Curriculum Vitae of Bingen Yang

February 2021

BINGEN (BEN) YANG

Present position:	Professor
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RESEARCH INTEREST

Distributed parameter systems, inflatable space structures, position and motion control of mechanical systems, passive and active vibration control of flexible mechanical systems, smart structures, micro electro-mechanical systems, computational methods, industrial applications

EDUCATION

Ph.D.	Mechanical Engineering	University of California, Berkeley, CA, 1989
M.S.	Applied Mechanics	Michigan State University, East Lansing, MI, 1985
B.S.	Engineering Mechanics	Dalian Institute of Technology, Dalian, China, 1982

EMPLOYMENT HISTORY

03/01– Present	Professor, Dept. of Aerospace Mechanical Engineering University of Southern California, Los Angeles, California
06/00-08/00	NASA-ASEE Summer Faculty Fellow, Jet Propulsion Lab
09/95 – 02/01	Associate Professor, Dept. of Aerospace Mechanical Engineering University of Southern California, Los Angeles, California
09/97 - 08/98	Associate Chair, Dept. of Mechanical Engineering, USC
09/89 - 08/95	Assistant Professor, Dept. of Mechanical Engineering University of Southern California, Los Angeles, California

HONORS AND AWARDS

Fellow, American Society of Mechanical Engineers, January 2002
Northrop Grumman Corporation Excellent Research Award, 1995
US Army Research Award, 1993
NSF Research Initiation Award, 1990
USC Faculty Research Innovation Award, 1990
Charles Lee Powell Research Award, 1989

UNIVERSITY SERVICES (University of Southern California)

Current Duties

AME Ph.D. Screening Exam Organizer, September 2018 – present
AME PhD progress committee, September 2017 - present
AME Award liaison for Engineering School, 2011 – present
Faculty tutor (for Dr. Inna Abramova) September 2016 – present
Graduate advisor in Vibrations and Dynamics, 2019 - present
ASME Student Advisor, August 2020 - present

Previous Duties

AME Chair Selection Committee – Spring 2020
VoE School Engineering Faculty Council (EFC), September 2018 – August 2020
VoE School Faculty Merit Evaluation Committee – Spring 2020
VoE School APT Committee – Spring 2017
AME Faculty Merit Review Committee, 2008, 2010, 2014
AME Strategic Planning: Focus Liaison on Exploration Technologies, 2010 – 2015
AME Dynamics and Control Faculty Search Committee, 2003 – 2006
AME Mechanics Faculty Search Committee, 2003 – 2005
AME Screening Exam Committee, 2011 – 2014
AME Seminar organizer, 2013 - 2015
AME Graduate Admission (for ME applicants), September 2005 – August 2008
AME Faculty Merit Review Committee, 2008
AME Faculty Search Committee in Mechanics and Materials, 2004-2005
AME Faculty Search Committee in Dynamics and Controls, 2004-2005
AME Graduate Affairs Committee, 1998-2003
AME Undergraduate Affairs Committee, 1998 - 2002
AME Computer Committee, 2000 - 2002
AME Dynamics and Controls Committee, 1999 - Present
AME Merit Review Committee, 2000
AME Faculty Merit Review Committee (Chair), 2004
AME Seminar Organizer, 2000-2001
School of Engineering Merit Evaluation Committee, 1999 - 2000
School of Engineering Appointment, Promotion and Tenure Committee, 1998 – 2000
ME Seminar Organizer, USC, 1992-1993, 1996-1997
ME Graduate Affairs Committee, 1996 –1998
ME Undergraduate Program Advisor, USC, 1991 -1994
ME Department Curriculum Committee, USC, 1994
ME Department Faculty Merit Evaluation Committee, USC, 1993, 1995, 1996
Member of USC Faculty Senate, 1991-1994

TEACHING ACTIVITIES

Courses Taught

AME 201	Statics
AME 302	Dynamic Systems
AME 420	Engineering Vibration I
AME 451	Linear Control Systems I
AME 441b	Experimental Engineering
AME 509	Applied Elasticity
AME 521	Engineering Vibration II
AME 541	Linear Control Systems II
AME 545	Modeling and Control of Distributed Dynamic Systems
AME550a	Seminar in Aerospace Engineering

Ph.D. Students Currently Under Supervision: 4

1. Ruiyang Wang (started September 2015, passed qualifying exam in Fall 2019)
   Ph. D. research topic: Modeling and analysis of an Electrodynamic System for High-Speed Maglev Transportation

2. Yichi Zhang (started September 2016, passed screening exam in Spring 2017)
   Ph. D. research topic: Mid-frequency analysis of large-scale multi-body flexible structures

3. Haowen Liu (stated in September 2017, passed screening exam in Spring 2018)
   Ph. D. research topic: Dynamics and nonlinear controls of UAV systems

PROFESSIONAL ACTIVITIES

Editorial Services

Associate Technical Editor, ASME Journal of Vibration and Acoustics (1996 –2003)

Member of Editorial Board, Chinese Journal of Computational Mechanics (2001-2006)

Member of Editorial Board, International Journal of Structural Stability and Dynamics: board member (May 2008-Now)

Professional Membership

Member American Society of Mechanical Engineers (ASME)
Member American Institute of Aeronautics and Astronautics (AIAA)
Member ASME Design Engineering Division Technical Committee on Vibration and Sound (TCVS), 1991-1999

Technical Reviewer for:

Journals - AIAA Journal; AIAA Journal of Guidance, Control, and Dynamics; ASCE Journal of Engineering Mechanics; ASCE Journal of Structural Engineering; ASME Journal of Applied Mechanics; ASME Journal of Dynamic Systems, Measurement and Control; ASME Journal of Vibration and Acoustics; Dynamics and Stability of Systems, An International Journal; IEEE Transactions on Automatic Control; International Journal of Numerical Methods in Engineering; Journal of the Franklin Institute; Journal of Sound and Vibration; Quarterly Journal of Mechanics and Applied Mathematics, Journal of Applied Mathematical Modeling, Journal of Computational and Nonlinear Dynamics, Journal of Mechanics of Materials and Structures

Conferences - AIAA/ASME/ASCE/ AHS/ASC Structures, Structural Dynamics, and Material Conference; ASME Design Engineering Technical Conferences; ASME Winter Annual Meeting (ASME WAM); American Control Conference (ACC); IEEE Conference on Decision and Control (CDC); SPIE Symposium on Smart Structures and Materials

Funding Agencies - Caltrans; National Science Foundation; US Army Research Office

Organizing Committee for Technical Conferences

Co-Organizer, Symposium on the Dynamics and Control of Moving Load Problems, the 18th ASME Biennial Conference on Mechanical Vibration and Noise, Pittsburgh, PA, September 9-12, 2001.

