JINKYU "JK" YANG

Curriculum Vitae

William E. Boeing Department of Aeronautics & Astronautics
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EDUCATIONAL HISTORY

Ph.D., Aeronautics & Astronautics (6/2005)
Stanford University, Stanford, CA
Dissertation title: Structural health monitoring technology for bolted carbon-carbon thermal protection panels (Advisor: Professor Fu-Kuo Chang)

M.S., Aeronautics & Astronautics (9/2001)
Stanford University, Stanford, CA

B.S. (Honors), Aerospace Engineering (8/2000)
KAIST, Daejon, Korea

Non-degree Exchange Program (Fall 1998)
University of British Columbia, Vancouver, BC, Canada

EMPLOYMENT HISTORY

University of Washington, Seattle, WA
- Professor, Department of Aeronautics & Astronautics (9/2021 – present)
- Associate Professor, Department of Aeronautics & Astronautics (9/2018 – 9/2021)
- Assistant Professor, Department of Aeronautics & Astronautics (8/2013 – 9/2018)

University of South Carolina, Columbia, SC
- Interim Program Director, Aerospace Program (1/2012 – 12/2012)
- Assistant Professor, Department of Mechanical Engineering (7/2011 – 8/2013)

California Institute of Technology, Pasadena, CA (7/2009 – 7/2011)
- Postdoctoral Scholar, Graduate Aerospace Laboratories (Advisor: Professor Chiara Daraio)

Samsung Electronics Co., Suwon, Korea (4/2006 – 6/2009)
- Senior Engineer, R&D Headquarters (Special employment for the substitution of military service)

Think Composites, Palo Alto, CA (7/2005 – 2/2006)
- Postdoctoral Research Engineer (Advisor: Professor Stephen W. Tsai, Stanford University)

Stanford University, Stanford, CA (6/2001 – 6/2005)
- Research Assistant (Advisor: Professor Fu-Kuo Chang)

AWARDS AND HONORS

- **Associate Fellow**, American Institute of Aeronautics and Astronautics (2020)
- **Faculty of the Year Award** elected by senior class in Aeronautics and Astronautics, UW (2019)
- **Inaugural LSAMP Faculty of the Year Award** by *Louis Stokes Alliance for Minority Participation in STEM* (LSAMP) for under-represented minority student mentoring, UW (2019)
- **Faculty Appreciation for Career Education & Training (FACET) Recognition** for positive impact on student career and professional development, UW (2019, 2020)
- **Acoustic Hub Fellowship**, Laboratoire d'Acoustique de I'Universite du Maine (LAUM), CNRS, France (2018)
- **Faculty Early Career Development (CAREER) Award**, National Science Foundation (2016)
- **Finalist for the 2015 Graduate Instructor of the Year award,** Aeronautics and Astronautics, UW (2015)
- **Samsung Think Tank Team Award**, one of two inaugural recipients from Samsung Research America (2014)
- **Best Paper Award**, 7th World Congress on BAMN (Biomimetics, Artificial Muscles and Nano-Bio) Conference (2013)
- **Breakthrough Rising Star Faculty Award**, University of South Carolina (2013)
- **Editors' Choice for the Best Paper of the Year**, Journal of Biomechanical Engineering, American Society of Mechanical Engineers (2012)
- **Key Employee Recognition Award**, Samsung Electronics Co., LTD. (2007, 2008)
- **Nicholas J. Hoff Award**, highest academic distinction in the master's class of 2002 in Aero/Astro, Stanford University (2002)
- **Rotary International Ambassadorial Scholarship** (2000-2002)
- **Departmental Fellowship**, Aero/Astro, Stanford University (2000-2001)
- **Full Tuition and Stipend Scholarship**, KAIST (1996-2000)
- **Distinction in Freshmen General Exam**, ranked 4th among 600 freshmen in Class of 2000, KAIST (1996)

AFFILIATIONS AND OTHER APPOINTMENTS

Boeing Advanced Research Center (BARC), University of Washington, Seattle (10/2018 – present)
- Affiliate Faculty

Advanced Composites Center (ACC), University of Washington, Seattle (2019 – present)
- Affiliate Faculty

Seoul National University, Seoul, Korea (8/2020 – 7/2021)

- Visiting Professor (Host: Professor Sung-Hoon Ahn)

Laboratoire d'Acoustique de l'Universite du Maine (LAUM), Le Mans, France (12/2018)
- Visiting Professor (Host: Georgios Theocharis)

Queensland University of Technology, Brisbane, Australia (8/2018 – 9/2018)
- Visiting Fellow

KAIST, Daejon, Korea (12/2016)
- Visiting Professor (Host: Professor Hansuek Lee)

ETH Zürich, Zürich, Switzerland (5/2013 – 7/2013)
- Visiting Professor (Host: Professor Chiara Daraio)

PUBLICATIONS

Refereed Archival Journal Publications

*Students, postdoctoral scholars, and visiting scholars underlined; *Corresponding author; †equally contributed first author*

91. Y. Miyazawa, H. Yasuda, H. Kim, K. Tsujikawa, T. Kunimine, J. Raney, **J. Yang***, "Heterogeneous origami architected materials with variable stiffness," *Communications Materials* (in print).

90. H. Yasuda, K. Johnson, V. Arroyos, K. Yamaguchi, J. Raney, **J. Yang***, "Leaf-like origami with bistability for self-adaptive grasping motions," (in print, *Soft Robotics*, arXiv:2011.01428).

89. X. Shi, I. Kiorpelidis, R. Chaunsali, V. Achilleos, G. Theocharis, **J. Yang***, "Disorder-induced topological phase transition in a 1D mechanical system," *Physical Review Research* 3, 033012 (2021).

88. C. Chen, R. Chaunsali, J. Christensen, G. Theocharis, **J. Yang***, "Corner states in a second-order mechanical topological insulator," *Communications Materials* 2, 62 (2021).

87. L. Roger, H. Reich, S. Li, W. Vizgaudis, N. Brenner, L. Kumar, J. Klein-Seetharaman, **J. Yang**, H. Putnam, N. Lewinski, "Applying model approaches in non-model systems: A review and case study on coral cell culture," *PLOS ONE,* 16(4): e0248953 (2021).

86. S. Li, L. M. Roger, L. Kumar, N. Lewinski, J. Klein, A. Gagnon, H. Putnam, **J. Yang***, "Digital image processing to detect subtle motion in stony coral," *Scientific Reports*, 11, 7722 (2021).

85. M. Zhang, **J. Yang**, R. Zhu, "Origami-based bistable metastructures for low-frequency vibration control," *Journal of Applied Mechanics*, 88(5): 051009 (2021).

84. S. Li, **J. Yang***, "Topological transition in spiral elastic valley metamaterials," *Physical Review Applied*, 15: 014058 (2021).

83. R. Chaunsali, H. Xu, **J. Yang**, P. G. Kevrekidis, G. Theocharis, "Stability of topological edge states under strong nonlinear effects," *Physical Review B*, 103: 024106 (2021).

82. H. Kwon, M. Jang, J. Yoon, Y. Park, C. Shin, **J. Yang**, C. Kim, "Design and verification of simultaneously self-sensing and microwave-absorbing composite structures based on embedded SiC fiber network," *Composite Structures*, 113286 (2020).

81. H. Yasuda, K. Yamaguchi, Y. Miyazawa, R. Wiebe, J. Raney, **J. Yang***, "Data-driven prediction and analysis for chaotic origami dynamics," *Communications Physics*, 3:168 (2020).

80. K. Yamaguchi[†], S. Phenisee[†], Z. Chen, M. Salviato, **J. Yang**, "Ply-drop design of non-conventional laminated composites using Bayesian optimization," *Composites Part A*, 103: 106136 (2020).

79. N. Yang, C. Chen, **J. Yang**, J.L. Silverberg "Emergence and design of extrinsic properties in mechanical metamaterials," *Materials and Design*, 196: 109143 (2020).

78. X. Shi, **J. Yang***, "Spin-1 Weyl point and surface arc state in a chiral phononic crystal," *Physical Review B*, 101, 214309 (2020).

77. H. Park, D. Hwang, J. Han, **J. Yang**, "Development of shock-absorbing insert for honeycomb sandwich panel," *Aerospace Science and Technology,* 104:105930 (2020)

76. A. Deleo[†], J. O'Neil[†], H. Yasuda, M. Salviato*, **J. Yang***, "Origami-based deployable structures made of carbon fiber reinforced polymer composites," *Composites Science and Technology,* 191: 108060 (2020).

75. E. Kim, R. Chaunsali, **J. Yang***, "Gradient-index granular crystals: From boomerang motion to asymmetric transmission of waves," *Physical Review Letters*, 123, 214301 (2019).

74. S. Li, I. Kim, S. Iwamoto, J. Zang, **J. Yang***, "Valley anisotropy in elastic metamaterials," *Physical Review B*, 100, 195102 (2019).

73. C. Chen, N. Lera, R. Chaunsali, D. Torrent, J. Vicente Alvarez, **J. Yang***, P. San-Jose, J. Christensen, "Mechanical analogue of a Majorana bound state," *Advanced Materials,* 1904386 (2019).

72. H. Yasuda, B. Gopalarethinam, T. Kunimine, T. Tachi, **J. Yang***, "Origami-based cellular structures with in-situ transition between collapsible and load-bearing configurations," *Advanced Engineering Materials*, 1900562 (2019). ***Featured on the cover page and highlighted in Advanced Science News.***

71. X. Shi, R. Chaunsali, F. Li, **J. Yang***, "Elastic Weyl points and surface arc states in 3D structures," *Physical Review Applied* 12, 024058 (2019). ***Selected as PRA Editors' Suggestion Paper.***

70. S. Ko, J. Davey, S. Douglass, **J. Yang**, M. Tuttle, M. Salviato, "Effect of the thickness on the fracturing behavior of discontinuous fiber composite structures," *Composites Part A* 125: 105520 (2019).

69. S. Ko, **J. Yang**, M. Tuttle, M. Salviato, "Effect of the platelet size on the fracturing behavior and size effect of discontinuous fiber composite structures," *Composite Structures* 227:111245 (2019).

68. H. Yasuda, Y. Miyazawa, E.G. Charalampidis, C. Chong, P.G. Kevrekidis, **J. Yang***, "Origami-based impact mitigation by creating solitary waves with overtaking behavior," *Science Advances,* 5, eaau2835, 2019. ***Media coverage by ~25 news outlets, including Reuters, Science Daily, MSN, Geekwire, Phys.org***

67. E. Kim, **J. Yang***, "Review: Wave propagation in granular metamaterials," *Functional Composites and Structures,* 1: 012002, 2019.

66. H. Kim, X. Shi, E. Kim, **J. Yang***, "Bloch oscillation of elastic waves in the graded lattice of 3D-printed hollow elliptical cylinders," *Applied Physics Letter,* 114: 101905, 2019.

65. H. Kim, E. Kim, **J. Yang***, "Nonlinear wave propagation in 3D-printed graded lattices of hollow elliptical cylinders," *Journal of Mechanics and Physics of Solids*, 125: 774-784, 2019.

64. R. Chaunsali†, C. Chen†, **J. Yang***, "Experimental demonstration of topological waveguiding in elastic plates with local resonators," *New Journal of Physics,* 20: 113036, 2018.

63. H. Hwang, J. Lee, E. Kim, **J. Yang**, C. Shul, "Effects of material anisotropy on impact mitigation in single column woodpile structures," *Journal of Mechanical Science and Technology*, 32 (12), 5817-5822, 2018.

62. G. Lee, H. Lee, S. Ahn, W. Ryu, **J. Yang***, "Resistive pressure sensor based on cylindrical micro structures in periodically ordered electrospun elastic fibers," *Smart Materials and Structures*, 27(11): 11LT01, 2018.

61. S. Hauver, X. Hu, D. Mei, E.G. Charalampidis, P.G. Kevrekidis, E. Kim, **J. Yang**, A. Vainchtein, "Lattices with internal resonator defects," *Physical Review E*, 98: 032902, 2018.

60. H. Hwang, J. Lee, **J. Yang**, C. Shul, E. Kim, "Sandwich-structured woodpile metamaterials for impact mitigation," *International Journal of Applied Mechanics*, 10(7): 1850078, 2018.

59. R. Chaunsali†, E. Kim†, **J. Yang***, "Demonstration of accelerating and decelerating nonlinear impulse waves in functionally graded granular chains," *Philosophical Transactions A*, 376: 20170136, 2018 (invited).

58. H. Kim, E. Kim, C. Chong, P.G. Kevrekidis, **J. Yang***, "Demonstration of dispersive rarefaction shocks in hollow elliptical cylinder chains," *Physical Review Letters*, 120 (19): 194101, 2018.

57. X. Shi, R. Chaunsali, Y. Wu, **J. Yang***, "Elastic Bloch oscillations and Wannier-Stark ladders in 1-D phononic crystals," *Journal of Applied Physics*, 123: 104904, 2018 (invited).

56. G. Lee, M. Kim, **J. Yang**, S. Ahn *et al*., "Machine health management in smart factory: A review," *Journal of Mechanical Science and Technology*, 32 (3): 987, 2018 (invited).

55. E. Kim, A. Martinez, S. Phenisee, P.G. Kevrekidis, M. Porter, **J. Yang**, "Direct measurement of superdiffusive and subdiffusive energy transport in disordered granular chains," *Nature Communications*, 9: 640, 2018.

54. R. Chaunsali†, C. Chen†, **J. Yang***, "Subwavelength and directional control of flexural waves in zone-folding induced topological plates," *Physical Review B*, 97: 054307, 2018.

53. J. Zhang, G. Lee, C. Cerwin, **J. Yang**, J. Kim, M. Taya, D. Gao, J. Chung, "Fracture-induced mechano-electrical sensitivities of paper-based nanocomposite," *Advanced Materials Technologies*, 1700266, 2018.

52. R. Zhu, H. Yasuda, G. Huang, **J. Yang***, "Kirigami-based elastic metamaterial with anisotropic mass density for subwavelength flexural wave control," *Scientific Reports*, 8:483, 2018.

51. Y. Wu†, R. Chaunsali†, H. Yasuda, K. Yu, **J. Yang***, "Dial-in topological metamaterials based on bistable Stewart Platform," *Scientific Reports*, 8:112, 2018. ***Editor's Choice: Topological Matter.***

50. H. Yasuda, **J. Yang***, "Tunable frequency band structure of origami-based mechanical metamaterials," *Journal of International Association for Shell and Spatial Structures* 58(4): 287, 2017. ***Selected for Hangai Award.***

49. H. Yasuda, T. Tachi, M. Lee, **J. Yang***, "Origami-based tunable truss structures for non-volatile mechanical memory operation," *Nature Communications* 8: 962, 2017.

48. R. Chaunsali, E. Kim, A. Thakkar, P.G. Kevrekidis, **J. Yang***, "Demonstrating an in-situ topological band transition in cylindrical granular chains," *Physical Review Letters*, 119: 024301, 2017.

47. R. Chaunsali, M. Toles, **J. Yang**, E. Kim, "Extreme control of impulse transmission by cylinder based non-linear phononic crystals," *Journal of the Mechanics and Physics of Solids*, 107:21-32, 2017.

