic Response of Structures," L.S. Katafygiotis and J.L. Beck, *Proceedings First International Conference on Computational Stochastic Mechanics*, 661-672, Computational Mechanics Publications, Boston, September 1991.

[53] "Approximate Analysis of Nonstationary Random Vibrations of MDOF Systems," K. Papadimitriou and J.L. Beck, *Proceedings First International Conference on Computational Stochastic Mechanics*, 371-382, Computational Mechanics Publications, Boston, September 1991.

[54] "Some Issues in the Identification of Structural Systems for Control and Response Prediction," S.F. Masri and J.L. Beck, *Proceedings International Workshop on Technology for Hong Kong's Infrastructure Development*, Hong Kong University of Science and Technology, December 1991.

[55] "Probabilistic Approach to Structural Health Monitoring from Dynamic Testing," L.S. Katafygiotis and J.L. Beck, *Proceedings International Workshop on Technology for Hong Kong's Infrastructure Development*, Hong Kong University of Science and Technology, December 1991.

[56] **"An Experimental Study of the Active Control of a Building Model," I. Nishimura, A. Abdel-Ghaffar, S.F. Masri, R.K. Miller, J.L. Beck, T.K. Caughey and W.D. Iwan, *Journal of Intelligent Material Systems and Structures*, 3, 134–165, January 1992.**

[57] "Analysis of Building Records from 1989 Loma Prieta, 1984 Morgan Hill and 1986 Mt Lewis Earthquakes," J.L. Beck, S.D. Werner and A. Nisar, *Proceedings of Structures Congress*, San Antonio, Texas, ASCE, New York, April 1992.

[58] "Updating Dynamic Models and their Associated Uncertainties for Structural Systems," J.L. Beck and L.S. Katafygiotis, *Proceedings Ninth Engineering Mechanics Conference*, College Station, Texas, ASCE, New York, May 1992.

[59] "Nonstationary Response Characteristics of Linear MDOF Systems," K. Papadimitriou and J.L. Beck, *Proceedings Ninth Engineering Mechanics Conference*, College Station, Texas, ASCE, New York, May 1992.

[60] "Assessment of UBC Seismic Design Provisions using Recorded Building Motions," A. Nisar, S.D. Werner and J.L. Beck, *Proceedings Tenth World Conference on Earthquake Engineering*, Madrid, Spain, July 1992.

[61] "Stochastic Characterization of Ground Motion and Applications to Structural Response," K. Papadimitriou and J.L. Beck, *Proceedings Tenth World Conference on Earthquake Engineering*, Madrid, Spain, July 1992.

[62] "Probabilistic System Identification and Health Monitoring of Structures," J.L. Beck and L.S. Katafygiotis, *Proceedings Tenth World Conference on Earthquake Engineering*, Madrid, Spain, July 1992.

[63] "Stiffness and Damping Properties of a Low Aspect Ratio Shear Wall Building Based on Recorded Earthquake Responses," P.S. Hashimoto, L.W. Tiong, L.K. Steele, J.J. Johnson, and J.L. Beck, Report NUREG/CR-6012, U.S. Nuclear Regulatory Commission, Washington, D.C., March 1993.

[64] "Seismic Analysis of Meloland Road Overcrossing Using Calibrated Structural and Foundation Models," S.D. Werner, J.L. Beck, L. Katafygiotis and A. Nisar, *Proceedings Structures Congress 1993*, Irvine, California, ASCE, New York, May 1993.

[65] "Hong Kong Full-Scale Structural Control Initiative," J.C. Chen, J.L. Beck and W.D. Iwan, *Proceedings International Workshop on Structural Control*, Honolulu, Hawaii, August 1993.

[66] "Model Identification and Seismic Analysis of Meloland Road Overcrossing," S.D. Werner, C.B. Crouse, L. Katafygiotis and J.L. Beck, Report to California Department of Transportation, Dames and Moore, Oakland, California, May 1993.

[67] **"Linear System Response by DFT: Analysis of a Recent Modified Method," J.F. Hall and J.L. Beck, *International Journal of Earthquake Engineering and Structural Dynamics*, 22, 599–615, 1993.**

[68] **"Moving Resonance in Nonlinear Response to Fully Nonstationary Stochastic Ground Motion," J.L. Beck and C. Papadimitriou, *Probabilistic Engineering Mechanics*, 8, 157–167, 1993.**

[69] **"Approximate Random Vibration Analysis of Classically-Damped MDOF Systems," C. Papadimitriou and J.L. Beck, *Journal of Engineering Mechanics*, ASCE, 120, 75–96, 1994.**

[70] **"A New Class of Distributed-Element Models for Cyclic Plasticity - Part 1: Theory and Application," D.Y. Chiang and J.L. Beck, *International J. Solids and Structures*, 31, 469–484, 1994.**

[71] **"A New Class of Distributed-Element Models for Cyclic Plasticity - Part 2: On Important Properties of Material Behavior," D.Y. Chiang and J.L. Beck, *International Journal of Solids and Structures*, 31, 485-496, 1994.**

[72] "International Full-Scale Test Facility for Structural Control," J.L. Beck, W.D. Iwan and J.C. Chen, *Proceedings American Control Conference*, Baltimore, Maryland, June 1994.

[73] "Use of Strong Motion Records for Model Evaluation and Seismic Analysis of a Bridge Structure," S.D. Werner, C.B. Crouse, L.S. Katafygiotis and J.L. Beck, *Proceedings Fifth U.S. National Conference on Earthquake Engineering*, Chicago, Illinois, EERI, July 1994.