Co-Organizer, Symposium on Dynamics and Control of Time-Dependent Structures and Systems, the 17th ASME Biennial Conference on Mechanical Vibation and Noise, Las Vegas, NV, September 1999

Co-Organizer, Symposium on Dynamics and Control of Time-Dependent Structures and Systems, the 17th ASME Biennial Conference on Mechanical Vibation and Noise, Las Vegas, NV, September 1999.

Program Chairman, the 16th ASME Biennial Conference on Mechanical Vibation and Noise, Davis, CA, September 1997.

Co-Organizer, Symposium on Structural Vibration Control and Isolation, the 15th ASME Biennial Conference on Mechanical Vibation and Noise, Boston, MA, September 1995.

Organizer, Symposium on Vibration of Distributed Parameter Systems, the 15th ASME Biennial Conference on Mechanical Vibation and Noise, Boston, MA, September 1995.

Co-Organizer, Symposium on Vibration and Control of Distributed Parameter Systems, the 14th ASME Biennial Conference on Mechanical Vibation and Noise, Albuquerque, NM, September 1993.

PUBLICATIONS

Dr. Bingen Yang's research in the past three decades has resulted in more than 300 publications, including refereed journal papers, conference papers, books, book volumes, technical reports and invited talks.

Refereed Journal Articles

1. Tan, C.A., Yang, B., and Mote, C.D., Jr., 1990, "On the Vibration of a Translating String Coupled to Hydrodynamic Bearings," ASME Journal of Vibration and Acoustics, Vol. 112, July, pp. 337-345.
2. Yang, B., and Mote, C.D., Jr., 1990, "Vibration Control of Band Saws: Theory and Experiment," Wood Science and Technology, Vol. 24, pp. 355-373.
3. Yang, B., and Mote, C.D., Jr., 1991, "Controllability and Observability of Distributed Gyroscopic Systems," ASME Journal of Dynamic Systems, Measurement and Control, Vol. 113, No. 1, March, pp. 11-17.
4. Yang, B., and Mote, C.D., Jr., 1991, "Frequency-Domain Vibration Control of Distributed Gyroscopic Systems," ASME Journal of Dynamic Systems, Measurement and Control, Vol. 113, No. 1, March, pp. 18-25.
5. Yang, B., and Mote, C.D., Jr., 1991, "Active Vibration Control of the Axially Moving String in the s Domain," ASME Journal of Applied Mechanics, Vol. 58, No. 1, March, pp. 189-196.
6. Yang, B., 1992, "Eigenvalue Inclusion Principles for Discrete Gyroscopic Systems," ASME Journal of Applied Mechanics, Vol. 59, No. 2, Pt. 2, June, pp. S278-S283.
7. Yang, B., 1992, "Transfer Functions of Constrained/Combined One-Dimensional Continuous Dynamic Systems," Journal of Sound and Vibration, Vol. 156, No. 3, August, pp. 425-443.
8. Yang, B., 1992, "Eigenvalue Inclusion Principles for Distributed Gyroscopic Systems," ASME Journal of Applied Mechanics, Vol. 59, No. 3, September, pp. 650-656.
9. Yang, B., and Mote, C.D., Jr., 1992, "On Time Delay in Noncolocated Control of Flexible Mechanical Systems," ASME Journal of Dynamic Systems, Measurement and Control, Vol. 114, No. 3, September, pp. 409-415.
10. Yang, B., 1992, "Natural Frequencies of Combined Gyroscopic Systems," Journal of Sound and Vibration, Vol. 159, No. 1, November, pp. 23-37.
11. Yang, B., 1992, "Noncolocated Control of a Damped String Using Time Delay," ASME Journal of Dynamic Systems, Measurement and Control, Vol. 114, No. 4, December, pp. 736-740.
12. Yang, B., and Tan, C.A., 1992, "Transfer Functions of One-Dimensional Distributed Parameter Systems," ASME Journal of Applied Mechanics, Vol. 59, No. 4, December, pp. 1009-1014.

13. Tan, C.A., Yang, B., and Mote, C.D., Jr., 1993, "Dynamics Response of an Axially Moving Beam Coupled to Hydrodynamic Bearings," ASME Journal of Vibration and Acoustics, Vol. 115, No. 1, January, pp. 9-15.

14. Yang, B., 1993, "Exact Receptances of Non-Proportionally Damped Dynamic Systems," ASME Journal of Vibration and Acoustics, Vol. 115, No. 1, January, pp. 47-52.

15. Yang, B., 1994, "Distributed Transfer Function Analysis of Complex Distributed Parameter Systems," ASME Journal of Applied Mechanics, Vol. 61. No. 1, March, pp. 84-92.

16. Miu, D., and Yang, B.,1994, "On Transfer Function Zeros of General Colocated Control Systems with Mechanical Flexibilities," ASME Journal of Dynamic Systems, Measurement and Control, Vol. 116, No. 1, March, pp. 151-154.

17. Kang, M.S., and Yang, B., 1994, "Discrete Time Noncolocated Control of Flexible Mechanical Systems Using Time Delay," ASME Journal of Dynamic Systems, Measurement and Control, Vol. 116, No. 2, June, pp. 216-222.