46. A. Schiffer, A. Alkhaja, **J. Yang**, E.N. Esfahani, T.-Y. Kim, "Interaction of highly nonlinear solitary waves with elastic solids containing a spherical void," *International Journal of Solids and Structures*, 118-119: 204-2012, 2017.

45. H. Yasuda, C. Chong, **J. Yang***, P.G. Kevrekidis, "Emergence of dispersive shocks and rarefaction waves in power-law contact models," *Physical Review E*, 95: 062216, 2017.

44. T. Singhal, E. Kim, T. Kim, **J. Yang**, "Weak bond detection in composites using solitary waves," *Smart Materials and Structures*, 26(5): 055011, 2017.

43. Y. Kim, S. Ko, W. Lay, J. Tian, P. Chang, S. Thielk, H. Bang, **J. Yang***, "Effects of shallow bi-angle, thin-ply laminates on the structural performance of composite wings," *AIAA Journal*, 55(6): 2086-2092, 2017.

42. R. Chaunsali, H. Xu†, **J. Yang**, P.G. Kevrekidis, "Linear and nonlinear dynamics of isospectral granular chains," *Journal of Physics A: Mathematical and Theoretical*, 50: 175201, 2017.

41. J. Rivey, G. Lee, Y. Kim, S. Kim, **J. Yang***, "Visualization of stress wave propagation via air-coupled acoustic emission sensors," *Smart Materials and Structures*, 26-2: 025020, 2017.

40. E. Kim, **J. Yang***, H. Hwang, C. Shul, "Locally resonant woodpile metamaterials for impact mitigation," *International Journal of Impact Engineering*, 101C: 24-31, 2017.

39. R. Chaunsali, F. Li, **J. Yang***, "Stress wave isolation by purely mechanical topological phononic crystals," *Scientific Reports*, 6, 30662, 2016.

38. G. Lee, C. Chong, P.G. Kevrekidis, **J. Yang***, "Wave mixing in coupled phononic crystals via a variable stiffness mechanism," *Journal of the Mechanics and Physics of Solids*, 95:501-516, 2016.

37. A. Martinez, H. Yasuda†, E. Kim, P.G. Kevrekidis, M. Porter, **J. Yang***, "Scattering of waves by impurities in precompressed granular chains," *Physical Review E*, 93: 052224, 2016.

36. C. Chong, E. Kim, E.G. Charalampidis, H. Kim, F. Li, P.G. Kevrekidis, C. Daraio, and **J. Yang**, "Nonlinear vibrational state excitation and piezoelectric energy conversion in harmonically driven granular chains," *Physical Review E*, 93: 052203, 2016.

35. H. Yasuda, C. Chong, E.G. Charalampidis, P.G. Kevrekidis, **J. Yang***, "Formation of rarefaction waves in origami-based metamaterials," *Physical Review E,* 93: 043004, 2016.

34. J. Park, G. Lee, **J. Yang**, C. Kim, S. Ahn, "Flexible ceramic-elastomer composite piezoelectric energy harvester fabricated by additive manufacturing," *Journal of Composite Materials – Special Issue,* 50:12, 1573, 2016.

33. H. Yasuda, Z. Chen, **J. Yang***, "Multi-transformable leaf-out origami with bistable behavior," *ASME Journal of Mechanisms and Robotics – Special Issue*, 8(3):031013, 2016.

32. E. Kim, R. Chaunsali, H. Xu, J. Castillo, **J. Yang***, P.G. Kevrekidis, A.F. Vakakis, "Nonlinear low-to-high frequency energy cascades in diatomic granular crystals," *Physical Review E,* 92: 062201, 2015.

31. **J. Yang***, M. Sutton, "Nonlinear wave propagation in hexagonally packed granular channel under rotational dynamics," *International Journal of Solids and Structures*, 77: 65-73, 2015.

30. E. Kim, F. Restuccia, **J. Yang***, C. Daraio, "Solitary wave-based delamination detection in composite plates using a combined granular crystal sensor and actuator," *Smart Materials and Structures*, 24: 125004, 2015.

29. E.G. Charalampidis, F. Li, C. Chong, **J. Yang**, P.G. Kevrekidis, "Time-periodic solutions of driven-damped trimer granular crystals", *Mathematical Problems in Engineering*, invited, 2015: 830978, 2015.

28. N. Aich, E Kim†, M. El-Batanouny, J. Plazas-Tuttle, **J. Yang**, N. Saleh, P. Ziehl, "Detection of crack formation and stress distribution for carbon fiber reinforced polymer specimens through triboluminescent-based imaging," *Journal of Intelligent Material Systems and Structures*, 26(8) 913–920, 2015.

27. H. Yasuda, **J. Yang***, "Reentrant origami-based metamaterials with negative Poisson's ratio and bistability," *Physical Review Letters*, 114: 185502, 2015. ***Selected as PRL Editors' Suggestion Paper.***

26. E. Kim, Y. Kim, **J. Yang***, "Nonlinear stress wave propagation in 3D woodpile elastic metamaterials," *International Journal of Solids and Structures*, 58:128-135, 2015.

25. E. Kim, F. Li, C. Chong, G. Theocharis, **J. Yang***, P.G. Kevrekidis, "Highly nonlinear wave propagation in elastic woodpile periodic structures," *Physical Review Letters,* 114: 118002, 2015.

24. M. Meidani, E. Kim, F. Li, **J. Yang***, D. Ngo, "Tunable evolutions of wave modes and bandgaps in quasi-1D cylindrical phononic crystals," *Journal of Sound and Vibration*, 334: 270-281, 2015.

23. F. Li, C. Chong, **J. Yang***, P.G. Kevrekidis, C. Daraio, "Wave transmission in time- and space-variant wave helicoidal phononic crystals," *Physical Review E*, 90: 053201, 2014.

22. F. Li, P. Anzel, **J. Yang**, P.G. Kevrekidis, C. Daraio, "Granular acoustic switches and logic elements," *Nature Communications*, 5: 5311, 2014.

21. G. Lee, J. Park, C. Kim, H. Yoon, **J. Yang**, S. Ahn, "Aerodynamically focused nanoparticle (AFN) printing: novel direct printing technique of solvent-free and inorganic nanoparticles," *ACS Applied Materials & Interfaces*, 6(16): 16466, 2014.

20. E. Kim, **J. Yang***, "Wave propagation in single column woodpile phononic crystals: formation of tunable band gaps," *Journal of the Mechanics and Physics of Solids*, 71: 33–45, 2014.

19. A. Shelke, A. Uddin, **J. Yang***, "Impact identification in sandwich structures using solitary wave-supporting granular crystal sensors," *AIAA Journal*, 52(10): 2283, 2014.

18. **J. Yang***, M. Gonzalez, E. Kim, C. Agbasi, M. Sutton, "Attenuation of solitary waves and localization of breathers in 1D granular crystals visualized via high speed photography," *Experimental Mechanics*, 54: 1043, 2014.

17. C. Chong, F. Li, **J. Yang**, M.O. Williams, I.G. Kevrekidis, P.G. Kevrekidis, C. Daraio, "Damped-driven granular crystals: An ideal playground for dark breathers and multibreathers," *Physical Review E*, 89: 032924, 2014.

16. L. Cai, **J. Yang**, P. Rizzo, X. Ni, C. Daraio, "Propagation of highly nonlinear waves in a curved channel," *Granular Matter*, 15:357–366, 2013.

15. **J. Yang**, C. Daraio, "Frequency and amplitude dependent transmission of stress waves in diatomic granular crystals," *Experimental Mechanics*, 53(3): 469, 2013.
14. F. Li, L. Yu, **J. Yang***, "Solitary wave-supporting granular crystals for strain measurements," *Journal of Physics D: Applied Physics*, 46: 155106, 2013.
13. F. Li, L. Zhao, Z. Tian, L. Yu, **J. Yang***, "Visualization of solitary waves via laser Doppler vibrometry for heavy impurity identification in a granular chain," *Smart Materials and Structures*, 22: 035016, 2013.
12. F. Li, D. Ngo, **J. Yang***, C. Daraio, "Tunable phononic crystals based on cylindrical Hertzian contact," *Applied Physics Letter,* 101:171903, 2012.
11. X. Ni, P. Rizzo, **J. Yang**, D. Khatri, C. Daraio, "Monitoring the hydration of gypsum cement with highly nonlinear solitary waves," *NDT & E International*, 52: 76–85, 2012.
10. **J. Yang**, S. Sangiorgio, S. Borkowski, Silvestro, L. De Nardo, C. Daraio, E. Ebramzadeh, "Site-specific quantification of bone quality using highly nonlinear solitary waves," *Journal of Biomechanical Engineering*, 134(10): 101001, 2012, ***selected as 2012 Editors' Choice paper.***
9. **J. Yang**, D. Khatri, P. Anzel, C. Daraio, "Interaction of highly nonlinear solitary waves with thin plates," *International Journal of Solids and Structures,* 49(13): 1463–1471, 2012.
8. M. Gonzalez, **J. Yang**, C. Daraio, M. Ortiz, "Mesoscopic approach to granular crystal dynamics," *Physical Review E*, 85:016604, 2012.
7. **J. Yang**, S. Dunatunga, C. Daraio, "Amplitude-dependent attenuation of compressive waves in curved granular crystals constrained by elastic guides," *Acta Mechanica*. 223(3): 549–562, 2012.
6. **J. Yang**, C. Silvestro, S. Sangiorgio, S. Borkowski, L. De Nardo, E. Ebramzadeh, C. Daraio, "Nondestructive evaluation of orthopedic implant stability in THA using highly nonlinear solitary waves," *Smart Materials and Structures*, Fast Track Communication, 21:012002, 2012.
5. **J. Yang**, C. Silvestro, D. Khatri, L. De Nardo, C. Daraio, "Interaction of highly nonlinear solitary waves with elastic linear media," *Physical Review E*, 83: 046606, 2011.
4. N. Boechler, **J. Yang**, G. Theocharis, P.G. Kevrekidis, C. Daraio, "Tunable vibration band gaps in one-dimensional diatomic granular crystals with three-particle unit cells," *Journal of Applied Physics*, 109: 074906, 2011.
3. **J. Yang**, F.-K. Chang, "Detection of bolt loosening in C-C composite thermal protection panels: II. Experimental verification," *Smart Materials and Structures,* 15: 591–599, 2006.
2. **J. Yang**, F.-K. Chang, "Detection of bolt loosening in C-C composite thermal protection panels: I. Diagnostic principle," *Smart Materials and Structures,* 15: 581–590, 2006.
1. **J. Yang**, F.-K. Chang, M. Derriso, "Design of a hierarchical health monitoring system for detection of multilevel damage in bolted thermal protection panels: a preliminary study," *Structural Health Monitoring,* 2:115-122, 2003 (invited).

Submitted and to-be-submitted papers (current draft available up on request)

92. K. Yamaguchi, H. Yasuda, K. Tsujikawa, T. Kunimine, **J. Yang***, "Graph-theoretic estimation of reconfigurability in origami-based metamaterials," (submitted, arXiv:2107.05139).

93. Y. Miyazawa, C. Chong, P.G. Kevrekidis, **J. Yang***, "Rogue and solitary waves in coupled phononic crystals," (submitted).
94. S. Li, L. M. Roger, L. Kumar, N. Lewinski, J. Klein, H. Putnam, **J. Yang***, "Coral bleaching and tissue loss dynamics captured through the high frequency imagery," (submitted).
95. W. Vizgaudis, L. Kumar, M. Olaosebikan, L. Roger, N. Brenner, S. Sledzieski, **J. Yang**, N. Lewinski, R. Singh, N. Daniels, L. Cowen, J. Klein-Seetharaman, "Insulin signaling and pharmacology in corals," *British Journal of Pharmacology* (submitted).
96. J. Suh, Y. Miyazawa, **J. Yang***, J. Han*, "Self-reconfiguring and stiffening origami tube," (submitted).
97. J. O'Neil, M. Salviato, **J. Yang***, "Energy absorption behavior of filament wound CFRP origami tubes pre-folded in Kresling pattern," (to be submitted)
98. Y. Miyazawa, C. Chen, T. S. Gormley, G. Yin, R. Chaunsali, G. Theocharis, **J. Yang***, "Tunable dispersion relationships and topological edge mode transfer on origami lattice," (to be submitted).

Conference Proceedings and Other Non-journal Articles

Conference proceedings

49. S. Ko, T. Nakagawa, Z. Chen, J. Davey, T. Abdullah, L. Kuklenski, E. Adams, M. Soja, C. Park, W. Avery, **J. Yang**, M. Salviato, "Experimental and numerical investigations of stochastic thickness effects in discontinuous fiber composites," *American Society of Composites Conference*, 2021.
48. J. Suh, T. Kim, **J. Yang**, J. Han, "Efficient folding method for Yoshimura cylinder and experimental validation" *Korean Society for Aeronautical and Space Sciences*, 2020.
47. H. Park, D. Hwang, **J. Yang**, J. Han, "Experimental study on attenuation performance of shock-absorbing insert," *International Council of the Aeronautical Sciences*, 2020.
46. R. Kurniawan, T. Fukudome, H. Qiu, M. Takamiya, Y. Kawahara, **J. Yang**, R. Niiyama, "An untethered 216-mg insect-sized jumping robot with wireless power transmission," *International Conference on Intelligence System and Robotics (IROS)*, 2020.
45. M. Olaosebikan, L. Cowen, J. Klein-Seetharaman, **J. Yang**, N. Lewinski, O. Shaer, "Towards collaborative immersive analytics for coral reef data," *CHI Immersive Analytics Workshop*, 2020.
44. S. Ko, **J. Yang**, M. Tuttle, M. Salviato, "Stochastic computational modeling of the fracturing behavior in discontinuous fiber composite structures," *SAMPE Conference*, 2020.
43. R. Jayaram, S. Ko, **J. Yang**, M. Salviato, "Delamination resistance and size effect in discontinuous fiber composites," *American Society of Composites Conference*, 2018.
42. J. O'Neil, A. Deleo, H. Yasuda, M. Salviato, **J. Yang**, "Deployable structures constructed from composite origami," *American Society of Composites Conference*, 2018.
41. S. Ko, K. Chan, R. Hawkins, R. Jayaram, C. Lynch, R. El Mamoune, M. Nguyen, N. Pekhotin, N. Stokes, D. Wu, M. Tuttle, **J. Yang**, M. Salviato, "Experimental and numerical characterization of the intra-laminar fracturing behavior in discontinuous fiber composite structures," *American Society of Composites Conference*, 2018.

40. A. Deleo, J. O'Neil, H. Yasuda, **J. Yang**, M. Salviato, "Composite origami: foldable structures based on Tachi-Miura-Polyhedron origami technique," *SAMPE Conference*, 2018.

39. S. Ko, K. Chan, R. Hawkins, R. Jayaram, C. Lynch, R. El Mamoune, M. Nguyen, N. Pekhotin, N. Stokes, D. Wu, **J. Yang**, M. Tuttle, M. Salviato, "Characterization and computational modeling of the fracture behavior in discontinuous fiber composite structures," *SAMPE Conference*, 2018.

38. B. Gopalarethinam, **J. Yang**, "Origami-based tunable structures with simultaneously foldable and stiff behavior," *AIAA SciTech*, 2018. ***Invited for International Research Competition***.

