

Nan Wu

(Ph.D., P.Eng.)

EITC E1-410 Mechanical Engineering, University of Manitoba, Winnipeg, MB, Canada R3T 5V6
Email: nan.wu@umanitoba.ca Phone: 1 (204) 474-7368

WORKING EXPERIENCES

Associate Professor Department of Mechanical Engineering, University of Manitoba
04/2019~present

Assistant Professor at Department of Mechanical Engineering, University of Manitoba
01/2014~03/2019

- Undergraduate courses: teaching Vibration and Acoustics (MECH 3420, fall terms 2014, 2015 and 2016) and Testing, Condition Monitoring and Fault Analysis - Application to Vehicles (MECH 4322 T02, winter terms 2015, 2016 and 2017).
- Graduate course: teaching Structural Damage Analysis and Health Monitoring (MECG7780, fall terms 2014, 2015 and 2016); Graduate seminar 2014-2016.

Postdoctoral Fellow Dept of Mechanical & Manufacturing Engineering, University of Manitoba
06/2012~12/2013

- Investigating problems in the fields of application of smart materials and nanotechnology in engineering.

Research Assistant Dept of Mechanical & Manufacturing Engineering, University of Manitoba
09/2008~05/2012

RESEARCH INTERESTS

Structure/machinery condition monitoring and non-destructive damage detection:

- Structural health monitoring based on vibration and signal processing.
- Damage identification with smart composite materials and structures.

Smart materials and structures:

- Mechanics and dynamics of smart composites.
- Kinetic energy harvesting with piezoelectric materials from structure vibrations.
- Vibration control, structural repair and enhancement with smart materials and structures.

Load transfer path based structural design and optimization

Mechanical Meta-materials and lattice structures

Nano-technology:

- CNT dynamics.
- CNT composites.

STUDENTS SUPERVISION

Ph.D.s (graduated): Alireza Keshmiri; Shahriar Bagheri; Hossein Kheirollahi; Vahid Rabbani; Ali Safian; Shengjie Zhao.

Masters (graduated): Amir Mardasi; Osho Samuel Adetunji; Farjana Faisal; Dillon Wang; Hassan Oyelaja Emmanuel Adejumo; Xin Wang; Xinxiang Zong; Yukun Cheng; Tamrin Tanha; Ebadur Rohman; Shengjie Zhao; Buddhi Wimarshana.

Ph.D.s (on-going): Xin Wang; Yu Xiao; Mahdi Alaei Varnosfaderan; Ramin Hamzehei.

Masters (on-going): Tarun Bedi; Heetkumar Patel; Hasan Shariar; Ahmed Raji.

PATENTS

(*: principle inventor)

Q. Wang* and **N. Wu**, Repair of delaminated plates with piezoelectric materials, Patent Cooperation Treaty (PCT) Patent, WO/2012/021997.

N. Wu*, Q. Wang and X.D. Xie, Ocean wave energy harvesting by a piezoelectric coupled buoy, US patent application, US 61/976,187, Allowed.

N. Wu*, F. Faisal and S. Osho, Damage detection with self-powered wireless smart coating sensor, US 62/375,148, WO/2018/032093, published.

M. Varnosfaderani, P. Maghoul, **N. Wu**, Vibratory Burrowing Probe for Investigating Subsurface Regions of Granular Media in 1G and Low/Micro Gravity Conditions, US 63/332,775, provisional.

PUBLICATION LISTS

Referred Journal Papers: (†: student or advisee under my supervision, *: corresponding author(s))
Published and accepted (103):

(103) R. Hamzehei†, M. Bodaghi*, **N. Wu***, 3D-printed highly stretchable curvy sandwich metamaterials with superior fracture resistance and energy absorption, *International Journal Solids and Structures*, Vol. 286-287, 112570, 2023. (*IF*: 3.6)

(102) Y. Xiao†, Z. Lu, **N. Wu***, Development and analysis of magnet-engaged piezoelectric energy generator under friction-induced vibration, *International Journal of Nonlinear Mechanics*, Accepted, 2023. (*IF*: 3.2)

(101) S. Cui, **N. Wu**, P. Maghoul*, Fatigue crack localization based on empirical mode decomposition