18. Yang, B., 1994, "Vibration Control of Gyroscopic Systems via Direct Velocity Feedback," Journal of Sound and Vibration, Vol. 175, No. 4, August, pp. 525-534.

19. Yang, B., and Fang, H., 1994, "Transfer Function Formulation of Non-Uniformly Distributed Parameter Systems," ASME Journal of Vibration and Acoustics, Vol. 116, No. 4, October, pp. 426-432.

20. Yang, B., 1995, "Linear Vibration of a Coupled String - Rigid Bar System," Journal of Sound and Vibration, Vol. 183, No. 3, June, pp. 383-399.

21. Zhou, J., and Yang, B., 1995, "A Distributed Transfer Function Method for Analysis of Cylindrical Shells," AIAA Journal, Vol. 33, No. 9, September, pp. 1698-1708.

22. Yang, B., 1995, "Modal Controllability and Observability of General Mechanical Systems," ASME Journal of Vibration and Acoustics, Vol. 117, No. 4, October, pp. 510-515.

23. Yang, B., and Zhou, J., 1995, "Analysis of Ring-Stiffened Cylindrical Shells," ASME Journal of Applied Mechanics, Vol. 62, No. 4, December, pp. 1005-1014.

24. Zhou, J., and Yang, B., 1996, "Strip Distributed Transfer Function Method for the Analysis of Plates," International Journal of Numerical Methods in Engineering, Vol. 39, No. 11, June, pp. 1915-1932.

25. Zhou, J., and Yang, B., 1996, "Three-Dimensional Stress Analysis of Thick Laminated Composite Cylindrical Shells and Panels," AIAA Journal, Vol. 34, No. 9, September, pp. 1960-1964.

26. Yang, B., 1996, "Integral Formulas for Non-Self-Adjoint Distributed Dynamic Systems," AIAA Journal, Vol. 34, No. 10, October, pp. 2132-2139.

27. Yang, B., and Zhou, J., 1996, "Semi-analytical Solution of 2-D Elasticity Problems by the Strip Distributed Transfer Function Method," International Journal of Solid and Structures, Vol. 33, No. 27, pp. 3983-4005.

28. Yang, B., 1996, "Closed-Form Transient Response of Distributed Damped Systems, Part I: Modal Analysis and Green's Function Formula," ASME Journal of Applied Mechanics, Vol. 63, No. 4, December, pp. 997-1003.

29. Yang, B., 1996, "Closed-Form Transient Response of Distributed Damped Systems, Part II: Energy Formulation for Constrained and Combined Systems," ASME Journal of Applied Mechanics, Vol. 63, No. 4, December, pp. 1004-1010.

30. Yang, B., and Zhou, J., 1997, "Strip Distributed Transfer Function Analysis of Circular and Sectorial Plates," Journal of Sound and Vibration, Vol. 201, No. 5, pp. 641-647.

31. Raza, H., Xu, Z., Yang, B., and P. Ioannou, 1997, "Modeling and Control Design for a Computer Controlled Brake System," IEEE Transactions on Control System Technology, Vol. 5, No. 3, pp. 279-296.

32. Yang, B., and Wu, X., 1997, "Transient Response of One-Dimensional Distributed Systems: a Closed-Form Eigenfunction Expansion Realization," Journal of Sound and Vibration, Vol. 208, No. 5, pp. 763-776.

33. Fang, H., and Yang, B., 1998, "Modeling, Synthesis and Dynamic Analysis of Complex Flexible Rotor Systems," Journal of Sound and Vibration, Vol. 211, No. 4, pp. 571-592.

34. Yang, B., and Wu, X., 1998, "Modal Expansion of Structural Systems with Time Delays," AIAA Journal, Vol. 36, No. 12, pp. 2218-2224.

35. Yang, B., and Park, D.-H., 1999, "Analysis of Plates with Curved Boundaries Using Isoparametric Strip Distributed Transfer Functions," International Journal of Numerical Methods in Engineering, Vol. 44, pp. 131-146.

36. Liew, K.M., and Yang, B., 1999, "Three-Dimensional Elasticity Solutions for Free Vibrations of Circular Plates: a Polynomials-Ritz Analysis," Computer Methods in Applied Mechanics and Engineering, Vol. 175, pp. 189-201.

37. Yang, B., Tan, C.A., and Bergman, L., 2000, "A Direct Numerical Procedure for the Solution of Moving Oscillator Problems," ASCE Journal of Engineering Mechanics, Vol. 126, No. 5, pp. 462-469.

39. Liu, X., Yang, B., and Liu, Z., 2000, "Vibration Control via Actively Adding Time Delay," Journal of Beijing University of Posts and Telecommunications, Vol. 23, No. 3, pp. 25-28.

40. Fang, H., Lou, M., and Yang, B., 2000, "PVP-MP Method for Wrinkling Analysis of Space Membrane Structures," NASA Technical Brief, NPO-21133, October.

41. Liew, K.M., and Yang, B., 2001, "Polynomials-Ritz Three-Dimensional Elasticity Solutions for Free Vibrations of Circular Plates," International Journal of Solid and Structures, Vol. 37, pp. 7689-7702.

42. Park, D.-H., and Yang, B., 2001, "Static and Vibration Analyses of Prismatic Elastic Multi-body Solids," International Journal of Structures and Structural Dynamics. Vol. 14, No. 1, March, pp. 154-162.

43. Pesterev, A.V., Yang, B., Bergman, L.A., and Tan, C.A., 2001, "Response of Elastic Continuum Carrying Multiple Moving Oscillators," *ASCE J. of Engineering Mechanics,* 2001, Vol. 127, pp. 260-265.

44. Liu, X., and Yang, B., 2001, "Dynamic Analysis of an Axially Traveling String Constrained by a Viscoelastic Damper," Journal of Vibration Engineering, Vol. 14, No. 3, pp. 268-272.

45. Liu, X., and Yang, B., 2001, "Root Loci Breakaway Analysis of Mechanical Structural System with a Damper," Chinese Journal of Mechanical Engineering, Vol. 37, No. 11, pp. 78-80.