37. H. Yasuda, **J. Yang**, "Tunable frequency band structure of origami-based mechanical metamaterials," *International Association for Shell and Spatial Structures*, 2017. ***Selected as the 2017 Hangai Award Paper.***

36. G. Lee, M. Kim, H. Yoon, **J. Yang**, J. Ihn, S. Ahn, "Direct printing of strain sensors via nanoparticle printer for the applications to composite structural health monitoring," *Procedia CIRP*, 66: 238 – 242, 2017.

35. M. Salviato, S. Ko, **J. Yang**, M. Tuttle, "Toward a probabilistic model for fracture and scaling of discontinuous fiber composites," *Engineering Mechanics Institute Conference*, 2017.

34. Y. Wu, K. Yu, L. Yang, X. Shi, **J. Yang**, "Tunable metamaterials based on linked steward platform," *Phononics*, 2017.

33. S. Ko, M. Salviato, **J. Yang**, M. Tuttle, "Certification of discontinuous composite material forms for aircraft structures," *JAMS Technical Review Meeting*, 2017.

32. C. Wanitthananon, **J. Yang**, "Embedded piezoresistive sensor network for strain measurements in fiber-reinforced composite laminate," *AIAA Region VI Student Conference*, 2017. ***2nd Place Award in Undergraduate Student Research Category.***

31. J. O'Neil, **J. Yang**, "Design of robotic arms based on triangulated cylindrical origami," *AIAA Region VI Student Conference*, 2017.

30. Q. Li, **J. Yang**, "Design and fabrication of dodecahedron planetary landing system based on triangulated cylindrical origami," *AIAA Region VI Student Conference*, 2017.

29. B. Gopalarethinam, **J. Yang**, "Origami-based tunable structures with simultaneously foldable and stiff behavior," *AIAA Region VI Student Conference*, 2017. ***1st Place Award in Masters' Student Research Category.***

28. H. Yasuda, **J. Yang**, "Dynamics analysis on mechanical metamaterials composed of triangulated cylindrical origami," *SEM - IMAC XXXV*, 2017.

27. H. Yasuda, M. Lee, **J. Yang**, "Tunable static and dynamic behavior of triangulated cylindrical origami," *International Association for Shell and Spatial Structures*, 2016.

26. H. Yasuda, M. Lee, **J. Yang**, "Tunable wave dynamics in origami-based mechanical metamaterials," *ASME - IDETC/CIE*, 2016.

25. G. Lee, J. Rivey, Y. Kim, S. Kim, **J. Yang**, "Visualization of stress wave propagation via air-coupled acoustic emission sensors," *SEM*, 2016.

24. Y. Kim, P. Chang, S. Ko, W. Lay, J. Tian, S. Thielk, H. Bang, **J. Yang**, "Effects of shallow-angle, thin-ply laminates on the structural performance of composite wing," *AIAA SciTech*, 2016.

23. J. Rivey, **J. Yang**, Y. Kim, S. Kim, "Acoustic emission beamforming for detecting and characterizing damage in composite materials," *AIAA SciTech*, 2016.
22. H. Yasuda, **J. Yang**, "Rarefaction wave propagation in origami-based mechanical metamaterials," *ASME - IDETC/CIE*, 2015.
21. E. Kim, T. Singhal, B. Chang, Y. Kim, **J. Yang**, "Soliton-based sensor/actuator for delamination and weak bond detection in laminated composites," *SEM Annual Conference on Experimental & Applied Mechanics*, 2015.
20. M. Ghanem, **J. Yang**, "Plane wave propagation in two dimensional auxetic periodic structures," *International Symposium on Optomechatronic Technologies*, 2014.
19. H. Yasuda, **J. Yang**, "Nonlinear Wave Dynamics of Origami-based Mechanical Metamaterials," *International Symposium on Optomechatronic Technologies*, 2014.
18. E. Kim, Y. Kim, **J. Yang**, "Tunable wave dispersion in 3D woodpile mechanical metamaterials," *International Symposium on Optomechatronic Technologies*, 2014.
17. E. Kim, Y. Kim, **J. Yang**, "Wave propagation in woodpile mechanical metamaterials," *International Symposium on Optomechatronic Technologies*, 2014.
16. E. Esfahani, T. Kim, **J. Yang**, "Interaction of acoustic solitons with inhomogeneous media containing a spherical shape defect," *International Symposium on Optomechatronic Technologies*, 2014.
15. F. Li, C. Chong, **J. Yang**, P.G. Kevrekidis, C. Daraio, "Experimental verifications of dark breathers and multibreathers in granular crystals," *17th U.S. National Congress on Theoretical and Applied Mechanics*, 2014.
14. **J. Yang**, M. Gonzalez, E. Kim, C. Agbasi, M. Sutton, "Attenuation and localization of solitary waves in granular crystals visualized via high speed photography," *17th U.S. National Congress on Theoretical and Applied Mechanics*, 2014.
13. E. Kim, C. Chong, P.G. Kevrekidis, **J. Yang**, "Linear and nonlinear wave propagation in quasi-1D woodpile phononic crystals," *SEM Annual Conference on Experimental & Applied Mechanics,* 2014.
12. M. Uddin, A. Shelke, **J. Yang**, "Impact sensing in sandwich structures using highly nonlinear solitary waves," *Proceeding of International Workshop on Structural Health Monitoring*, 2013.
11. **J. Yang**, F. Li, L. Yu, A. Schrand, "Bio-inspired sensing systems based on soliton-supporting granular phononic crystals," *7th World Congress on Biomimetics, Artificial Muscles and Nano-Bio (BAMN),* 2013, ***selected as Best Paper Award***.
10. **J. Yang**, S. Sangiorgio, S. Borkowski, E. Ebramzadeh, C. Daraio, "Site-specific diagnostic evaluation of hard biological tissues using solitary waves," *SEM Annual Conference on Experimental & Applied Mechanics,* 2013.
9. M. Gonzalez, **J. Yang**, A. Cuitiño, "Nonintrusive monitoring of solitary wave propagation in granular crystals," *SEM Annual Conference on Experimental & Applied Mechanics,* 2013.
8. **J. Yang**, "Creation of novel structural materials using granular phononic crystals," *SAMPE*, 2012.
7. S. Borkowski, S. Sangiorgio, **J. Yang**, C. Silvestro, L. De Nardo, E. Ebramzadeh, C. Daraio, "Site-specific quantification of bone mechanical properties using highly nonlinear solitary waves," *Orthopaedic Research Society*, 2012.

6. **J. Yang**, F. Restuccia, C. Daraio, "Highly nonlinear granular crystal sensor and actuator for delamination detection in composite structures," *Proceeding of International Workshop on Structural Health Monitoring*, 2011.

5. D. Khatri, **J. Yang**, C. Silvestro, C. Daraio, "Finite element approach for interaction of highly nonlinear acoustic waves with linear elastic media," *Proceeding of NSF CMMI Engineering Research and Innovation Conference*, 2011.

4. F.-K. Chang, J. Markmiller, **J. Yang**, Y. Kim, "Design of SHM-embedded structures for space operation vehicles," *Proceedings of Integrated System Health Engineering and Management Conference*, NASA Ames Research Center, 2006. *(8)*

3. **J. Yang**, F.-K. Chang, "Verification of a built-in health monitoring system for bolted thermal protection panels," *Proceeding of SPIE,* 5765:769-780, 2005. *(13)*

2. **J. Yang**, F.-K. Chang, M. Derriso, "Design of a built-in health monitoring system for bolted thermal protection panels," *Proceeding of SPIE,* 5046:59-70, 2003.

1. **J. Yang**, F.-K. Chang, M. Derriso, "Structural health monitoring technology for thermal protection panels," *Proceeding of European Workshop on Structural Health Monitoring,* 903-910, 2002.

Technical posters

18. N. Lewinski, L. Cowen, J. Klein-Seetharaman, H. Putnam, **J. Yang**, "Synthetic coral - a biomimetic tool to synthesize new living materials and help heal coral reef environments," *International Coral Reef Symposium*, Bremen, Germany, July, 2021 (scheduled).

17. L. Roger, I. Cuadras, H. Reich, S. Li, L. Kumar, **J. Yang**, H. Putnam, N. Lewinski, "Coral microbioreactors for model validation," *Pacific Symposium on Biocomputing (PSS)*, online, January, 2021.

16. N. Lewinski, L. Cowen, J. Klein-Seetharaman, H. Putnam, **J. Yang**, "Synthetic coral: Harnessing data advances in system biology to design a biological 3D printer," *NSF HDR Annual Meeting*, Online presentation, April, 2020.

15. K. Yamaguchi, S. Phenisee, Z. Chen, M. Salviato, **J. Yang**, "*Machine learning-assisted composite design tool development*," *JCATI Symposium,* Online presentation, Apr. 2020.

14. T. Kunimine, H. Yasuda, **J. Yang**, "Compression behavior of additively-manufactured polymeric and metallic cellular solids composed of Tachi-Miura Polyhedron cells," *Materials Science & Technology (MS&T19)*, Portland, OR, Sep. 2019.

13. K. Yamaguchi, H. Yasuda, Y. Miyazawa, R. Wiebe, J. Raney, **J. Yang***, "Data-driven prediction and analysis of chaotic folding motions in bistable origami," *Physics Informed Machine Learning Workshop*, Seattle, WA, June 2019.

12. S. Ko, J. Davey, S. Douglass, S. Goutham, J. Huang, T. Nakagawa, A. Miller, H., Singh, K. Tidwell, C. Wisont, **J. Yang**, M. Tuttle, M. Salviato, "Design and development of non-conventional, damage tolerant, and recyclable structures based on discontinuous fiber composites," *JCATI Symposium,* Seattle, WA, Apr. 2019.

11. K. Bertoldi, W. Irvine, M. Ruzzene, **J. Yang**, "Topological mechanical metamaterials science," *2-DARE/NewLAW Grantees Meeting*, San Diego, CA, Oct. 2018.

10. T. Kunimine, H. Yasuda, B. Gopalarethinam, **J. Yang**, "Mechanical Properties of Flexible Tachi-Miura Polyhedron-based Cellular Structures Fabricated by Additive Manufacturing,"

7th International Meeting on Origami in Science, Mathematics and Education, Oxford, UK, Sep. 2018.

9. S. Ko, R. Hawkins, R. El Mamoune, Z. Yang, M. Salviato, **J. Yang**, "Development of high performance composites using C-Ply technology," *JCATI Symposium,* Seattle, WA, Apr. 2017.
8. A. Thakkar, R. Chaunsali, **J. Yang**, "In-situ control of topological dynamics in one-dimensional dimer systems," *SPIE - Smart Structures / NDE,* Portland, OR, Mar. 2017.
7. E. Kim, S. Phenisee, **J. Yang**, "Energy transport and localization in disordered nonlinear lattices," *SPIE - Smart Structures / NDE,* Las Vegas, NV, Mar. 2016.
6. H. Yasuda, **J. Yang**, "Impact mitigation via origami-based mechanical metamaterials," *Gordon Conference on Multi-functional Materials and Structures*, Ventura, CA, Feb. 2016.
5. **J. Yang**, S. Sangiorgio, S. Borkowski, E. Ebramzadeh, C. Daraio, "Site-specific diagnostics of osteoporotic bone using highly nonlinear solitary waves," *Carolina Women's Health Research Forum*, Columbia, SC, Nov. 2012.
4. **J. Yang**, D. Khatri, P. Anzel, C. Daraio, "Solitary wave-based inspection of plate structures using granular crystals," *SPIE - Smart Structures / NDE*, San Diego, CA, Mar. 2012.
3. S. Borkowski, S. Sangiorgio, **J. Yang**, C. Silvestro, L. De Nardo, E. Ebramzadeh, C. Daraio, "Site-specific quantification of bone mechanical properties using highly nonlinear solitary waves," *Orthopaedic Research Society*, San Francisco, CA, Feb. 2012.
2. **J. Yang**, C. Daraio, "Creation of Novel Structural Materials and Sensor Devices Using Granular Crystals for Aerospace and Biomedical Applications," *NSF CAREER Forum*, Baton Rouge, LA, Nov. 2011.
1. D. Khatri, **J. Yang**, C. Daraio, X. Ni, P. Rizzo, "Novel NDE/SHM approach based on highly nonlinear dynamics," *NSF CMMI Engineering Research and Innovation Conference*, Atlanta, GA, Jan. 2011.

Parts of Books (chapters in edited books)

2. M. O. Williams, D. Pozharskiy, R. W. Holzel, C. Chong, F. Li, **J. Yang**, P. G. Kevrekidis, C. Daraio, and I. G. Kevrekidis, "Chapter 1: Equation–Free Computations as DDDAS Protocols for Bifurcation Studies: A Granular Chain Example," 2014.
1. F.-K. Chang, J. Markmiller, **J. Yang**, Y. Kim, "Chapter 26: Structural health management: with aerospace applications," *System health management: with aerospace applications*, 2011, John Wiley & Sons, Ltd.

Patents Submitted or Awarded

5. **J. Yang**, H. Yasuda, Y. Miyazawa, K. Yamaguchi, "Aircraft wing motion prediction systems and associated methods," Provisional patent pending 62/853,877, converted to PCT with application number PCT/US2020/035335 filed 5/29/2020.
4. J. Chung, D. Gao, **J. Yang**, J. Zhang, "Fracture-induced mechano-electrical sensitivities of paper-based nanocomposite for wearable sensors," Provisional patent 62/593,774 converted to PCT application with application number PCT/US2018/063645.
3. **J. Yang**, H. Yasuda, "Shock absorbing and impact mitigating structures based on axial-rotational coupling mechanism," Provisional patent 62/562,596 converted to a US nonprovisional patent application with application number 16/139,674.

2. W. Chung, **J. Yang**, E. Park, S. Lee, "Coupling apparatus and image forming apparatus employing the same"
    - U.S. Patent No. 11/947,313, Nov. 2007.
    - Europe Patent No. 07122167.5, Dec. 2007.
    - China Patent No. 200710306671.0, Dec. 2007.
    - Korea Patent No. P2007-0096135, Sep. 2007.

1. **J. Yang**, S. Lee, "Auto-recovery PTB coupling mechanism", Dec. 2006, Korea Patent No. P2006-0129578.