-
- and pre-selected entropy, *Nondestructive Testing and Evaluation*, Accepted, 2023. (IF: 2.09)
- (100) Y. Xiao†, W. Liu, Z. Lu, N. Wu*, Numerical investigation of non-linear shear-mode piezoelectric energy generation under permanent magnetic conditions, *Nonlinear Dynamics*, accepted, 2023. (IF: 5.6)
- (99) S. Wang†, C. Deng, O. Ojo, B. Akinrinlola, J. Kozub, N. Wu*, Additive manufacturability and parametric studies on an extended three-dimensional re-entrant auxetic structure with angled struts, *3D Printing and Additive Manufacturing*, accepted, 2023. (IF: 5.35)
- (98) S. Zhao†, Y. Zhang, S. Fan, N. Yang*, N. Wu*, Design and optimization of graded lattice structures with load path-oriented reinforcement, *Materials and Design*, accepted, 2023. (IF: 9.41)
- (97) Y. Xiao†, S. Karnaoukh, N. Wu*, Design and analysis of a d15 mode piezoelectric energy generator using friction-induced vibration, *Smart Materials and Structures*, accepted, 2023. (IF: 4.13)
- (96) R. Hamzehei†, M. Bodaghi*, J. Martinez, Q. Ji, U. Gwenn, M. Kadic, C. Wang, A. Zolfagharian, N. Wu*, Parrot Beak-Inspired Metamaterials with Friction and Interlocking Mechanisms 3D/4D Printed in Micro and Macro Scales for Supreme Energy Absorption/Dissipation, *Advanced Engineering Materials*, accepted, 2023. (IF: 4.12)
- (95) P. Wang†, R. Cao, Y. Deng, Z. Sun, H. Luo, N. Wu*, Vibration and Resonance Reliability Analysis of Non-uniform Beam with Randomly Varying Boundary Conditions Based on Kriging Model, *Structures*, Accepted, 2023. (IF: 4.01)
- (94) S. Wang†, C. Deng, O. Ojo, N. Yang*, B. Akinrinlola, J. Kozub, N. Wu*, Design and testing of a DNA-like torsional structure for energy absorption, *Materials and Design*, accepted, 2023. (IF: 9.41) doi.org/10.1016/j.matdes.2023.111642
- (93) A. Safian†, N. Wu*, X. Liang*, Development of an Embedded Piezoelectric Transducer for Bearing Fault Detection, *Mechanical Systems and Signal Processing*, Vol.188, 109987, 2023. (IF: 8.93)
- (92) V. Rabbani, N. Wu*, P. Maghoul, Effects of Electrode Size and Configuration on Sound Transmission Loss in Piezo-laminated Thick Shell, *Wave Motion*, Vol. 114, 103003, 2022.
- (91) S. Cui, P. Maghoul, X. Liang, N. Wu*, Q. Wang*, Structural fatigue crack localization based on spatially distributed entropy and wavelet transform, *Engineering Structures*, Vol. 266, 114544, 2022. (IF: 5.58)
- (90) R. Hamzehei†, A. Serjouei, N. Wu, A. Zolfagharian, M. Bodaghi*, 4D Metamaterials with Zero Poisson's Ratio, Shape Recovery and Energy Absorption Features, *Advanced Engineering Materials*, Accepted, 2022. <https://doi.org/10.1002/adem.202200656> (IF: 4.12)
- (89) Y. Xiao†, Q. Ji, S. Karnaoukh, C. Wang, N. Wu*, Design and analysis of a d33 mode piezoelectric energy generator for vehicle braking system, *Smart Materials and Structures*, Vol. 31, 065027, 2022. (IF: 4.13)
- (88) S. Zhao†, N. Wu*, S. Karnaoukh, A new expression of internal stiffness for load path analysis in structures, *International Journal of Applied Mechanics*, Vol.14, 2250030, 2022. (IF: 3.24)
- (87) P. Wang†, Y. Xiao†, N. Wu*, Z. Sun*, H. Luo, Friction induced vibration and energy generation study of two-degree-of-freedom piezoelectric coupled system, *European Journal of Mechanics / A Solids*, Vol. 95, 104619, 2022. (IF: 4.87)
- (86) S. Zhao†, D. Song, N. Wu*, F. Wu, Design of lattice structures based on U* load path analysis, *3D Printing and Additive Manufacturing*, 2022. <https://doi.org/10.1089/3dp.2022.0018> (IF: 5.35)
- (85) P. Wang†, N. Wu*, Z. Sun*, H. Luo, Vibration and Reliability Analysis of Non-uniform Composite Beam Under Random Load, *Applied Sciences*, Vol. 12, 2700, 2022. (IF:2.67)
- (84) S. Zhao†, L. Mao†, N. Wu*, S. Karnaoukh, Load path visualization using U* index and principal load path determination in thin-walled structures, *Facta Universitatis Series Mechanical Engineering*, accepted, 2022. (IF: 3.32) 10.22190/FUME211105006Z
- (83) N. Yang*, Y. Deng, S. Zhao†, Y. Song, J. Huang, N. Wu*, Mechanical metamaterials with discontinuous and tension/compression-dependent positive/negative Poisson's ratio, *Advanced Engineering Materials*, Published 24 November 2021. (IF: 4.12) <https://doi.org/10.1002/adem.202100787>
- (82) P. Wang†, N. Wu, H. Luo, Z. Sun*, Influence of Friction Parameters on Vibration Characteristics of Piezoelectric Actuator, *Journal of Northeastern University*, accepted, 2021. (EI in Chinese)
- (81) M. Varnosfaderani†, P. Maghoul*, N. Wu, Modelling the penetration of subsonic rigid projectile probes into granular materials using the cavity expansion theory, *Computers and Geotechnics*, Vol. 141, 104546, 2022. (IF: 4.95)
-