46. Ding, H., Yang, B., Lou, M., and Fang, H., 2002, "New Numerical Method for Two-Dimensional Partially Wrinkled Membranes," *AIAA Journal*, Vol. 41, No. 1, pp. 125-132.

47. Pesterev, A.V., Yang, B., Bergman, L., and Tan, C.A., 2003, "Revisiting the Moving Force Problem", Journal of Sound and Vibration, Vol. 261, No. 1, pp. 75-91.

48. Pesterev, A.V., Bergman, L.A, Tan, C.A, T.-C. Tsao, and Yang, B., 2003, "On Asymptotics of the Solution of the Moving Oscillator Problem," *J. of Sound and Vibration,*, Vol. 260, No. 3, pp. 519-536.

49. Ding, H., and Yang, B., Lou, M., Fang, H., 2003, "Modeling and Numerical Analysis of Wrinkled Membranes," *International Journal of Numerical Methods in Engineering*. Vol. 58, No. 12, pp. 1785-1801.

50. Fang, H., Lou, M.C., Yang, B., and Yang, Y., 2003, "Modeling of Gossamer Space Structures with Distributed Transfer Function Method," *AIAA Journal of Spacecraft and Rockets*, Vol. 40, No. 4, pp. 548-552.

51. Yang, B., and Park, D.-H., 2003, "Exact Buckling Analysis of Constrained Stepped Columns," *International Journal of Structural Stability and Dynamics*, Vol. 3, No. 2, pp. 143-167.

52. Pesterev, A.V., Bergman, L.A., Tan, C. A. and Yang, B., 2005, "Assessing Tire Forces due to Roadway Unevenness by the Pothole Dynamic Amplification Method," Journal of Sound and Vibration, Vol. 279(3-5), pp. 817-841..

53. Pesterev, A.V., Bergman, L.A., Tan, C. A. and Yang, B., 2005, "Application of the Pothole DAF method to Vehicles Traversing Periodic Roadway Irregularities," Journal of Sound and Vibration, Vol. 279(3-5), pp. 843-855.

54. Susanto, K., and Yang, B., 2007, "Modeling and Design of a Piezoelectric Forceps Actuator for Meso/Micro Grasping," *ASME Journal of Medical Devices*, Vol. 1, pp. 30-37.

55. Yang, B., 2008, "A Distributed Transfer Function Method for Heat Conduction Problems in Multilayer Composites", *Numerical Heat Transfer, Part B Fundamentals*, Volume 54, Issue 4, pp. 314-337.

56. Yang, B., and H. Shi, 2009, "A Thermal Stability Criterion for Heat Conduction in Multilayer Composite Solids", *ASME Journal of Heat Transfer,* November, Vol. 131, pp. 111304-1 to 111304-7.

57. Yang, B., 2010, "Exact Transient Vibration of Stepped Distributed Systems with Mounted Lumped Masses", *Journal of Sound and Vibration*, April, Vol. 329, NO. 8, pp. 1191–1207.

58. Yang, Y.-B., Yang, B., 2010, "Semi-Analytical Solution of 2-D Elasticity Problems by Finite Difference-Distributed Transfer Function Method," *International Journal of Structural Stability and Dynamics*, June, Vol. 10, NO. 2.

59. Susanto, K., and Yang, B., 2010, "Modeling, Vibration Analysis and Feedback Control of a Piezoelectric Forceps Actuator", *The IES Journal Part A: Civil & Structural Engineering*, Vol. 3, No. 4, November, 224–234.

60. Yang, B., Noh, K., 2012, "Exact Transient Vibration of Solutions for Transient Vibration of Non-Uniform Bars, Shafts and Strings Governed by Wave Equations", *International Journal of Structural Stability and Dynamics*, June, Vol. 12, No. 3.

61. Choi, H., Yang, B., 2012, "On Singularity of Rigid-Body Dynamics Using Quaternion-Based Models," *ASME Journal of Applied Mechanics,* March, Vol. 79, 024502-1.

62. Choi, H., Yang, B., 2013, "Addenda to 'On Singularity of Rigid-Body Dynamics Using Quaternion-Based Models'," *ASME Journal of Applied Mechanics,* July, Vol. 80, 041029-1.

63. Noh, K., Yang, B., 2014, "An Augmented State Formulation for Modeling and Analysis of Multibody Distributed Dynamic Systems", *ASME Journal of Applied Mechanics*, January, Vol., 81, No. 5, 051011; Paper No: JAM-13-1187; doi: 10.1115/1.4026124.

64. Bergman, D., and Yang, B., 2015, "An Analytical Shape Memory Polymer Composite Beam", *International Journal of Structural Stability and Dynamics,* Vol. 16, No. 1, March, DOI: 10.1142/S021945541450093X.

65. Bergman, D., and Yang, B., 2015, "A Finite Element Model of Shape Memory Polymer Composite Beams for Space Applications", *International Journal of Numerical Methods in Engineering ,* Vol. 103, No. 9, April, DOI: 10.1002/nme.4915.

66. Liu, S., and Yang, B., 2015, "A New Model of Water-Lubricated Rubber Bearings for Vibration Analysis of Flexible Multistage Rotor Systems," *Journal of Sound and Vibration*, Vol. 349, pp. 230-258.

67. Xie, Y., Shi, H., Alleyne, A., and Yang, B., 2016, "Feedback Shape Control for Deployable Mesh Reflectors Using Gain Scheduling Method", *Acta Astronautica*, January.

68. Liu, S., and Yang, B., 2017, "Vibrations of Flexible Multistage Rotor Systems Supported by Water-Lubricated Rubber Bearings," *ASME Journal of Vibration and Acoustics*, Vol. 139(2), DOI: 10.1115/1.4035136, April.