Media Coverage and Website

1. ***Origami-based material/structure design (selected among ~30 media coverages)*:**

Astronomy: *Origami-inspired design may soon help cushion rocket landings*

Cosmos Magazine: *Researchers turn to origami and Lego to build a better spacecraft*

Fast Company: *This magical metamaterial could revolutionize car safety and save lives*

GeekWire: *Researchers use the ancient art of origami to produce high-tech shock absorbers*

Innovation Toronto: *Origami-inspired metamaterial softens impact forces for potential use in spacecraft, cars and beyond*

Interesting Engineering: *Researchers Look to Origami-Inspired Structures to Help Reusable Spacecrafts Stick the Landing*

KCTS9 - Crosscut*:* *In Origami, Science Unfolds*

MSN: *Origami May Soon Allow Softer Landings for SpaceX Rockets and Softer Impacts for NFL Players*

NSF: *Oh My Gami!*

Phys.org: *Origami-inspired materials could soften the blow for reusable spacecraft*

Reuters: *Ancient origami inspires new rocket leg design*

ScienceDaily: *Origami-inspired materials could soften the blow for reusable spacecraft*

Seeker: *Why Engineers Turned to Origami to Create Reality-Bending Metamaterials* (YouTube link)

Space.com: *Fold This! Origami-Inspired Material Could Soften Spacecraft Landings*

UW News: *Nailing the landings in space*

2. ***Synthetic coral:***

UW News: *UW aerospace engineer part of $1.7M grant to study corals*

Synthetic coral website and blog: *https://corals.cs.tufts.edu/*

UW News: *Using engineering methods to track the imperceptible movements of stony corals*

3. ***Topological metamaterials:***

UW-AA News: *Good vibrations*

4. ***Composites:***

UW-AA News: *A&A partners with Chomarat, JCATI to advance composites and train students*

5. ***Tissue paper-based sensor design:***

EENews: *Tissue paper-based movement sensor is disposable, wearable*

MedGadget: *Paper towels seeded with carbon nanotubes work as disposable sensors*

Phys.org: *Tissue paper sensors show promise for health care, entertainment, robotics*

ScienceDaily: *Tissue paper sensors show promise for health care, entertainment, robotics*

OTHER SCHOLARLY ACTIVITY

Keynote, Invited Talks, and Short-course Lectures (Selected among ~100 talks)

- *Beijing Institute of Technology,* Aerospace Engineering Department, Beijing, China, October, 2021 (scheduled).
- *University of California, Merced,* Mechanical Engineering Department, Merced, CA, October, 2021 (scheduled).
- *Hyundai Motor Company*, Korea, November, 2020 (online).
- *International Workshop on Variety and Universality of Bulk-edge Correspondence in Topological Phases: From Solid State Physics to Transdisciplinary Concepts*, Tokyo, Japan, February, 2020 (switched to online workshop)
- *Air Force Center of Excellence: Nature Inspired Flight Technologies and Ideas (NIFTI) Meeting,* Seattle, WA, March 2019.
- *Stewart Blusson Quantum Matter Institute Workshop on Synthetic Topological Matter,* Vancouver, Canada, February 2019.
- *Applied Mechanics Seminar*, *University of British Columbia,* Vancouver, BC, Canada, February, 2019.
- Short course on "Impact mitigation and vibration shielding via mechanical metamaterials," *Agency for Defense Development,* Daejon, Korea, May 2019.
- *CNRS*, *Université du Maine*, Le Mans, France, Dec. 2018.
- *University of Pittsburgh,* Pittsburgh, PA, October, 2018.
- Keynote lecture: "Dynamic manipulation of structural responses via mechanical metamaterials," *American Society for Composites (ASC) Conference*, Seattle, WA, September, 2018.
- *Queensland University of Technology,* Brisbane, Australia, August, 2018.
- *University of South Wales,* Sydney, Australia, August, 2018.
- *Samsung Advanced Institute of Technology,* Suwon, Korea, June, 2018.
- *IUTAM Symposium on Acoustic/elastic Metamaterials, Their Design and Applications,* Beijing, China, June 2018.

- *ABC (Atomic, Bio, and Condensed Matter) Seminar in the Department of Physics*, UW, Seattle, WA, May 2018.

- *ARO Workshop on Metastructures,* Stone Mountain, GA, May 2018.

- *University of Tokyo,* Japan, Jan. 2018.

- *Meiji University,* Japan, Jan. 2018.

- *International Symposium on Intrinsic Localized Modes, 30th Anniversary of Discovery*, Kyoto, Japan, Jan. 2018.

- *The Future of Vibration Energy Transfer in Solids and Structures: Needs and Opportunities Workshop, University of Washington*, Seattle, WA, Oct. 2016.

- *Boeing-UW Research Planning Workshop, University of Washington*, Seattle, WA, Jun. 2016.

- *Los Alamos National Laboratory-Chonbuk National University Engineering Institute,* Junju, Korea, Sep. 2015.

- *Mechanical Engineering Seminar Series, Johns Hopkins University,* Baltimore, MD, Sep. 2015.

- *National Science Foundation Workshop on Energy Transport and Control in Solids and Structures,* Arlington, VA, May, 2015.

- *Korea Aerospace Research Institute,* Daejon, Korea, Sep. 2014.

- *Korea Research Institute of Standards and Science,* Daejon, Korea, Sep. 2014.

- *Applied Mathematics Department, University of Washington*, Seattle, WA, May 2014.

- *Applied Analysis & Computation Seminar, University of Massachusetts*, Amherst, MA, Mar. 2014.

- *Material Science & Engineering Department, University of Washington*, Seattle, WA, Jan. 2014.

- *Korea Institute of Machinery & Materials*, Daejon, Korea, Aug. 2013.

- *CNRS, Université du Maine*, Le Mans, France, Jun. 2013.

- *Aeronautics & Astronautics, University of Washington*, Seattle, WA, Apr. 2013.

- *Applied and Computational Math Seminar, University of South Carolina*, Columbia, SC, Oct. 2012.

- *Rutgers University*, Piscataway, NJ, Aug. 2012.

- *University of Florida (UF)/AFRL Summer Seminar*, Eglin, FL, Jul. 2012.

- *University of Maryland*, College Park, MD, Jun. 2012.

- *National Institute of Aerospace*, Hampton, VA, Jun. 2012.

- *Worcester Polytechnic Institute*, Worcester, MA, Mar. 2011.

- *University of South Carolina*, Columbia, SC, Mar. 2011.

- *Kavli Nanoscience Institute (KDL, Caltech) / Microdevices Laboratory (MDL, JPL) Seminar*, Pasadena, CA, Apr. 2011.

- *Oregon State University*, Corvallis, OR, May. 2011.

- *Caltech Solid Mechanics Symposium,* Pasadena, CA, Jan. 2011.

Presentations Given at Conferences

†*Presenter*

132. H. Yasuda, **J. Yang**†, "Wingtip deflection monitoring and prediction based on digital image correlation and machine learning techniques," *European Workshop on Structural Health Monitoring,* Palermo, Italy, July 2022 (scheduled).

131. C. Chen, R. Chaunsali, J. Christensen, G. Theocharis, **J. Yang**†, "Topological guiding of stress waves in bolted plate structures," *MRS,* Boston, MA, November, 2021 (invited talk, scheduled).

130. S. Ko†, T. Nakagawa, Z. Chen, J. Davey, T. Abdullah, L. Kuklenski, E. Adams, M. Soja, C. Park, W. Avery, **J. Yang**, M. Salviato, "Experimental and numerical investigations of stochastic thickness effects in discontinuous fiber composites," *American Society of Composites Conference*, College Station, TX, September, 2021.

129. J. Suh†, **J. Yang**, J. Han, "Origami-based deployable tubular structure with Yoshimura pattern," *SPIE - Smart Structures / NDE,* Anaheim, CA, March, 2021.

128. J. Hyun†, S. Cho, K. Kim, J. Lee, **J. Yang**, "A study on the electromagnetic performance evaluation of composite specimen based on 3D printer," *SPIE - Smart Structures / NDE,* Anaheim, CA, March, 2021.

127. K. Yamaguchi†, H. Yasuda, Y. Miyazawa, R. Wiebe, J. Raney, **J. Yang**, "Data-driven prediction and analysis for chaotic folding motions of bistable origami," *SPIE - Smart Structures / NDE,* Anaheim, CA, March, 2021.

126. L. M. Roger, H. G. Reich, S. Li, L. Kumar, I. Cuadras, **J. Yang**, H. M. Putnam, N. Lewinski, "Coral microbioreactors for model validations," *Pacific Symposium on Biocomputing*, Jan. 2021 (online).

125. Y. Miyazawa†, **J. Yang**, "In-situ reconfigurability and stiffness tunability of origami-based mechanical metamaterial," *ASME - IMECE,* Nov. 2020 (online).

124. C. Chen†, N. Lera, R. Chaunsali, D. Torrent, J. Vicente Alvarez, P. San-Jose, J. Christensen, **J. Yang**, "Demonstration of the Majorana-like bound state in an elastic bolted plate," *ASME - IMECE,* Nov. 2020 (online).

123. R. Kurniawan†, T. Fukudome, H. Qiu, M. Takamiya, Y. Kawahara, **J. Yang**, R. Niiyama, "An untethered 216-mg insect-sized jumping robot with wireless power transmission," *International Conference on Intelligence System and Robotics (IROS)*, Oct. 2020 (online).

122. K. Yamaguchi†, S. Phenisee†, Z. Chen, M. Salviato, **J. Yang**, "AFP ply-drop design by Bayesian optimization," *Composite Durability Workshop*, July, 2020 (online).

121. S. Ko†, **J. Yang**, M. Tuttle, M. Salviato, "Stochastic computational modeling of the fracturing behavior in discontinuous fiber composite structures," *SAMPE*, May, 2020 (online).

120. M. Olaosebikan†, L. Cowen, J. Klein-Seetharaman, **J. Yang**, N. Lewinski, O. Shaer, "Towards collaborative immersive analytics for coral reef data," *CHI Immersive Analytics Workshop*, Honolulu, HI, April, 2020.

119. N. Brenner, L. Kumar, M. Olaosebikan, N. Daniels, H. Putnam, N. Lewinski, **J. Yang**, L. Cowen, J. Klein-Seetharaman, "The synthetic coral: Harnessing data advances to design a

biological 3D printer," *Keystone Symposia on Synthetic Biology*, Breckenridge, CO, March, 2020 (online).

118. K. Yamaguchi†, H. Yasuda, K. Tsujikawa, T. Kunimine, **J. Yang**, "Combinatorial search for auxetic origami tessellations via graph theory," *SPIE - Smart Structures / NDE,* April. 2020 (online).

117. Y. Miyazawa†, H. Yasuda, **J. Yang**, "Feasibility study on the formation of rogue waves in origami-based mechanical metamaterials," *SPIE - Smart Structures / NDE,* April. 2020 (online).

116. J. O'Neil†, Y. Miyazawa, **J. Yang**, "Mitigation of impact applied to payload via origami-based mechanical metamaterials," *SPIE - Smart Structures / NDE*, April. 2020 (online).

115. C. Chen†, N. Lera, R. Chaunsali, D. Torrent, J. Vicente Alvarez, P. San-Jose, J. Christensen, **J. Yang**, "Demonstration of the Majorana-like bound state in an elastic bolted plate," *American Physical Society March Meeting*, Denver, CO, 2020 (conference canceled).

114. X. Shi†, R. Chaunsali, F. Li, **J. Yang**, "Elastic Weyl points and surface arc states in three-dimensional mechanical metamaterials," *American Physical Society March Meeting*, Denver, CO, 2020 (conference canceled).

113. S. Li†, I. Kim, S. Iwamoto, J. Zang, **J. Yang**, "Valley anisotropy and valley topological states in elastic metamaterials," *American Physical Society March Meeting*, Denver, CO, 2020 (conference canceled).

112. S. Ko†, J. Davey, S. Douglass, S. Goutham, J. Huang, **J. Yang**, M. Tuttle, M. Salviato, "Fracturing behaviors in discontinuous fiber composite structures with different thicknesses," *Engineering Mechanics Institute Conference*, Pasadena, CA, June, 2019.

111. M. Zhang†, **J. Yang**, R. Zhu, "Flexural wave control via origami-based elastic metamaterials," *SPIE - Smart Structures / NDE,* Denver, CO, Mar. 2019.

110. H. Yasuda, Y. Miyazawa, **J. Yang**†, "Conversion of compressive impact to tensile stress waves via origami-based mechanical metamaterials," *ASME - IMECE,* Pittsburgh, PA, Nov. 2018.

109. R. Chaunsali, C. Chen, **J. Yang**†, "Demonstration of topological waveguiding in locally resonant plate structures," *ASME - IMECE,* Pittsburgh, PA, Nov. 2018.

108. H. Yasuda, Y. Miyazawa, **J. Yang**†, "Origami: a versatile method for designing metamaterials with adaptive mechanical properties," *ICAST2018: 29th International Conference on Adaptive Structures and Technologies,* Seoul, Korea, Sep. 2018 (invited).

107. K. Bertoldi, W. Irvine, M. Ruzzene†, **J. Yang**, "Topological mechanical metamaterials science," *2-DARE/NewLAW Grantees Meeting*, San Diego, CA, Oct. 2018.

106. R. Jayaram, S. Ko, **J. Yang**, M. Salviato, "Delamination resistance and size effect in discontinuous fiber composites," *American Society of Composites Conference*, Seattle, WA, Sep. 2018.

105. J. O'Neil, A. Deleo, H. Yasuda, M. Salviato, **J. Yang**, "Deployable structures constructed from composite origami," *American Society of Composites Conference*, Seattle, WA, Sep. 2018.

104. S. Ko†, K. Chan, R. Hawkins, R. Jayaram, C. Lynch, R. El Mamoune, M. Nguyen, N. Pekhotin, N. Stokes, D. Wu, M. Tuttle, **J. Yang**, M. Salviato, "Experimental and numerical

characterization of the intra-laminar fracturing behavior in discontinuous fiber composite structures," *American Society of Composites Conference*, Seattle, WA, Sep. 2018.

103. T. Kunimine†, H. Yasuda, B. Gopalarethinam, **J. Yang**, "Mechanical properties of flexible Tachi-Miura Polyhedron-based cellular structures fabricated by additive manufacturing," *7th International Meeting on Origami in Science, Mathematics and Education*, Oxford, UK, Sep. 2018.

102. G. Lee†, S. Ahn, **J. Yang**, "A study on the contact mechanism in the electrospun resistive film and its application to a pressure sensor," *PRESM*, Sapporo, Japan, July, 2018.

101. A. Deleo†, J. O'Neil, H. Yasuda, **J. Yang**, M. Salviato, "Composite origami: foldable structures based on Tachi-Miura-Polyhedron origami technique," *SAMPE Conference*, Long Beach, CA, Mar. 2018.

100. S. Ko†, K. Chan, R. Hawkins, R. Jayaram, C. Lynch, R. El Mamoune, M. Nguyen, N. Pekhotin, N. Stokes, D. Wu, **J. Yang**, M. Tuttle, M. Salviato, "Characterization and computational modeling of the fracture behavior in discontinuous fiber composite structures," *SAMPE Conference*, Long Beach, CA, Mar. 2018.

99. R. Chaunsali†, C. Chen, **J. Yang**, "Subwavelength and directional topological waveguides in thin plates using Pseudo spin Hall Effect," *American Physical Society,* LA, CA, Mar. 2018.

98. X. Shi†, R. Chaunsali, Y. Wu, **J. Yang**, "Experimental demonstration of elastic Wannier-Stark Ladders and Block oscillations in 1D granular crystals," *American Physical Society,* LA, CA, Mar. 2018.

97. H. Yasuda†, Y. Miyazawa, **J. Yang**, "Tunable wave propagation in origami-based reconfigurable mechanical metamaterials," *SPIE - Smart Structures / NDE,* Denver, CO, Mar. 2018.

96. C. Chen†, R. Chaunsali, **J. Yang**, "Subwavelength and directional topological waveguides in thin plates," *SPIE - Smart Structures / NDE,* Denver, CO, Mar. 2018.

95. Y. Wu, H. Yasuda, R. Chaunsali, K. Yu, **J. Yang**†, "Topologically tunable metamaterial based on bi-stable Stewart platform," *SPIE - Smart Structures / NDE,* Denver, CO, Mar. 2018.