[74] "Determination of Modal Parameters from Ambient Vibration Data for Structural Health Monitoring," J.L. Beck, B.S. May and D.C. Polidori, *Proceedings First World Conference on Structural Control*, Pasadena, California, August 1994.

[75] "Determination of Stiffness Changes from Modal Parameter Changes for Structural Health Monitoring," J.L. Beck, M.W. Vanik and L.S. Katafygiotis, *Proceedings First World Conference on Structural Control*, Pasadena, California, August 1994.

[76] "Almost Classically Damped Linear Discrete Systems," S. Natsiavas and J.L. Beck, *Proceedings 12th International Modal Analysis Conference*, Hawaii, February 1994.

[77] **"A Very Efficient Moment Calculation Method for Uncertain Linear Dynamic Systems," L.S. Katafygiotis and J.L. Beck, *Probabilistic Engineering Mechanics*, 10, 117–128, 1995.**

[78] "Robust Adaptive Structural Control," C.M. Yang and J.L. Beck, *Proceedings 10th Engineering Mechanics Conference*, Boulder, Colorado, ASCE, New York, May 1995.

[79] "New Computer Tools for Optimal Design Decisions in the Presence of Risk," J.L. Beck, E. Chan, S. Masri, W-M Xu, H.A. Smith, V. Vance, L. Barroso, First Year Report on CUREe-Kajima Project, Caltech-USC-Stanford, March 1995.

[80] "Ambient Vibration Surveys of Three Steel-Frame Buildings Strongly Shaken by the 1994 Northridge Earthquake," J.L. Beck, B.S. May, D.C. Polidori and M.W. Vanik, Report to SAC Joint Venture, July 1995 and Report No. EERL 95-06, California Institute of Technology, Pasadena, December 1995.

[81] "Knowledge-Based Assistance for the Analysis, Design and Optimization of Civil Structures," H.A. Smith, S.F. Masri, J.L. Beck and T. Tsugawa, *Proceedings 4th International Conference on Application of Artificial Intelligence to Civil and Structural Engineering*, Cambridge, England, August 1995.

[82] **"Ocean Cities Structural Integrity and Health Monitoring System," J.C. Chen, J.L. Beck and M.H. Teng, *La Houille Blanche*, 8, 53–59, 1995. Also in *Proceedings Ocean Cities '95 Symposium*, Monaco, November 1995.**

[83] **"Approximate Analysis of Response Variability of Uncertain Linear Systems," C. Papadimitriou, L.S. Katafygiotis and J.L. Beck, *Probabilistic Engineering Mechanics*, 10, 251–264, 1995.**

[84] **"A Transformation Method for Implementing Classical Multi-Yield-Surface Theory Using the Hardening Rule of Mroz," D.-Y. Chiang and J.L. Beck, *International Journal of Solids and Structures*, 33, No. 28, 4239–4261, 1996.**

[85] **"Approximate Solutions for Nonlinear Random Vibration Problems," D.C. Polidori and J.L. Beck, *Probabilistic Engineering Mechanics*, 11, 179–185, 1996.**

[86] "Class of Masing Models for Plastic Hysteresis in Structures," J.L. Beck and P. Jayakumar, *Proceedings 14th ASCE Structures Congress*, Chicago, Illinois, April 1996.

[87] "Structural Model Updating Using Expanded Modeshapes," J.L. Beck and M.W. Vanik, *Proceedings 11th Engineering Mechanics Conference*, Ft. Lauderdale, Florida, May 1996.

[88] "System Identification Methods Applied to Measured Seismic Response," J.L. Beck, *Proceedings 11th World Conference on Earthquake Engineering*, Acapulco, Mexico, June 1996.

[89] "Reliability-Based Optimal Design Decisions in the Presence of Seismic Risk," J.L. Beck, C. Papadimitriou, E. Chan and A. Irfanoglu, *Proceedings 11th World Conference on Earthquake Engineering*, Acapulco, Mexico, June 1996.

[90] "Approximate Solutions to Nonlinear Random Vibration Problems and the Fokker-Planck-Kolmogorov Equation," D.C. Polidori and J.L. Beck, *Proceedings Probabilistic Mechanics and Structural Reliability Conference*, Worcester, Massachusetts, August 1996.

[91] "Asymptotic Approximation of Reliability Integrals for Uncertain Systems," C. Papadimitriou, J.L. Beck and L.S. Katafygiotis, *Proceedings Probabilistic Mechanics and Structural Reliability Conference*, Worcester, Massachusetts, August 1996.

[92] **"Asymptotic Expansions for Reliabilities and Moments of Uncertain Dynamic Systems," C. Papadimitriou, J.L. Beck and L.S. Katafygiotis, *Journal of Engineering Mechanics*, 123, 1219-1229, December 1997. Also in Report No. EERL 95-05, California Institute of Technology, Pasadena, December 1995.**

[93] **"Updating Models and Their Uncertainties: Bayesian Statistical Framework," J.L. Beck and L.S. Katafygiotis, *Journal of Engineering Mechanics*, 124, No. 4, 455-461, April 1998.**

[94] **"Updating Models and Their Uncertainties: Model Identifiability," L.S. Katafygiotis and J.L. Beck, *Journal of Engineering Mechanics*, 124, No. 4, 463-467, April 1998.**

[95] "New Computer Tools for Optimal Design Decisions in the Presence of Risk," J.L. Beck et al, Final Report on CUREe-Kajima Project, Report CKII-10, California Universities for Research in Earthquake Engineering, Richmond, California, 1996.

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