69. Yang, B. and Liu, S., 2017, "Closed-Form Analytical Solutions of Transient Heat Conduction in Hollow Composite Cylinders with Any Number of Layers", *International Journal of Heat and Mass Transfer*, Vol. 108, pp. 907-917, May. https://doi.org/10.1016/j.ijheatmasstransfer.2016.12.020

70. Liu, S., and Yang, B., 2017, "Optimal Placement of Water-Lubricated Rubber Bearings for Vibration Reduction of Flexible Multistage Rotor Systems," *Journal of Sound and Vibration*, Vol. 407, pp. 332-349, October. https://doi.org/10.1016/j.jsv.2017.07.004

71. Liu, S., and Yang, B., 2017, "Optimal Vibration Reduction of Flexible Rotor Systems by the Virtual Bearing Method," *ASME Journal of Vibration and Acoustics*, Vol. 140.

72. Shi, H., and Yuan, S. and Yang B., 2017, "New Methodology of Surface Mesh Geometry Design for Deployable Mesh Reflectors", *AIAA Journal of Spacecraft and Rockets*, September. DOI: 10.2514/1.A33867.

73. Yang, B., Gao, H., and Liu, S., 2018, "Vibrations of a Multi-Span Beam Structure Carrying Many Moving Oscillators", *International Journal of Structural Stability and Dynamics*, Vol. 18, No. 10. Published in April. DOI: 10.1142/S0219455418501250.

74. Yuan, S., Yang, B. and Fang, H., 2018, "The Projecting Surface Method for Improvement of Surface Accuracy of Large Deployable Mesh Reflectors", *Acta Astronautica*, Vol. 151, pp. 678-690. Published in July.

75. Yuan, S. and Yang, B., 2018, "The fixed nodal position method for form finding of high-precision lightweight truss structures", *International Journal of Solids and Structures*, Vol. 151, pp. 678-690. Published in November. doi.org/10.1016/j.ijsolstr.2018.11.011

76. Feinberg, J. and Yang, B., 2018, "Natural-Frequency Splitting of a Guitar String Caused by a Non-uniform Magnetic Field", *Journal of Acoust. Soc. Am.*, Vol. 144, No. 5. Published in November. doi.org/10.1121/1.5080465.

77. Liu, S., and Yang, B., 2019, "A Closed-Form Analytical Solution Method for Vibration Analysis Of Elastically Connected Double-Beam Systems," *Composite Structures*, Vol. 212. pp. 598-608. //doi.org/10.1016/j.compstruct.2019.01.038

78. Feinberg, J. and Yang, B., 2019, "On the Phenomenon of Natural-Frequency Splitting of a Guitar String Caused by a Magnetic Field", *Journal of Acoust. Soc. Am.*, Vol. 145, No. 3. Published in April. doi.org/10.1121/1.5101412.

79 Yuan, S., Yang, B. and Fang, H., 2019, "Self-Standing Truss with Hard-Point-Enhanced Large Deployable Mesh Reflectors", *AIAA Journal*. Published in June. doi.org/10.2514/1.J058446.

80 Fu, L., Wang, J., Jiang, Y., Yu, L., Zhao, R., Ling, Q., Yang, B., Liu, Q., and Shen, Z., 2019, "Improvement of the Pointing Precision of the Tianma Radio Telescope with an Inclinometer Measurement System", *Experimental Astronomy*, Vol. 48, Issue 1, pp 49–64. Published in August. doi.org/10.1007/s10686-019-09639-7.

81. Wu, K., Fang, H., and Yang, B., 2019, "Modeling, Analyses, and Optimization of Planar Active Frame Structures Composed of Piezoelectric Beams", *International Journal of Structural Stability and Dynamics*, Vol. 19, No. 12. Published in December.
DOI: 10.1142/S0219455418501250.DOI: 10.1142/S0219455419501463

82. Gao, H. and Yang, B., 2020, "Dynamic Response of a Beam Structure Excited by Sequentially Moving Rigid Bodies", *International Journal of Structural Stability and Dynamics*, Vol. 20, No. 8. Published in August. doi.org/10.1142/S0219455420500935.

83 Wang, R. and Yang, B., 2020, "Transient Response of Inductrack Systems for Maglev Transport: Part I – A New Transient Model", *ASME Journal of Vibration and Acoustics*, Vol. 142, No. 3. Published in June. doi.org/10.1115/1.4046132.

84 Wang, R. and Yang, B., 2020, "Transient Response of Inductrack Systems for Maglev Transport: Part II – Solution and Dynamic Analysis", *ASME Journal of Vibration and Acoustics*, Vol. 142, No. 3. Published in June. doi.org/10.1115/1.4046132.

85. Zhang, Y. and Yang, B., 2020, "A New Approach to Transient Vibration Analysis of Two-Dimensional Beam Structures at Medium and High Frequencies", *ASME Journal of Computational and Nonlinear Dynamics*, Vol. 15, No. 9. Published in September. doi.org/10.1115/1.4046641.

86 Gao, H. and Yang, B., 2020, "Parametric Vibration of a Flexible Structure Excited by Periodic Passage of Moving Oscillators", *ASME Journal of Applied Mechanics*, Vol. 15, No. 9. Published in July. doi.org/10.1115/1.4046781.

87. Zhang, Y. and Yang, B., 2020, "Medium-Frequency Vibration Analysis of Timoshenko Beam Structures", *International Journal of Structural Stability and Dynamics*, Vol. 20, No. 13. Published in December. doi.org/10.1142/S0219455420410096.

Edited Works

1. C. A. Tan, L. A. Bergman, and Yang, B. (editors), 1993, "Vibration and Control of Distributed Parameter Systems," ASME DE-Vol. 61.
2. K.-W. Wang, B. Yang and J. Q. Sun (editors), 1995, "Structural Vibration Control and Isolation," ASME DE-Vol. 84-3, Part C.
3. B. Yang (editor), 1995, "Vibration of Distributed Parameter Systems," ASME DE-Vol. 84-3, Part C.
4. Bergman, L.A. and Yang, B. (editors), 1997, the Proceedings of the 16th ASME Biennial Conference on Mechanical Vibration and Noise, Sacramento, CA, September.
5. Yang, B., Tan, C.A., Pesterev, A.V. and Bergman, L.A. (editors), 1999, Symposium on Dynamics and Control of Time-Dependent Structures and Systems, the 17th ASME Biennial Conference on Mechanical Vibration and Noise, September 12-15, 1999, Las Vegas, NV.
6. Tan, C.A., Bergman, L.A., T-C Tsao and Yang, B. (editors), 2001, Symposium on Dynamics And Control of Moving Load Problems, the 18th ASME Biennial Conference on Mechanical Vibration and Noise, September 9-13, 2001, Pittsburgh, PA, USA.