94. B. Gopalarethinam†, **J. Yang**, "Origami-based tunable structures with simultaneously foldable and stiff behavior," *AIAA SciTech*, Kissimmee, FL, Jan. 2018.

93. H. Yasuda, **J. Yang**†, "Stress wave mitigation and filtering via origami-based mechanical metamaterials," *International Congress on Ultrasonics,* Honolulu, HI, Dec. 2017.

92. M. Salviato†, **J. Yang**, M. Tuttle, "Characterization and computational modeling of the fracturing behavior of discontinuous fiber composite structures," *UW-Tohoku Academic Open Space Workshop*, Seattle, WA, Nov. 2017.

91. H. Kim†, E. Kim, **J. Yang**, "Dispersive shock waves in hollow elliptical cylinder lattice," *ASME - IMECE,* Tampa, FL, Nov. 2017.

90. R. Chaunsali†, A. Thakkar, **J. Yang**, "Demonstrating in-situ topological band transition using highly tunable phononic crystals," *ASME - IMECE,* Tampa, FL, Nov. 2017.

89. M. Salviato†, **J. Yang**, M. Tuttle, "Safety and certification of discontinuous fiber composite structures," *AMTAS Review Meeting*, Seattle, WA, Nov. 2017.

88. H. Yasuda[†], **J. Yang**, "Tunable frequency band structure of origami-based mechanical metamaterials," *International Association for Shell and Spatial Structures*, Hamburg, Germany, September, 2017.

87. R. Wiebe[†], H. Yasuda, **J. Yang**, "Nonlinear dynamic behavior of origami-based multi-cell structures," *ASME - IDETC/CIE,* Cleveland, OH, August, 2017.

86. M. Salviato[†], S. Ko, **J. Yang**, M. Tuttle, "Toward a probabilistic model for fracture and scaling of discontinuous fiber composites," *Engineering Mechanics Institute Conference*, San Diego, CA, June, 2017.

85. G. Lee[†], M. Kim, H. Yoon, **J. Yang**, J. Ihn, S. Ahn, "Direct printing of strain sensors via nanoparticle printer for the applications to composite structural health monitoring," *CIRP Conference on Composite Materials Parts Manufacturing*, Karlsruhe, Germany, June, 2017.

84. R. Chaunsali[†], E. Kim, **J. Yang**, "Extreme control of impulse transmission by cylindrical phononic crystals," *SIAM on Applications of Dynamical Systems*, Snowbird, UT, May, 2017.

83. **J. Yang**[†], H. Yasuda, H. Kim, C. Chong, P. Kevrekidis, "Formation of rarefaction waves and reverse shocks in strain-softening lattices," *SIAM on Applications of Dynamical Systems*, Snowbird, UT, May, 2017.

82. H. Yasuda, **J. Yang**[†], "Origami-based mechanical metamaterials for tailoring stress wave propagation", *Mach Conference*, Annapolis, MD, April, 2017.

81. R. Chaunsali[†], A. Thakkar, **J. Yang**, "Experimental verification of topological band-transition in one-dimensional phononic crystals," *SPIE - Smart Structures / NDE,* Portland, OR, Mar. 2017.

80. H. Kim[†], F. Green, E. Kim, **J. Yang**, "Nonlinear wave dynamics of hollow ellipsoidal cylinder lattices," *SPIE - Smart Structures / NDE,* Portland, OR, Mar. 2017.

79. H. Yasuda[†], R. Pratt, **J. Yang**, "Origami-based mechanical metamaterials with tunable frequency band structures," *SPIE - Smart Structures / NDE,* Portland, OR, Mar. 2017.

78. R. Zhu, H. Yasuda, G. Huang, **J. Yang**[†], "Control of subwavelength flexural waves via Kirigami-based hyperlens," *SPIE - Smart Structures / NDE,* Portland, OR, Mar. 2017.

77. S. Ko, M. Salviato[†], **J. Yang**, M. Tuttle, "Certification of discontinuous composite material forms for aircraft structures," *JAMS Technical Review Meeting*, Salt Lake City, UT, Mar. 2017.

76. C. Wanitthananon[†], **J. Yang**, "Embedded piezoresistive sensor network for strain measurements in fiber-reinforced composite laminate," *AIAA Region VI Regional Conference*, San Jose, CA, Mar. 2017. ***2nd Place Award in Undergraduate Student Research Category.***

75. J. O'Neil[†], **J. Yang**, "Design of robotic arms based on triangulated cylindrical origami," *AIAA Region VI Regional Conference*, San Jose, CA, Mar. 2017.

74. Q. Li[†], **J. Yang**, "Design and fabrication of dodecahedron planetary landing system based on triangulated cylindrical origami," *AIAA Region VI Regional Conference*, San Jose, CA, Mar. 2017.

73. B. Gopalarethinam[†], **J. Yang**, "Origami-based tunable structures with simultaneously foldable and stiff behavior," *AIAA Region VI Regional Conference*, San Jose, CA, Mar. 2017. ***1st Place Award in Masters' Student Research Category.***

72. H. Yasuda†, **J. Yang**, "Dynamics analysis on mechanical metamaterials composed of triangulated cylindrical origami," *SEM - IMAC XXXV*, Garden Grove, CA, Jan. 2017.

71. H. Yasuda†, **J. Yang**, "Wave propagation in origami-based mechanical metamaterials," *International Workshop on Nonlinear Energy Localization in Crystals and Related Media,* Kyoto, Japan*,* Nov. 2016.

70. H. Yasuda†, **J. Yang**, "Tunable wave propagation in mechanical metamaterials made of triangulated cylindrical origami," *International Symposium on Nonlinear Theory and Its Applications,* Yugawara, Japan*,* Nov. 2016.

69. R. Zhu, H. Yasuda, **J. Yang**†, "Kirigami-inspired elastic hyperbolic metamaterial for subwavelength flexural wave control," *ASME - IMECE,* Phoenix, AZ, Nov. 2016.

68. E. Kim, R. Chaunsali†, S. Phenisee, **J. Yang**, "Manipulation of elastic waves in graded mechanical metamaterials," *ASME - IMECE,* Phoenix, AZ, Nov. 2016.

67. R. Chaunsali†, **J. Yang**, "Acoustic non-reciprocator based on topologically non-trivial band-gaps," *ASME - IMECE,* Phoenix, AZ, Nov. 2016.

66. H. Yasuda, M. Lee, **J. Yang**†, "Tunable wave dynamics in origami-based mechanical metamaterials," *ASME - IMECE,* Phoenix, AZ, Nov. 2016.

65. G. Lee, J. Rivey, Y. Kim, S. Kim, **J. Yang**†, "Visualization of stress waves via acoustic emission beamforming technique for damage detection and localization," *ASME - IMECE,* Phoenix, AZ, Nov. 2016.

64. H. Yasuda†, M. Lee, **J. Yang**, "Folding behavior of origami-based mechanical metamaterials," *International Association for Shell and Spatial Structures*, Tokyo, Japan, September, 2016.

63. H. Yasuda†, M. Lee, **J. Yang**, "Tunable wave dynamics in origami-based mechanical metamaterials," *ASME - IDETC/CIE,* Charlotte, NC, August, 2016.

62. **J. Yang**†, E. Kim, R. Chaunsali, P. Kevrekidis, A. Vakakis, "Sculpting of stress waves in woodpile phononic crystals," *Euromech Colloquium on Strongly Nonlinear Dynamics and Acoustics of Granular Metamaterials*, Grenoble, France, July, 2016.

61. **J. Yang**†, M. Sutton, "Propagation and mitigation of nonlinear stress waves through hexagonally packed granular ladders," *ICEM*, Rhodes, Greece, July, 2016.

60. G. Lee†, **J. Yang**, S. Ahn, "Direct writing of nanoparticles via aerodynamically focused nanoparticle printing," *International Symposium on Green Manufacturing and Applications,* Bali, Indonesia, June, 2016.

59. G. Lee†, S. Ahn, W. Ryu, **J. Yang**, "Direct writing of stretchable and transparent thin film via melt electrospinning," *International Symposium on Green Manufacturing and Applications,* Bali, Indonesia, June, 2016.

58. J. Rivey, G. Lee, Y. Kim, S. Kim, **J. Yang**†, "Visualization of stress wave propagation via air-coupled acoustic emission sensors," *SEM*, Orlando, FL, CA, June, 2016.

57. H. Yasuda, C. Chong, P.G. Kevrekidis, **J. Yang**†, "Nonlinear wave dynamics in origami-based mechanical metamaterials," *SIAM* (*Society for Industrial and Applied Mathematics*) – *Mathematical Aspects of Materials Science*, Philadelphia, PA, May, 2016.

56. H. Yasuda†, **J. Yang**, "Origami-based mechanical metamaterials with tunable bistability and impact mitigation capabilities," *SPIE - Smart Structures / NDE,* Las Vegas, NV, Mar. 2016.

55. E. Kim, R. Chaunsali, **J. Yang**†, "Sculpting of stress waves in nonlinear mechanical metamaterials," *SPIE - Smart Structures / NDE,* Las Vegas, NV, Mar. 2016.
54. H. Yasuda†, **J. Yang**, "Nonlinear wave dynamics in origami-based mechanical metamaterials," *Joint Mathematics Meetings*, Seattle, WA, Jan. 2016.
53. H. Yasuda†, **J. Yang**, "Design of origami-based mechanical metamaterials for impact mitigation," *ASME - IMECE,* San Antonio, TX, Nov. 2015.
52. R. Chaunsali†, E. Kim, H. Xu, J. Castillo, P. Kevrekidis, A. Vakakis, and **J. Yang**, "Unique impact mitigation mechanism in granular dimer chains," *ASME - IMECE,* San Antonio, TX, Nov. 2015.
51. H. Hwang†, **J. Yang**, "Impact mitigation of composite plate with 1D DNA-like acoustic metamaterials," *ICAMCMS2015,* Seoul, Korea, Oct. 2015.
50. H. Yasuda†, **J. Yang**, "Rarefaction wave propagation in origami-based mechanical metamaterials," *ASME - IDETC/CIE,* Boston, MA, August, 2015.
49. G. Lee†, **J. Yang**, S. Ahn, "Direct printing of spider web-like fiber network via hybrid melt electrospinning," *ASME - McMat,* Seattle, WA, July, 2015.
48. G. Lee†, **J. Yang**, "Numerical studies on coupled phononic crystals with switching and amplification capabilities," *ASME - McMat,* Seattle, WA, July, 2015.
47. R. Chaunsali†, E. Kim, H. Xu, J. Castillo, P. Kevrekidis, A. Vakakis, and **J. Yang**, "Numerical and experimental verifications of resonance and anti-resonance phenomena in granular dimer chains," *ASME - McMat,* Seattle, WA, July, 2015.
46. H. Yasuda†, **J. Yang**, "Impact mitigation via rarefaction wave formation in strain-softening mechanical metamaterials," *ASME - McMat,* Seattle, WA, July, 2015.
45. E. Kim†, Y. Kim, **J. Yang**, "Manipulation of stress waves propagating in woodpile mechanical metamaterials," *ASME - McMat,* Seattle, WA, July, 2015.
44. E. Kim, T. Singhal, B. Chang, Y. Kim, **J. Yang**†, "Soliton-based sensor/actuator for delamination and weak bond detection in laminated composites," *SEM*, Costa Mesa, CA, June, 2015.
43. **J. Yang**†, F. Li, P. Anzel, P.G. Kevrekidis, C. Daraio, "Granular acoustic switches and logic elements," *SIAM* (*Society for Industrial and Applied Mathematics*) - *Nonlinear Waves*, Snowbird, UT, June, 2015.
42. E. Kim†, T. Singhal, B. Chang, **J. Yang**, "Soliton-based detection of delaminations and weak bonds in laminated composites," *SPIE - Smart Structures / NDE,* San Diego, CA, Mar. 2015.
41. E. Kim†, Y. Kim, **J. Yang**, "Nonlinear stress wave dispersion in elastic woodpile metamaterials," *SPIE - Smart Structures / NDE,* San Diego, CA, Mar. 2015.
40. H. Yasuda†, **J. Yang**, "Nonlinear wave propagation in origami-based mechanical metamaterials," *SPIE - Smart Structures / NDE,* San Diego, CA, Mar. 2015.
39. F. Li, **J. Yang**†, "Dynamically tunable metamaterials based on helicoidal phononic crystals," *SPIE - Smart Structures / NDE,* San Diego, CA, Mar. 2015.
38. E. Nasresfahani, T. Kim, **J. Yang**†, "Interaction of acoustic solitons with biological tissues," *ASME - IMECE*, Montreal, Canada, Nov. 2014.

37. F. Li, E. Kim, **J. Yang**†, "Experimental and numerical verifications of traveling breathers in granular crystal pillars," *ASME - IMECE*, Montreal, Canada, Nov. 2014.

36. M. Ghanem†, **J. Yang**, "Plane wave propagation in two dimensional auxetic periodic structures," *International Symposium on Optomechatronic Technologies*, Seattle, WA, Nov. 2014.

35. H. Yasuda†, **J. Yang**, "Nonlinear wave dynamics of origami-based mechanical metamaterials," *International Symposium on Optomechatronic Technologies*, Seattle, WA, Nov. 2014.

34. E. Kim†, Y. Kim, **J. Yang**, "Tunable wave dispersion in 3D woodpile mechanical metamaterials," *International Symposium on Optomechatronic Technologies*, Seattle, WA, Nov. 2014.

33. E. Kim, Y. Kim†, **J. Yang**, "Wave propagation in woodpile mechanical metamaterials," *International Symposium on Optomechatronic Technologies*, Seattle, WA, Nov. 2014.

32. E. Kim, F. Li, **J. Yang**†, "Modulation of nonlinear waves in woodpile phononic crystals," *SIAM* (*Society for Industrial and Applied Mathematics*) - *Nonlinear Waves*, Cambridge, UK, Aug. 2014.

31. **J. Yang**†, E. Kim, T. Singhal, "Identification of delaminations and weak bonds in CFRP composites," *Composite Durability Workshop*, Palo Alto, CA, July. 2014.

30. F. Li, C. Chong, **J. Yang**†, P.G. Kevrekidis, C. Daraio, "Experimental verifications of dark breathers and multibreathers in granular crystals," *17th U.S. National Congress on Theoretical and Applied Mechanics*, East Lansing, MI, Jun. 2014.

29. **J. Yang**†, M. Gonzalez, E. Kim, C. Agbasi, M. Sutton, "Attenuation and localization of solitary waves in granular crystals visualized via high speed photography," *17th U.S. National Congress on Theoretical and Applied Mechanics*, East Lansing, MI, Jun. 2014.

28. E. Kim, C. Chong, P.G. Kevrekidis, **J. Yang**†, "Linear and nonlinear wave propagation in quasi-1D woodpile phononic crystals," *SEM*, Greenville, SC, Jun. 2014.

27. E. Kim†, M. Meidani, **J. Yang**, "Tunable band gaps in woodpile phononic crystals made of stacked cylindrical elements," *ASME - IMECE,* San Diego, CA, Nov. 2013.

26. A. Mehedi, A. Shelke, **J. Yang**†, "Impact sensing in granular crystal-embedded sandwich structures using highly nonlinear solitary waves," *International Workshop on Structural Health Monitoring*, Stanford, CA, Sep. 2013.

25. **J. Yang**†, F. Li, L. Yu, A. Schrand, "Bio-inspired sensing systems based on soliton-supporting granular phononic crystals," *7th World Congress on Biomimetics, Artificial Muscles and Nano-Bio (BAMN),* Jeju, Korea, Aug. 2013.

24. E. Kim, **J. Yang**†, "Modulation of nonlinear waves in woodpile phononic crystals made of stacked cylindrical elements," *SES, Brown University*, Providence, RI, Aug. 2013.

23. **J. Yang**†, S. Sangiorgio, S. Borkowski, E. Ebramzadeh, C. Daraio, "Site-specific diagnostic evaluation of hard biological tissues using solitary waves," *SEM Annual Conference on Experimental & Applied Mechanics,* Lombard, IL, Jun. 2013.

22. M. Gonzalez, **J. Yang**†, A. Cuitiño, "Nonintrusive monitoring of solitary wave propagation in granular crystals," *SEM Annual Conference on Experimental & Applied Mechanics,* Lombard, IL, Jun. 2013.

21. M. Meidani†, T. Kang, F. Li, D. Ngo, **J. Yang**, "Tunable bandgaps in one-dimensional granular crystals composed of cylindrical particles," *SPIE - Smart Structures / NDE*, San Diego, CA, Mar. 2013.

20. F. Li, Z. Tian, L. Zhao, L. Yu, **J. Yang**†, "Identification of impurities and strains in granular chains using acoustic solitons," *SPIE - Smart Structures / NDE*, San Diego, CA, Mar. 2013.

19. **J. Yang**†, S. Sangiorgio, S. Borkowski, E. Ebramzadeh, C. Daraio, "Site-specific diagnostics of osteoporotic bone using highly nonlinear solitary waves," *Carolina Women's Health Research Forum*, Columbia, SC, Nov. 2012.

18. **J. Yang**†, "Creation of novel structural materials using granular phononic crystals," *SAMPE*, Charleston, SC, Oct. 2012.

17. D. Ngo, F. Li, **J. Yang**†, "Tunable filtering of mechanical waves using a monodispersed chain of cylindrical particles at various angles," *ASME - SMASIS*, Stone Mountain, GA, Sep. 2012.

16. **J. Yang**†, C. Daraio, "Amplitude-dependent phonon propagation in granular crystals constrained by elastic guides," *SPIE - Smart Structures / NDE*, San Diego, CA, Mar. 2012.

15. **J. Yang**†, D. Khatri, P. Anzel, C. Daraio, "Solitary wave-based inspection of plate structures using granular crystals," *SPIE - Smart Structures / NDE*, San Diego, CA, Mar. 2012.

14. S. Borkowski†, S. Sangiorgio, **J. Yang**, C. Silvestro, L. De Nardo, E. Ebramzadeh, C. Daraio, "Site-specific quantification of bone mechanical properties using highly nonlinear solitary waves," *Orthopaedic Research Society*, San Francisco, CA, Feb. 2012.

13. **J. Yang**†, C. Daraio, "Creation of novel structural materials and sensor devices using granular crystals for aerospace and biomedical applications," *NSF CAREER Forum*, Baton Rouge, LA, Nov. 2011.

12. **J. Yang**†, D. Khatri, C. Daraio, "Highly nonlinear granular crystal sensor and actuator for delamination detection in composite structures," *International Workshop on Structural Health Monitoring*, Stanford, CA, Sep. 2011.

11. **J. Yang**†, C. Silvestro, S. Sangiorgio, S. Borkowski, L. De Nardo, E. Ebramzadeh, C. Daraio, "Solitary wave-based sensor and actuator for biomedical applications," *SPIE - Smart Structures / NDE*, San Diego, CA, Mar. 2011.

10. **J. Yang**†, S. Dunatunga, C. Daraio, "Nonlinear acoustic metamaterials for impact and vibration attenuation," *SPIE - Smart Structures / NDE*, San Diego, CA, Mar. 2011.

9. D. Khatri†, **J. Yang**, C. Daraio, X. Ni, P. Rizzo, "Novel NDE/SHM approach based on highly nonlinear dynamics," *NSF CMMI Engineering Research and Innovation Conference*, Atlanta, GA, Jan. 2011.

8. D. Khatri†, **J. Yang**, C. Daraio, "A numerical and experimental study of the interaction of highly nonlinear acoustic systems with linear media," *ASME - IMECE*, Vancouver, BC, Canada, Nov. 2010.

7. **J. Yang**†, C. Silvestro, S. Sangiorgio, S. Borkowski, E. Ebramzadeh, L. De Nardo, C. Daraio, "Nondestructive Evaluation of Implant Stability Using Highly Nonlinear Solitary Waves," *Engineering Mechanics Institute,* Los Angeles, CA, Aug. 2010.

6. **J. Yang**†, S.W. Tsai, "A weight/cost reduction of composite wing structures through optimization," *10th Composite Durability Workshop,* Seattle, WA, Sep. 2005.

5. **J. Yang**†, F.-K. Chang, "Verification of a built-in health monitoring system for bolted thermal protection panels," *SPIE - Smart Structures / NDE*, San Diego, CA, Mar. 2005.
4. F.-K. Chang†, **J. Yang**, J. Park, "Structural health monitoring for thermal protection systems," *Integrated Systems Health Management Conference*, Dayton, OH, Aug. 2004.
3. **J. Yang**†, F.-K. Chang, "Structural health monitoring technology for thermal protection systems," *F.A.S.T. (The Future of Air and Space Travel) Forum*, Stanford, CA, Jul. 2003.
2. **J. Yang**†, F.-K. Chang, M. Derriso, "Design of a built-in health monitoring system for bolted thermal protection panels," *SPIE - Smart Structures / NDE*, San Diego, CA, Mar. 2003.
1. **J. Yang**†, F.-K. Chang, M. Derriso, "Structural health monitoring technology for thermal protection panels," *European Workshop on Structural Health Monitoring.* Paris, France, Jun. 2002.

Professional Society Memberships

- AIAA – American Institute of Aeronautics and Astronautics (2013 ~ lifetime member)
- ASME – American Society of Mechanical Engineers (intermittently since 2009)
  : Member of Modeling, Dynamics and Control of Adaptive Systems Technical Committee
  Member of Structural Acoustic Committee, Noise Control and Acoustics Division (NCAD)
  Member of Technical Committee on Sound and Vibration (TCSV)
- MRS – Materials Research Society (2021 – present)
- SAMPE – Society for the Advancement of Material and Process Engineering (2012)
- SEM – Society of Experimental Mechanics (2013 ~ lifetime membership)
- SPIE – International Society for Optics and Photonics (2002, 2004, 2009 ~ lifetime member)
- SIAM – Society for Industrial and Applied Mathematics (2014 ~2017)

Archival Journal Reviews

- Acta Mechanica
- Aerospace Science and Technology
- AIAA Journal of Spacecraft and Rockets
- Applied Optics
- ASME Journal of Mechanisms and Robotics
- ASME Journal of Computational and Nonlinear Dynamics
- Composites Science and Technology
- Computers in Industry
- Engineering Structures
- Extreme Mechanics Letters
- Journal of Applied Mechanics
- Journal of Composite Materials
- Journal of Intelligent Material Systems and Structures
- Journal of Physics D: Applied Physics
- Journal of Vibration and Acoustics
- Materials
- Nature
- Nature Communications Physics
- New Journal of Physics
- Advanced Engineering Materials
- AIAA
- AIP Advances
- Applied Physics Letters
- Communications in Nonlinear Science and Numerical Simulation
- Computational Materials Science
- Crystal Structure Theory and Applications
- Europhysics Letter (EPL)
- Int'l Journal of Smart and Nano Materials
- Journal of Applied Physics
- Journal of Mechanics and Physics of Solids
- Journal of Mechanical Science and Technology
- Journal of Sound and Vibration
- Material Science and Engineering B
- Materials & Design
- Nature Communications
- Nature Materials
- Nonlinear Sciences and Numerical Simulation

- Optics Letters
- Physica D: Nonlinear Phenomena
- Physical Review E
- Physical Review Letters
- Polymer Composites
- Scientific Reports
- Science Advances
- Proceedings of the National Academy of Sciences of the USA
- Sensors
- Small
- Smart Materials and Structures
- Structural Control and Health Monitoring
- Structural Health Monitoring
- Ultrasonics
- Wave Motion

GRADUATE STUDENTS, POST-DOCS & VISITING SCHOLARS

Chaired Doctoral Degrees

† Minority student; *Female student

Student Name	Dissertation Title	Completed Year	Current Employer
Jiacheng Chen (AA)	(TBD)	Qualifying Exam: (Fall 2021)	UW-AA
Riccy Kurniawan (ME)	(TBD)	General Exam: (Fall 2021)	UW-ME
Zhisong Chen (AA)	(TBD)	Qualifying Exam: (Fall 2021)	UW-AA
Shuaifeng Li (AA)	(TBD)	Qualifying Exam: Spring 2020	UW-AA
Yasuhiro Miyazawa (AA)	(TBD)	Qualifying Exam: Spring 2020	UW-AA
Koshiro Yamaguchi (AA)	(TBD) *Fu-Nai fellow*	Qualifying Exam: Spring 2020	UW-AA
Timothy Gormley (AA)	(TBD) *UW College of Engineering Dean's 4-year Fellow* *NSF Graduate Research Fellow*	Qualifying Exam: (Fall 2021)	UW-AA
James O'Neil (AA)	Design of deployable aerospace structures based on triangulated cylindrical origami (tentative)	Qualifying Exam: Fall 2019	UW-AA
Xiaotian Shi (AA)	Elastic Bloch oscillations and Wannier-Stark ladders in phononic crystals (tentative)	Final Exam: (Spring 2021) General Exam: Fall 2019 Qualifying Exam: Fall 2017	UW-AA
Seunghyun Ko (AA)	Experimental characterization and modeling of randomly-oriented-strand composites (tentative) *UW-AA Varanasi Fellow* (co-advised with Marco Salviato)	Final Exam: (Summer 2021) General Exam: Spring 2019 Qualifying Exam: Spring 2017	UW-AA
Chun-Wei Chen (AA)	Demonstration of topological boundary states in mechanical metamaterials	Final Exam: Spring 2021 General Exam: Fall 2019 Qualifying Exam: Fall 2017	-
Hyunryung Kim* (AA)	Elastic wave manipulation via 3D-printed chains of hollow elliptical cylinders	Final Exam: Summer 2018 General Exam: Summer 2017 Qualifying Exam: Fall 2015	Microsoft

	UW College of Engineering Dean's 4-year Fellow and Amelia Earhart Fellow from Zonta International		
Rajesh Chaunsali (AA)	Manipulating elastic waves in topological mechanical metamaterials UW-AA Varanasi Fellow	Final Exam: Spring 2018 General Exam: Fall 2016 Qualifying Exam: Spring 2015	Assistant Professor, IISc, Bangalore, Aerospace Engineering
Hiromi Yasuda (AA)	Wave dynamics in origami-based metamaterials	Final Exam: Winter 2018 General Exam: Fall 2016 Qualifying Exam: Spring 2015	Researcher, JAXA

Chaired Masters Degrees

Student Name	Dissertation Title	Completed Year	Current Employer
Qingqian Li (AA)	Topological band transition and corresponding topologically protected interface states in origami-based chains	6/2019	COMAC
Balakumaran Gopalarethinam (ME)	Study of volumetric origami structure with highly anisotropic and tunable load carrying capacity	6/2018	Black and Decker
Reda El Mamoune (MSE)	Manufacturing and preliminary failure analysis of discontinuous fiber-reinforced composites (co-advising with Marco Salviato)	8/2017	Boeing
Jingmeng Tian (MSE)	Fabrication and testing of hybrid, shallow-angle composites	8/2016	Seattle Pacific Trading LLC.
Noel Kimber (AA)	Effects of shallow bi-angle, thin-ply laminates on the structural performance of composite wings	6/2016	Stereo Display Inc.
Joshua Rivey (AA)	Acoustic emission beamforming for detection and localization of damage	3/2016	U.S. Air Force
Taru Singhal* (AA)	Weak bond detection in composites using solitary waves	6/2015	Acellent Technologies
Eric Cain (AE)	Lightning protection considerations for reusable composite spacecraft	3/2014	Sierra Nevada Corp.
In Seok Yoon (AE)	Numerical simulation of delamination detection in composites using solitons	12/2013	Boeing

Post Doctoral Fellows Supervised

Name	Period	Current Employer
Hiromi Yasuda	3/2018 – 12/2018	Postdoctoral Researcher, UPenn
Rui Zhu	5/2016 – 4/2017	Assistant Professor, Beijing Institute of Technology, China
Gil-Yong Lee	1/2014 – 11/2016	Assistant Professor, Kumoh National Institute of Technology, Korea
Eunho Kim	10/2012 – 2/2016	Assistant Professor, Chonbook National University, Korea

Feng Li	4/2012 – 8/2013	Professor, South China University of Technology, China
Amit Shelke	10/2012 – 6/2013	Assistant Professor, IIT, Guwahati

Visiting Scholars Supervised

Name	Period	Affiliation
Kyunghwan Kim	3/2020 – 8/2020	Graduate Student, KAIST, Korea
Jong-Eun Suh	3/2020 – 8/2020	Graduate Student, KAIST, Korea
Hyunsu Park	3/2020 – 8/2020	Graduate Student, KAIST, Korea
Hyunseok Kwon	3/2020 – 8/2020	Graduate Student, KAIST, Korea
Kamil Koçak	12/2019 – 6/2020	Assistant Professor, Istanbul Medeniyet University, Turkey
Chun-gon Kim	9/2019 – 8/2020	Professor, KAIST, Korea
Ingi Kim	10/2018 – 12/2018	Graduate student, University of Tokyo, Japan
Kosei Tsujikawa	9/2017 – 8/2018	Graduate Student, Kanazawa University, Japan
Nan Yang	2/2017 – 1/2018	Lecturer, Tianjin University of Technology, China
Waverly Harden*	7/2017	Undergraduate student, Bowdoin College, ME
Cheng Luo	7/2017 – 9/2017	Undergraduate student, Tsinghua University, China
Yasuhiro Miyazawa	3/2018 – 8/2017	Undergraduate student, Tohoku University, Japan
Takahiro Kunimine	3/2017	Assistant professor, Kanazawa University, Japan
Koshiro Yamaguchi	2/2017 – 3/2017	Undergraduate student, Nihon University, Japan
Ying Wu	11/2016 – 11/2017	Graduate student, Harbin Institute of Technology, China
Ilkwon Oh	7/2016 – 6/2017	Professor, KAIST, Korea
Wonhyung Ryu	9/2015 – 8/2016	Associate professor, Yonsei University, Korea
Hyung-Joon Bang	2/2014 – 2/2015	Team Lead, Korea Institute of Energy Research, Korea
Feng Li	8/2013 – 5/2014	Postdoctoral scholar at Caltech & Associate professor at Changchun Institute of Fine Mechanics, Optics and Physics, China
Yan Wang	2/2013 – 8/2013	Associate professor, Xi'an University of Technology, China