Theses

1. Yang, B., 1989, "Active Vibration Control of Axially Moving Materials," Ph.D. Dissertation, UC Berkeley, California, April.

Books

1. Yang, B., 2005, Stress, Strain, and Structural Dynamics: An Interactive Handbook of Formulas, Solutions, and MATLAB Toolboxes, Elsevier Science, March [ISBN: 0-12-787767-3].
2. Yang, B. and Abramova, I., Dynamic Systems: Modeling, Simulation, and Analysis, Cambridge University Press, to be published in 2021.

Chapters in Books

1. Yang, B., and Mote, C.D., Jr., 1989, "Active Vibration Control of Band Saws," to the Liber Amicorum for Jacques Peters, Katholieke Universiteit Leuven, Belgium, October.

2 Yang, B., and Mote, C.D., Jr., 1992, "Active Vibration Control of Axially Moving Continua," Chapter in Intelligent Structural Systems, edited by Tzou, H.S., and Anderson, G.L., Kluwer Academic Publishers, Boston, August, pp. 359-402.

3. Yang, B., 1995, "A Transfer Function Method for Modeling and Control of Gyroscopic Dynamic Systems," Chapter in Wave Motion, Intelligent Structures and Nonlinear Mechanics, edited by Guran, A., and Inman, D.J., World Scientific Publishing Company, New Jersey, pp. 135-162.

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116 Liu, H. and Yang, B., 2020, "Quaternion-Based Control of Acrobatic Quadrotor with Trajectory Following", the International Mechanical Engineering Congress & Exposition (2020 IMECE), Paper No. IMECE2020-23064, Portland, Oregon, November 16 –19.

INVITED TALKS AND SEMINARS (Selected)

1. Yang, B., 1990, "The Time Delay Approach in Noncolocated Control of Flexible Mechanical Systems," Princeton University.
2. Yang, B., 1991, "A Transfer Function Method for Analysis and Control of Flexible Mechanical Systems," California Institute of Technology.
3. Yang, B., 1991, "A Transfer Function Method in Vibration and Control of Distributed Parameter Systems," University of Illinois at Urbana-Champaign.
4. Yang, B., 1992, "Vibration Analysis and Control of Flexible Mechanical Systems Using Distributed Transfer Functions," Purdue University.
5. Yang, B., 1994, "Frequency-Domain Control of Flexible Mechanical Systems," Chinese Academy of Science, Beijing, China, June.
6. Yang, B., 1997, "Distributed Transfer Function Modeling of Complex Flexible Rotating Systems," IBM Almaden Research Center, September.
7. Yang, B., 1997, "A Highly Accurate Semi-Analytical Method for Modeling and Simulation in Manufacturing and Materials Processing," Hughes Aircraft Company, October.
8. Yang, B., 1999, "Suppression of High Frequency and Aliased Vibrations of High Precision Positioning Systems," Western Digital Corp., March.
9. Yang, B., 2001, "Modeling and Analysis Inflatable Space Structures," UCLA, April.
10. Yang, B., 2001, "Research on Inflatable Space Structures," USC Engineering School Retreat, April.
11. Yang, B., 2001, "Inflatable Space Structures," Dalian University of Technology, Dalian, China, June.
12. Yang, B., 2001, "Modeling and Analysis of Combined Structural Systems with Moving Subsystems," Dalian University of Technology, Dalian, China, June.
13. Yang, B., 2005, "Interactive Computing in Engineering Education," USC AME Department, March.

14. Yang, B., 2010, "Modeling and Analysis of Deployable Mesh Antenna Reflectors," Jet Propulsion Lab, May 25.
15. Yang, B., 2011, "Dynamic Analysis of Deployable Mesh Antenna Reflectors," Jet Propulsion Lab, July 12.
16. Yang, B., 2013, "Mechanics Problems in Development of Lightweight Space Deployable Structures", Shanghai YS Information Technology Co., Ltd., Shanghai 200240, China, June 25.
17. Yang, B., 2013, "Mechanics Problems in Development of Lightweight Space Deployable Structures", National University of Defense Technology, Changsha, China, June 6.
18. Yang, B., 2013, "Modeling and Analysis of Deployable Mesh Reflectors", National University of Defense Technology, Changsha, China, June 7.
19. Yang, B., "Recent Developments in Space Deployable Structures", Institute of Modern Physics, Chinese Academy of Science, Lanzhou, China, July 9.
20. Yang, B., 2013, "Modeling and Analysis of Deployable Space Structures", Branch No. 5, Chinese Academy of Technology, Xi-An, China, June 12.
21. Yang, B., 2013, "Distributed Transfer Function Method for Modeling and Analysis of Multi-body Space Structures", Chinese Academy of Technology, Branch No. 5, Xi-An, China, June 13.
22. Yang, B. 2014, "Engineering Education with Mobile Devices and Icloud Computing", USC Viterbi Division of Engineering Education, University of Southern California, March 7. (http://viterbi.usc.edu/academics/dee/)
23. Yang, B. 2014, "Teaching Engineering Courses via Mobile Devices", USC DEN@Viterbi Faculty Forum, University of Southern California, March 14.
24. Yang, B. 2014, "Mobile Teaching for Engineering Education", Department of Aerospace and Mechanical Engineering, University of Southern California, April 30.
25. Yang, B. 2015, "Research on Deployable Space Reflectors", R&D Division, Shanghai YS Information Technology Company, November 16.
26. Yang, B. 2015, "Distributed Transfer Function Method for Space Structures", R&D Division, Shanghai YS Information Technology Company, November 16.