Awards and Honors Received by Students and Scholars Supervised

Name	Honor	Year
Gloria Yin	2nd Place Award for Research Competition, *AIAA - Region VI Student Conference*	4/2021
Kyle Johnson†	NSF Graduate Research Fellowship	3/2021
Isaiah Cuadras†	2020 SACNAS Student Presentation Award	11/2020
Yasuhiro Miyazawa	Excellence in Teaching Award, UW-AA	7/2020
Isaiah Cuadras†	Pacific Northwest Aerospace Alliance Fellowship	6/2020
Gloria Yin*	Research Experience for Undergraduates Support, *NSF* ($4,000)	6/2020
Quintin Serrano†	Research Experience for Undergraduates Support, *NSF* ($4,000)	6/2020
Nicolas Chu	Research Experience for Undergraduates Support, *NSF* ($4,000)	6/2020
Devon Smith	Research Experience for Undergraduates Support, *NSF* ($4,000)	6/2020
Isaiah Cuadras†	Research Experience for Undergraduates Support, *NSF* ($4,000)	6/2020
Jason Teh	Research Experience for Undergraduates Support, *NSF* ($4,000)	6/2020
Yasuhiro Miyazawa	2nd Place Award for Team Research Competition, *AIAA - Region VI Student Conference* (undergraduate intern awardees: Jiacheng Chen; Po Wen Hsiao; Elaine Xiong*: Silas Shon Hymn Shu)	5/2020
Kyle Johnson†	Washington Research Foundation Fellowship	10/2019
Jiacheng Chen	Research Experience for Undergraduates Support, *NSF* ($4,000)	6/2019
Jason Teh	Research Experience for Undergraduates Support, *NSF* ($4,000)	6/2019

Kyle Johnson†	Research Experience for Undergraduates Support, *NSF* ($8,000)	6/2019
Timothy Gormley	1st Place Award for Masters Student Research Competition, *AIAA - Region VI Student Conference*	4/2019
Timothy Gormley	NSF Graduate Research Fellowship	4/2019
Kyle Johnson†	OMA&D Recognition Scholarship	3/2019
Kenrick Chan	PNAA Scholarship ($1,000 ~ $2,500)	3/2019
Kyle Johnson†	McNair Fellowship	3/2019
Kyle Johnson†	Undergraduate Research Fellowship, *Mary Gates Research Foundation* ($5,000)	12/2018
Kyle Johnson†	LSAMP fellowship ($1,500)	10/2018
Timothy Gormley	UW College of Engineering Dean's Fellowship (4-year support)	4/2018
Sam Douglass	Research Experience for Undergraduates Support, *NSF* ($4,000)	6/2018
James Davey	Research Experience for Undergraduates Support, *NSF* ($4,000)	6/2018
Kyle Johnson†	Research Experience for Undergraduates Support, *NSF* ($8,000)	6/2018
Lorena Lopez*†	Summer Undergraduate Research Program (SURP) Fellowship, *NASA Space Grant Consortium + LSAMP* ($2,500 + $2,500 = $5,000)	6/2018
Minh Nguyen	Undergraduate Research Fellowship, *Mary Gates Research Foundation* ($5,000)	12/2017
Hiromi Yasuda	Full travel support for *International Symposium on Intrinsic Localized Modes*, Kyoto, Japan.	11/2017
Hiromi Yasuda	Hangai Prize, *The International Association for Shell and Spatial Structures*	8/2017
Hannah Stevens*	Research Experience for Undergraduates Support, *NSF* ($8,000)	6/2017
Timothy Gormley	Research Experience for Undergraduates Support, *NSF* ($8,000)	6/2017
Minh Nguyen	Summer Undergraduate Research Program (SURP) Fellowship, *NASA Space Grant Consortium* ($2,500 + $2,500 matching = $5,000)	5/2017
Hyunryung Kim*	Amelia Earhart Fellowship for Woman Ph.D. Student, *Zonta International* ($10,000)	4/2017
Francesca Green*†	Minority Affairs and Diversity Merit Scholarship, *UW*	3/2017
Balakumaran Gopalarethinam	1st Place Award for Masters Student Research Competition, *AIAA - Region VI Student Conference*	3/2017
Chayanat Wanitthananon	2nd Place Award for Undergraduate Research Competition, *AIAA - Region VI Student Conference*	3/2017
Mia Lee*	1st Place Award for International Undergraduate Research Competition, *AIAA SciTech Forum*	1/2017
Rajesh Chaunsali	Conference Travel Support, *Aspen Center for Physics*	1/2017
Chayanat Wanitthananon	Undergraduate Research Fellowship, *Mary Gates Research Foundation* ($5,000)	12/2016
Seunghyun Ko	Varanasi Fellowship (Renewal, $5,000), *UW-AA*	10/2016
Hiromi Yasuda	Full travel support for 2016 International Symposium on Nonlinear Theory and Its Applications, Yugawara, Japan.	11/2016
Francesca Green*†	Research Experience for Undergraduates Support, *NSF* ($5,000)	6/2016
James O'neil	Research Experience for Undergraduates Support, *NSF* ($5,000)	6/2016
Francesca Green*†	Summer Undergraduate Research Program (SURP) Fellowship, *NASA Space Grant Consortium* ($2,500 + $2,500 matching = $5,000)	6/2016
Riley Pratt	Summer Undergraduate Research Program (SURP) Fellowship, *NASA Space Grant Consortium* ($2,500 + $2,500 matching = $5,000)	6/2016
Yelisey Makarevich	Summer Undergraduate Research Program (SURP) Fellowship, *NASA Space Grant Consortium* ($2,500 + $2,500 matching = $5,000)	6/2016

Mia Lee*	1st Place Award for Undergraduate Research Competition, *AIAA - Region VI Student Conference*	4/2016
Zhisong Chen	2nd Place Award for Undergraduate Research Competition, *AIAA - Region VI Student Conference*	4/2016
Rajesh Chaunsali	Varanasi Fellowship (Renewal, $5,000), *UW-AA*	2/2016
Seunghyun Ko	Varanasi Fellowship, *UW-AA*	9/2015
Sean Phenisee	Research Experience for Undergraduates Support, *NSF* ($5,000)	6/2015
Ramiro Cecchet†	Research Experience for Undergraduates Support, *NSF* ($5,000)	6/2015
Justin Schneider †	Summer Research Internship, *Louis Stokes Alliance for Minority Participation* ($2,500)	6/2015
Brian Ramaley	Summer Undergraduate Research Program (SURP) Fellowship, *NASA Space Grant Consortium* ($2,000 + $2,000 matching = $4,000)	6/2015
Matthew Toles	Undergraduate Research Fellowship, *Mary Gates Research Foundation* ($5,000)	3/2015
Joshua Castillo	Undergraduate Research Fellowship, *Mary Gates Research Foundation* ($5,000)	12/2014
Seiji Thielk	Port Townsend Continuing Education Scholarship ($3,000)	11/2014
Rajesh Chaunsali	Varanasi Fellowship	9/2014
Hyunryung Kim*	UW College of Engineering Dean's Fellowship (4-year support)	9/2014
Ramiro Cecchet†	Summer Research Internship, *Louis Stokes Alliance for Minority Participation* ($3,000)	6/2014
Seiji Thielk	Research Experience for Undergraduates Support, *NSF* ($5,000)	6/2014
Wealth Salvador*	Summer Undergraduate Research Program (SURP) Fellowship, *NASA Space Grant Consortium* ($1,000 + $1,000 matching = $2,000)	6/2014
Matthew Toles	Summer Undergraduate Research Program (SURP) Fellowship, *NASA Space Grant Consortium* ($2,000 + $2,000 matching = $4,000)	6/2014
Eunho Kim	Travel Grant Award, *Society of Engineering Science*	8/2013
Chijioke Agbasi†	Outstanding Senior Award, *University of South Carolina*	6/2013

† Minority student; *Female student

RESEARCH ACTIVITIES

Current Funded Research as PI or co-PI

Funding Agency	Title	Your role with other PI's and co-PI's	Total Amount / My Amount	Dates
JCATI	*Computationally-assisted modeling of the manufacturing of recycled discontinuous fiber composites*	Co-PI [PI: Marco Salviato]	$100,000	7/2020 – 6/2021
M. J. Murdock Charitable Trust	*Materials foundry for digital manufacturing and robotics*	Co-PI [PI: Jeff Lipton]	$499,512	N/A
NSF CMMI	*Data Science Supplement: Quest for mechanical rogue waves in 1D discrete lattices*	PI	$68,948	3/2020 – 8/2022
NSF CMMI	*Quest for mechanical rogue waves in 1D discrete lattices*	PI	$432,407 + $16,000 (REU-Supplement)	9/2019 – 8/2022
FAA-AMTAS	*Experimental characterization and stochastic modeling of*	Co-PI [PI: Marco Salviato]	$698,539 + ~$100,000 (Boeing Matching)	3/2020 – 3/2023

	discontinuous fiber composite structures			
NSF	*Harnessing the Data Revolution (HDR): Institutes for Data-Intensive Research in Science and Engineering - Ideas Labs (I-DIRSE-IL): Harnessing data advances in systems biology to design a biological 3D printer: the synthetic coral*	Co-PI [PI: Judith Klein]	~$2M / $358,816	10/2019 – 9/2021
Washington State + Boeing	*Manufacturability of Lightweight Energy-Efficient Advanced Thermoplastic Parts (M-LEAP)*	Co-PI [PI: Santosh Devasia]	$1.2M	N/A
JCDREAM (Joint Center for Deployment and Research in Earth Abundant Materials)	*Innovation and Applications of Earth Abundant Materials via Metal Additive Manufacturing*	Co-PI [PI: Dwayne Arola]	$750,000	N/A
NSF	*[EFRI NewLaw Proposal] Topological mechanical metamaterials science*	Co-PI [PI: K. Bertoldi (Harvard)]	$2,000,000 / $465,000	9/2017 – 8/2022
NSF CAREER	*Structure-borne noise and vibration mitigation via nonlinear interactions in phononic structures*	PI	$500,000 + $58,000 (REU-Supplement)	2/2016 – 1/2022

Completed Funded Research as PI or co-PI

Funding Agency	**Title**	**Your role with other PI's and co-PI's**	**Total Amount / My Amount**	**Dates**
JCATI	*Machine learning-assisted composite design tool development*	PI [co-PI: Marco Salviato and Santosh Devasia]	$70,000	7/2019 – 9/2020
Boeing Advanced Research Center	*Rapid Tooling Limited Use Layup Mandrell #2*	Co-PI [PI: Brian Flynn]	$85,715	1/2020 – 9/2020
Student Technology Fee, UW	*Axial/Torsional Load Frame System for testing student-designed metamaterials*	PI	$214,000	N/A
UW TSP	*Transitional Support Program*	PI	$17,500	9/2019 – 12/2019
Boeing Advanced Research Center	*Rapid Tooling Limited Use Layup Mandrell*	Co-PI [PI: Santosh Devasia]	$210,000	10/2018 – 3/2019
Airbus	*Incubator: Sensing technology for multi-objective control*	Co-PI [PI: Kristi Morgansen (UW-AA)]	$37,000	7/2018 – 10/2018
JCATI	*Design and development of non-conventional, damage tolerant, and recyclable*	Co-PI [PI: Marco Salviato (UW)]	$100,000	7/2018 – 6/2019

	structures based on discontinuous fiber composites			
Global Innovation Fund, UW	*Study Abroad to Australia*	PI	$7,940	8/2018 – 9/2018
Washington Research Foundation	*Development of 3D printed origami architectures for superb impact mitigation*	PI	$50,000	8/2017 – 7/2018
FAA-AMTAS	*Safety and certification of discontinuous fiber composite structures*	Co-PI [PI: Mark Tuttle, co-PI: Marco Salviato]	$224,000 / $104,500 + $110,000 / $55,000 (Boeing Matching)	6/2017 – 6/2018
AFOSR	*The DDDAS design of programmable mechanical metamaterials*	Co-PI [PI: Themistoklis Sapsis (MIT)]	$180,000 / $34,500	2/2017 – 1/2019
JCATI	*Development of high performance ductile composites based on hybrid C-ply technology*	PI [co-PI: Anthony Waas and Kuen Lin (UW)]	$73,000	7/2016 – 6/2017
ARO	*[Workshop] The future of vibration energy transfer in solids and structures: needs and opportunities*	Co-PI [PI: N. Boechler (UW)]	$20,700	5/2016
SMI, Korea	*Visualization of stress wave propagation using sound camera technology*	PI	$30,000	10/2015 – 5/2016
ARO	*Woodpile mechanical metamaterials for sculpting stress waves*	PI [co-PI: P.G. Kevrekidis (U. of Mass, Amherst)]	$158,000 / $80,000	10/2015 – 9/2016
JCATI	*Design and fabrication of composite wing structures using non-conventional C-ply technology*	PI [co-PI: A. Waas and K. Lin (UW)]	$70,000	7/2015 – 6/2016
SMI, Korea	*Weak bonding detection in CFRP using combined stress wave solitons and non-contact sound cameras*	PI	$30,000	3/2015 – 9/2015
Samsung Research America	*Wearable sensing and energy harvesting skin based on spider web inspired nanofiber network (SWINN)*	PI	$50,000	1/2015 – 9/2015
ADD (Agency for Defense Development), Korea	*Acoustic metamaterials for efficient impact mitigation and vibration filtering*	PI [International Partner: H. Hwang (Andong National University, Korea)]	$354,363 / $177,231	11/2014 – 9/2017
NSF-MRI	*NSF-MRI: Acquisition of a 3D X-ray computed tomography scanner for imaging of large size infrastructure, biological, and mechanical components*	Co-PI [PI: J. Berman, Co-PIs: Storti, Kramer (UW)]	$988,660 (UW matching: $438,435)	9/2014 – 9/2017

Samsung Research America	*Development of sensing skin based on spider web-like nanofiber networks*	PI	$10,000	6/2014 – 9/2014
ONR	*Helicoidal phononic crystals: a new building block for designing novel material systems*	PI	$372,743	4/2014 – 7/2017
UW-RRF	*Non-invasive assessment of bone mechanical properties using soliton-supporting phononic crystal sensors*	PI	$36,893	3/2014 – 2/2015
NSF	*Novel solitonic waveguides based on granular phononic crystals*	PI [co-PI: Michael Sutton (U. of SC)]	$326,000/ $234,000 + $15,000 (REU Supplement)	9/2012 – 8/2016
NASA-EPSCOR†	*Developing tunable and lightweight aerospace structures using woodpile phononic crystals*	PI	$30,000	10/2013 –9/2014
NASA-EPSCOR	*Design, manufacture, evaluation, and multi-physical modeling of aerospace composite materials for enhanced reliability*	Co-PI [PI: Prasun Majumdar, co-PIs: Mike Sutton, Ken Reifsnider (U. of SC)]	$750,000 / $187,000	5/2013 – 4/2016
Univ. of South Carolina	*Development of novel structural materials using granular phononic crystals*	PI	$15,000	9/2012 – 8/2013