27 Yang, B. 2015, "Dynamic Analysis of Plates and Shells by the Distributed Transfer Function Methods", Dept. of Mechanical Engineering, Xidian University, Xi-An, China, November 18.

28. Yang, B. 2015, "Modeling & Analysis of Wrinkled Membranes – An Overview", Dept. of Mechanical Engineering, Xidian University, Xi-An, China, November 18.
29. Yang, B. 2015, "Modeling and Analysis of Space Deployable Structures", China Academy of Space Technology, Xi-An Branch, Xi-An, China, November 19.

30. Yang, B. 2016, “Tablet Teaching for Engineering Education”, DEE Lessons in Engaged Learning, USC Viterbi School of Engineering, May 3.

31. Yang, B. 2016, “Dynamics and Control Problems with the Hyperloop Systems”, Dept. of Mechanical Engineering, R&D Division, Shanghai YS Information Technology Company, Shanghai, China, May 18.

32. Yang, B. 2016, “A New Method of Maglev for the Hyperloop System”, China Academy of Space Technology, Shanghai Jiaotong University, Shanghai, China, May 19.

33. Yang, B., 2017, “A New Approach to the Improvement of Surface Accuracy for Large Deployable Mesh Reflectors”, Shanghai YS Information Technology Company, Shanghai, China, May 19.

34. Yang, B. and Yuan, S., 2019, “Form Finding and Optimal Design of Large Deployable Mesh Reflectors”, Shanghai YS Information Technology Company, Shanghai, China, June 16.

35. Yang, B. and Gao, H., 2019, “Parametric Resonance of a Beam Structure Carrying Multiple Moving Subsystems”, Shanghai YS Information Technology Company, Shanghai, China, June 16.

36. Yang, B. and Zhang, Y., 2019, “A New Method For Mid- and High-Frequency Analyses of Complex Beam Structures”, Xi’An Jiaotong University, Xi’An, China, June 18.

37. Yang, B. and Wang, R., 2019, “Development of Transient Models for a Hyperloop Maglev System”, Xi’An Jiaotong University, Xi’An, China, China, June 18.

Technical Reports

1. Yang, B., 1989, “Active Vibration Control of Axially Moving Materials,” Ph.D. Dissertation, UC Berkeley, California, April.

2. Yang, B., 1990, “Vibration Control of Distributed Gyroscopic Systems,” Annual Report to the Charles Lee Powell Foundation, September.

3. Yang, B., 1993, “Noncolocated Vibration Control of Flexible Mechanical Systems by the Time Delay Approach,” Final Technical Report to the National Science Foundation, December.

4. Yang, B., 1993, “Transfer Function Analysis of Complex Distributed Parameter Systems,” Annual Technical Report to the US Army Research Office, December.

5. Raza, H., Xu, Z., Ioannou, P., and Yang, B., 1994, “Brake Modeling for AVCS Application,” Technical Report to Ford Motor Co. and PATH, No. 94-01-01.

6. Yang, B., 1994, “Transfer Function Analysis of Complex Distributed Parameter Systems,” Annual Technical Report to the US Army Research Office, December.

7. Li, D., Xu, Z., and Yang, B., 1995, "Experimental Model of Control Valve Unit in the Auxiliary Hydraulic Module of a Vehicle Brake System," Technical Report to Ford Motor Co. and PATH, No. 95-06-01.

8. Raza, H., Xu, Z., Ioannou, P., and Yang, B., 1995, "Modeling and Control Design for a Computer Controlled Brake System," Technical Report to Ford Motor Co. and PATH, 95-06-02.

9. Raza, H., Xu, Z., Ioannou, P., and Yang, B., 1995, "Failure Detection of a Computer Controlled Brake System," Technical Report to Ford Motor Co. and PATH, No. 95-06-03.

10. Xu, Z., and Yang, B., 1995, "Brake System Analysis, Reliability Testing and Control Using Bench Experiments," Technical Report to Ford Motor Co. and PATH, No. 95-06-04.

11. Yang, B., 1995, "Transfer Function Analysis of Complex Distributed Parameter Systems," Annual Technical Report to the US Army Research Office, December.

12. Yang, B., 1995, "Wave Motion in a Flexible Rod with Tuned Boundary Impedance," Technical Report No. 95-12-01, Mechanical Engineering Department, University of Southern California.

13. Yang, B., and Liu, Z., 1999, "A Delayed Feedback Approach toward Increase in the Bandwidth of a Flexible Positioning Servo System," Technical Report No. 99-02-01, Department of Aerospace and Mechanical Engineering Department, University of Southern California.

14. Yang, B., 1999, "Distributed Transfer Function for Inflatable Space Structure Applications," Technical Report No. 99-12-01 (to NASA's Jet Propulsion Laboratory), Aerospace and Mechanical Engineering Department, University of Southern California.

15. Yang, B., and Liu, Z., 2000, " Delayed Feedback and Lead Low-Pass Filter in HDD Servo System," Technical Report No. 00-01-01, Department of Aerospace and Mechanical Engineering Department, University of Southern California.

16. Yang, B., 2000, "A One-Dimensional Distributed Model of Balloon-Gondola System," Technical Report 00-08-01 to Jet Propulsion Lab, August.

17. Yang, B., 2000, "Dynamic Analysis of a Balloon-Ripstitch-Gondola Systems during Initial Deployment," Technical Report No. 00-08-02 to Jet Propulsion Lab, August.

18. Yang, B., and Ding, H., 2001, "The Modeling and Numerical Analysis of Wrinkled Membranes," Technical Report No. 01-12-01 to Jet Propulsion Lab, December.

19. Yang, B., 2001, "Study of Deployment Dynamics of a Balloon-Ripstitch-Gondola System for Space Missions," Technical Report No. 01-12-02 to Jet Propulsion Lab, December.

20. Chen, Z., and Yang, B., 2001, "Stress Analysis of An Inflatable Rover," Technical Report 01-12-03 to Jet Propulsion Lab, December.