Funded Research as Senior Personnel or Participant

Funding Agency	**Title**	**Your role with other PI's and co-PI's**	**Total Amount / My Amount**	**Dates**
Student Technology Fee, UW	*Comsol Multiphysics software to support student education and research*	Senior personnel [PI: David Fray (acquisition pursued via CoE)]	$50,315	10/2019
NSF-MRI	*NSF-MRI: Acquisition of an advanced nanoindentation system for multidisciplinary research and training*	Senior personnel [PI: J. Wang (UW)]	$454,179	9/2017 – 8/2020
NSF-MRI	*NSF-MRI: Acquisition of a Nanoscribe 3D laser lithography system*	Senior personnel [PI: N. Boechler (UW)]	$436,543	9/2016 – 8/2019
Army Research Laboratory	*DURIP: Apparatus to study nonlinear acoustic lenses and generation and propagation of sound bullets*	Wrote a part of the proposal as a postdoc [PI: Chiara Daraio (Caltech)]	$304,128	6/2010 – 6/2011

Invitation-only Workshops with Travel Grants

- *Army Research Office Workshop on Wave Propagation and Information Transport in Disordered Heterogeneous Media*, Boulder, CA (2020, postponed)

- *International Workshop on Variety and Universality of Bulk-edge Correspondence in Topological Phases: From Solid State Physics to Transdisciplinary Concepts*, Tokyo, Japan (2020, converted to online workshop)
- National Science Foundation Workshop on *Harnessing the Data Revolution (HDR): Institutes for Data-Intensive Research in Science and Engineering - Ideas Labs (I-DIRSE-IL)*, Arlington, VA (2019)
- *Stewart Blusson Quantum Matter Institute Workshop on 'Synthetic Topological Matter'*, Vancouver, Canada (2019)
- *IUTAM Symposium 'Acoustic/elastic metamaterials, Their Design and Application'*, Beijing, China (2018)
- *Army Research Office Workshop on Metastructures*, Atlanta, GA (2018)
- *International Symposium on Intrinsic Localized Modes, 30th Anniversary of Discovery*, Kyoto, Japan (2018)
- *International Workshop on Phononic Crystals and Acoustic Metamaterials*, Beijing Jiaotong University (2017, declined)
- Aspen Winter Conference on Metamaterials, *Aspen Center for Physics* (2017).
- National Science Foundation Workshop on *Energy Transport and Control in Solids and Structures*, Arlington, VA (2015)

DOCUMENTATION OF TEACHING EFFECTIVENESS

Courses Taught & Student Evaluations

***University of Washington* (2013 – Present)**

Course No.	Title	Quarter	Credit Hours	Enrollment	Respondents	Course Evaluation		Instructor Evaluation		Avg. of items 1-4
						Item 1	Item 2	Item 3	Item 4	
AA 332*	Aircraft Structures-II	Spring 2020	4	74	23	4.4	4.6	4.9	4.9	4.7
AA 532	Mechanics of Composite Materials	Fall 2019	3	63	26	4.4	4.4	4.8	4.7	4.6
AA 332	Aircraft Structures-II	Spring 2019	4	80	31	4.8	4.8	5.2	5.1	5.0
AA 331	Aircraft Structures-I	Winter 2019	4	81	46	4.9	4.9	5.1	5.2	5.0
AA 532	Mechanics of Composite Materials	Fall 2018	3	47	29	4.6	4.6	4.7	4.7	4.7
AA 332	Aircraft Structures-II	Spring 2018	4	74	37	4.4	4.1	4.9	5.0	4.6
AA 331	Aircraft Structures-I	Winter 2018	4	77	52	4.4	4.3	4.9	5.0	4.7
AA 432 /532	Mechanics of Composite Materials	Fall 2017	3	41	36	4.2	4.1	4.5	4.3	4.3

AA 332	Aircraft Structures-II	Spring 2017	4	80	66	4.3	4.2	4.6	4.6	4.4
AA 331	Aircraft Structures-I	Winter 2017	4	84	53	4.1	3.7	4.4	4.4	4.1
AA 530	Mechanics of Solids	Fall 2016	3	24 (6)	19	4.0	3.9	4.3	4.3	4.1
AA 332	Aircraft Structures-II	Spring 2016	4	73	58	4.1	4.1	4.5	4.5	4.3
AA 331	Aircraft Structures-I	Winter 2016	4	71	64	3.7	3.5	3.9	4.0	3.7
AA 530	Mechanics of Solids	Fall 2015	3	24 (4)	14	3.9	4.0	4.5	4.4	4.2
AA 332	Aircraft Structures-II	Spring 2015	4	63	53	3.6	3.6	3.9	3.4	3.6
AA 331	Aircraft Structures-I	Winter 2015	4	64	56	4.1	4.0	4.4	4.4	4.2
AA 530	Mechanics of Solids	Fall 2014	3	27 (10)	22	4.0	4.1	4.6	4.7	4.3
AA 331	Aircraft Structures-I	Winter 2014	4	58	43	4.1	3.9	4.7	4.8	4.5

Questions for **Item 1**: The course as a whole was; **Item 2**: The course content was; **Item 3**: The instructor's contribution to the course was; **Item 4**: The instructor's effectiveness in teaching the subject matter was. Scale: 0 (very poor) to 5 (excellent). All numbers are based on adjusted median, and due to the regression procedure, some scores may be over 5.0.
* Offered online due to the COVID-19 situation.
XX (YY): Total number of students enrolled (The number of EDGE (online) students).

University of South Carolina (2012 – 2013)

Course No.	Title	Semester	Credit Hours	Enroll-ment	Course Evaluation[1]	Instructor Evaluation[2]
EMCH 532	Intermediate Dynamics	Spring 13	3	19	4.76	4.88
EMCH 577	Aerospace Structures - I[·]	Fall 12	3	38	4.70 (4.00)	4.95 (4.00)
EMCH 532	Intermediate Dynamics	Spring 12	3	8	5.00	5.00

[1] Overall this was an excellent course: Scale: 1 (strongly disagree) to 5 (strongly agree).
[2] Overall this was an excellent instructor: Scale: 1 (strongly disagree) to 5 (strongly agree).
[·] New course proposed and developed by Yang
( ) The numbers in parentheses are from distant learning students

Program Lead and Instruction of Study Abroad Course

Course No.	Title	Quar-ter	Credit Hours	Enroll-ment	Respon-dents	Academic experience Evaluation	Cultural experience evaluation
AA 498	Design of novel materials and structures: a fusion of art, mathematics, and science	Summer 2018	5	19*	12	4.4	4.5

* Majority of participating students were under-represented minority and/or female students.

Supervision of Industry Sponsored Capstone Program for Undergraduate Seniors

Project Title	Quarter	Number of Students	Affiliated Industry
AA 410/420 Boeing Capstone Project	Winter – Spring, 2018	9	Boeing
AA 410/420 Space System Design-I: Sustainable In-Space Manufacturing of Satellites	Winter – Spring, 2016	4	Tethers Unlimited

Other Teaching Experience

Guest Lecturer

- M2794: Smart Materials and Design, Seoul National University, Seoul, Korea (03/2020, delivered online)
- MATH 691Y: Applied Math Project Seminar, University of Massachusetts, Amherst (03/2014)
- AE 598: Aerospace Engineering Colloquium, University of Washington (Fall, 2013)
- AE/AM/CE/ME 102: Mechanics of Structures and Solids, Caltech (Fall, 2009)
- Introduction to Digital Printing Technologies, Samsung Electronics, Suwon, Korea (2007)

Product Trainer, Samsung Electronics, Suwon, Korea (2007 – 2009)

- Mechanism and troubleshooting methodology of color laser printers (broadcasted to Samsung's 36 branches overseas).

SERVICE

Departmental Service

University of Washington **(2013 – Present)**

- Chair, Undergraduate committee (Fall, 2021 – present)
- Faculty search committee (Fall, 2019 – Spring, 2020)
- Safety committee (Spring, 2017 – Spring, 2020)
  - Recipient of Lab Safety Award from UW Environmental Health and Safety
- Undergraduate committee (Spring, 2017 – Spring, 2020)
- Chair search committee (Fall, 2018 – Winter, 2019)
- Faculty search committee (Summer, 2017 – Spring, 2018)
- International programs committee (Fall, 2017 – Spring, 2018)
- Sub-committee for hiring department administrative staff (Winter, 2017)
- Departmental delegate to Spain for educational exchange and industry visit (Spring, 2016)
- Faculty panel for *Tomorrow's Professor* workshop (Winter, 2016)
- Graduate Committee (Fall, 2013 – Spring, 2017)
- Faculty panel for new graduate students' TA/RA workshop (Fall, 2014, 2019)
- Assisted appointing Dr. Rao Varanasi as an affiliate faculty (Spring, 2014)

Seoul National University **(2020 – 2021)**

- Reviewer, Best Ph.D. Dissertation Award, Mechanical Engineering Department (Spring and Fall, 2021)

University of South Carolina **(2011 – 2013)**

- Interim Program Director**,** Aerospace Engineering Program (1/2012 – 12/2012)
  - Managed master's program in Aerospace Engineering (launched in Fall 2012)

- Developed undergraduate minor program (launched in Spring 2013)
- Proposed three core aerospace courses and coordinated the construction of a new aerospace program website: http://www.cec.sc.edu/aerospace/

College Service

***University of Washington* (2013 – Present)**

- Promotion and tenure committee (Fall, 2021 – present)
- Faculty advisor for participating students, WiSE (Women in Science and Engineer) Bridge Program (2019 – present)
- Cluster hire planning team on solar shield (3/2021 – 6/2021)
- Cluster hire planning team on large scale modeling, advanced additive manufacturing and materials design/synthesis/characterization (3/2020 – 6/2020)
- Steering committee member of the UW *Advanced Composites Center* (ACC) (Fall, 2019)
- A&A Representative, Council on Educational Policy (4/2018 – 6/2019)
- Faculty Presenter
  - Deliver an "Engineering Talk" in Math Academy (7/2019)
- Faculty Presenter
  - Deliver a presentation on "Air & Space: A new era of aerospace material and structure design" at CoE Admitted Student Preview Day (4/2018)
- Faculty Panel
  - ENGR 598A: Preparing for Academic Careers in Engineering, University of Washington (10/2014, 11/2015)

University Service

***University of Washington* (2013 – Present)**

- Faculty Advisor, University of Washington AIAA Student Section (Fall, 2019 – Spring, 2020)
- Laboratory tour for UW Summer Youth Programs (Summer, 2019)
- Reviewer, Royalty Research Fund (Spring, 2014 – present)

Study Abroad Program Lead

- Faculty lead, "Engineering Italy: Engineering Fundamentals in the Eternal City," Rome, Italy (Fall 2020, canceled due to COVID-19)
- Faculty lead, "Design of novel materials and structures: a fusion of art, mathematics, and science," Queensland University of Technology, Brisbane, Australia (Summer 2018)

Conference/Workshop Organizing Activities

- Conference Co-chair "Active and Passive Smart Structures and Integrated Systems XVI", *SPIE Smart Structures/NDE* (2021 – present)
- Symposium Co-organizer on "Metamaterials and periodic structures", *SPIE Smart Structures/NDE*
  - Anaheim, CA, 2021 (converted to online due to COVID-19).
  - Anaheim, CA, 2020 (converted to online due to COVID-19).
  - Denver, CO, 2018.
  - Portland, OR, 2017.
  - Las Vegas, NV, 2016.
- Symposium Co-organizer on "Phononic crystals and metamaterials", *ASME-IMECE*
  - Pittsburgh, PA, 2018.

  - Tampa, FL, 2017.
  - Phoenix, AZ, 2016.
  - San Antonio, TX, 2015.
  - Montreal, Canada, 2014: *successfully led to the largest session out of all 73 topics/symposia covering the areas of mechanics/vibrations/controls.*
  - San Diego, CA, 2013.
- Symposium Organizer, *SEM (Society of Experimental Mechanics)*
  - Damage detection and non-destructive evaluation of composites, Orlando, FL, 2016.
  - Non-destructive evaluation, Costa Mesa, CA, 2015.
  - Novel/bio composites & NDE of composites, Greenville, SC, 2014.
- Local Technical Program Committee, *American Society for Composites (ASC) Conference*, Seattle, WA, 2018.
- Organizing Committee, *International Symposium on Green Manufacturing and Applications (ISGMA)*, Gyeongju, Korea, 2017.
- Co-organizing workshop on *The future of vibration energy transfer in solids and structures: needs and opportunities*, Seattle, WA, 2016, under the sponsorship of the Army Research Office.
- Scientific Advisory Board, *17th International Conference on Experimental Mechanics (ICEM17)*, Rhodes, Greece, 2016.
- Local Technical Program Committee & Symposium Co-organizer on "Acoustic Metamaterials and Phononic Crystals", *ASME Applied Mechanics and Materials (McMat) Conference*, Seattle, WA, 2015.
- Local Technical Program Committee & Symposium Co-organizer on "Phononic crystals and acoustic metamaterials", *International Symposium on Optomechatronic Technologies*, Seattle, WA, 2014.
- Symposium Organizer on "Mechanics of periodic structures and advanced structured materials", *17th U.S. National Congress on Theoretical & Applied Mechanics*, Michigan State University, 2014.
- Program Committee & Invited Speaker, *7th BAMN (World Congress on Biomimetics, Artificial Muscles, and Nano-Bio)*, Jeju, Korea, 2013.
- Symposium Organizer on "Phononic crystals and acoustic metamaterials", *50th SES (Society of Engineering Science)/ASME-AMD*, Brown University, Providence, RI, 2013.
- Judge, *SMASIS (Conference on Smart Materials, Adaptive Structures and Intelligent Systems)*, ASME student hardware competition, Atlanta, GA, 2012.

Editorial Activities

- Associate Editor
  - AIAA Journal of Aircraft (2020. 5 – present)
- Editorial Board Member
  - International Journal of Precision Engineering and Manufacturing-Green Technology (2017. 1 – present)
  - Functional Composites and Structures by Korean Society of Composite Materials (2017.11 – present)

Community Service

- Mentor and advisor, Bridge to Doctorate (BD) program, PNW LSAMP (2019 – present)
- "Discovery Day," University of Washington, Seattle, WA (4/2014, 2016, 2017)
- Delivered a lecture on "Pursuing engineering and science career" to gifted high school students visiting UW from Korea (7/2014, 7/2015)

- Exhibition of "Catch a Wave" in "Paws-on-Science" event, Pacific Science Center, Seattle, WA, 4/2014 (11,361 visitors)
- "Empowering the Future," teacher in-service program (~1,400 local teachers' participation), Irmo, SC (2/2012)

Proposal Reviewer

- International Space Station (ISS) U.S. National Laboratory
  - Center for the Advancement of Science in Space (CASIS) (1/2020)
- National Science Foundation
  - DMR, Condensed Matter and Materials Theory Program (2/2019, online review)
  - CAREER proposal (8/2018, online review)
  - CMMI, Dynamics, Control and System Diagnostics (6/2016, online review)
  - CMMI, Dynamics, Control and System Diagnostics/Mechanics of Materials and Structures (5/2016)
  - CMMI, Mechanics of Materials (2/2012, 12/2012, 5/2014)
  - CMMI, Sensors and Sensing Systems (6/2012, 1/2014)
- Israel Science Foundation (2/2016)
- Transit Innovations Deserving Exploratory Analysis (IDEA) Program (6/2017)

Consulting and Other Service

- One of the U.S. representatives, DENORMS (Designs for Noise Reducing Materials and Structures) network, E.U. (1/2018 – present)

End of CV