21. Wang, H., and Yang, B., 2002, "A Precursor Study of Balloon Skin Flapping for Safe Deployment and Navigation of Space Balloon Systems," Technical Report No. 02-01-01 to Jet Propulsion Lab, January.

22. Wang, H., and Yang, B., 2002, "Mobility Analysis of a Tumbleweed Ball under Wind Loads," Technical Report No. 02-03-01 to Jet Propulsion Lab, March.

23. Ding, H., and Yang, B., 2002, "The Development and Manual of a Matlab Code for Wrinkling Analysis of Membrane Space Structures," Technical Report No. 02-03-02 to Jet Propulsion Lab, March.

24. Ding, H., and Yang, B., 2003, "PVP – WASP: User's Manual," Technical Report to Jet Propulsion Lab, December, No. 2003-12-A.

25. Ding, H., and Yang, B., 2004, "PVP – WASP: Operation Manual," Technical Report to Jet Propulsion Lab, January, No. 2004-01-A.

26. Ding, H., and Yang, B., 2004, "Wrinkling Analysis of Membranes with Catenary Boundaries," Technical Report to Jet Propulsion Lab, February, No. 2004-02-A.

27. Ding, H., and Yang, B., 2004, "Wrinkling Analysis of Membranes with Catenary Boundaries: MATLAB Toolbox," Technical Report to Jet Propulsion Lab, March, No. 2004-03-AB.

28. Ding, H., and Yang, B., 2004, "A New Numerical Model for Triangle Membrane with Catenary Boundary Connection," Technical Report to Jet Propulsion Lab, May, No. 2004-05-A.

29. Ding, H., and Yang, B., 2004, "Natural Frequency of Rectangle Plate by A Triangular Finite Element," Technical Report to Jet Propulsion Lab, June, No. 2004-06-A.

27. Ding, H., and Yang, B., 2004, "Natural Frequency of Rectangle Membranes with Wrinkles by PVP-WASP and Finite Element Method," Technical Report to Jet Propulsion Lab, July, No. 2004-07-A.

28. Ding, H., and Yang, B., 2004, "Natural Frequencies of A Triangle Wrinkled Membrane by PVP-Based Finite Element Method," Technical Report to Jet Propulsion Lab, August, No. 2004-08-A.

29. Ding, H., and Yang, B., 2004, "Natural Frequency Analysis of Curved Triangle Membrane with Catenary Boundaries," Technical Report to Jet Propulsion Lab, September, No. 2004-09-AB.

30. Ding, H., and Yang, B., 2005, "Free Vibration Analysis of a Membrane with Catenary," Technical Report to Jet Propulsion Lab, January, No. 2005-01-A.

31. Ding, H., and Yang, B., 2005, "Natural Frequencies of a Deployable Boom," Technical Report to Jet Propulsion Lab, January, No. 2005-01-B.

32. Ding, H., and Yang, Fang, H., and Lou, M., 2005, "MATLAB Toolboxes for Computing Natural Frequencies of a Boom Structure," Technical Report to Jet Propulsion Lab, March.

33. Ding, H., and Yang, Fang, H., and Lou, M., 2005, "MATLAB Toolboxes for Wrinkling and Free Vibration of Catenary-Supported Thin Membranes," Technical Report to Jet Propulsion Lab, March.

34. Yang, B., 2005, "Structural Analysis and Synthesis Tools for Solar Sails," Final Technical Report to Jet Propulsion Lab, September.

35. Yang, B., 2007, "Project Jump Start and Literature Survey on Shape Controls of Space Antennas," Technical Report to Jet Propulsion Lab, Number 2007-01, September.

36. Yang, B., 2007, "Surface Optimization of An Initially Mounted Mesh Antenna Reflector," Technical Report to Jet Propulsion Lab, Number 2007-02, November.

37. Yang, B., 2008, "Stress Optimization and Thermal-Elastic Modeling For a Mesh Antenna Reflector," Technical Report to Jet Propulsion Lab, Number 2008-01, May.

38. Yang, B., 2008, "Surface Mounting of Deployable Mesh Antenna Reflector," Technical Report to Jet Propulsion Lab, Number 2008-02, September.

39. Yang, B., 2008, "Surface Mounting of Deployable Mesh Antenna Reflector," Technical Report to Jet Propulsion Lab, Number 2008-03, September.

40. Yang, B., 2008, "Surface Mounting of Deployable Mesh Antenna Reflector: Optimization of Tension Band," Technical Report to Jet Propulsion Lab, Number 2008-04, September.

41. Yang, B., 2011, "A MATLAB Toolbox for determination of optimal initial profile of deployable mesh reflectors," Technical Report to Jet Propulsion Lab, Number 2010-01, January.

42. Yang, B., 2011, "A MATLAB Toolbox for determination of static deflection of nonlinear deployable mesh reflectors," Technical Report to Jet Propulsion Lab, Number 2010-02, January.

43. Yang, B. and Yuan, S., 2019, "Initial Design of a Three-Meter Center-Feed Mesh Reflector," Navy STTR Project Report to Epirus, Inc., Report No. 1, August 28.

44. Yang, B. and Yuan, S., 2019, "New Design Results about a Three-Meter Center-Feed Mesh Reflector," Navy STTR Project Report to Epirus, Inc., Report No. 2, September 14.

45. Yang, B. and Yuan, S., 2019, "Optimal Structural Design of a Three-Meter Center-Feed Mesh Reflector," Navy STTR Project Report to Epirus, Inc., Report No. 3, October 28.

46. Yang, B. and Yuan, S., 2020, "Initial Design of a 2.4 Meter Offset-Feed Deployable Mesh Reflector," Navy STTR Project Report to Epirus, Inc., Report No. 4, January 9.

47. Yang, B. and Yuan, S., 2020, "Final Report on Structure Design and Optimization of L-Band Deployable Mesh Antennas," Navy STTR Project Report to Epirus, Inc., Report No. 5, January 21.