-
- (80) S. Wang†, C. Deng, O. Ojo, B. Akinrinlola, J. Kozub, **N. Wu***, Design and modeling of a novel three dimensional auxetic reentrant honeycomb structure for energy absorption, *Composite Structures*, Vol. 280, 114882, 2021. (IF: 5.40)
- (79) P. Wang†, Y. Xiao†, **N. Wu***, Electrical Power Generation using Dynamic Piezoelectric Shear Deformation under Friction, *Acta Mechanica Solida Sinica*, Vol. 34, 977–988, 2021. (IF: 2.16)
- (78) M. Hodaiei, P. Maghoul*, **N. Wu**, Three-Dimensional Biomechanical Modeling of Cylindrical Bone-Like Porous Materials Subject to Acoustic Waves, *International Journal of Mechanical Sciences*, Vol. 213, 106835, 2022. (IF: 5.32)
- (77) A. Safian†, H. Zhang, X. Liang*, **N. Wu**, Dynamic simulation of a cylindrical roller bearing with a local defect by combining finite element and lumped parameter models, *Measurement Science and Technology*, Vol. 32, 125111, 2021. (IF:2.04)
- (76) P. Wang†, **N. Wu***, H. Luo, Z. Sun*, Study on vibration response of a non-uniform beam with nonlinear boundary condition, *Facta Universitatis Series Mechanical Engineering*, Vol. 19, 781-804, 2021. (IF:3.32)
- (75) P. Wang†, **N. Wu***, H. Luo, Z. Sun*, Study on dynamics responses and applications of non-uniform beam structure under crosswind, *Journal of Vibration and Control*, Published May 11, 2021. (IF:3.09) <https://doi.org/10.1177/10775463211018306>
- (74) J. Xiao, **N. Wu**, O. Ojo, C. Deng*, Stacking fault and transformation-induced plasticity in nanocrystalline high-entropy alloys, *Journal of Materials Research*, Vol. 36, 2705-2714, 2021. (IF: 5.28)
- (73) **N. Wu**, B. Bao, Q. Wang*, Review on engineering structural designs for efficient piezoelectric energy harvesting to obtain high power output, *Engineering Structures*, Vol 235, 112068, 2021. (IF: 4.47)
- (72) S. Zhao†, **N. Wu***, Q. Wang, Load path-guided fiber trajectory in composite panels: a comparative study and a novel combined method, *Composite Structures*, Vol. 263, 113689, 2021. (IF: 5.40)
- (71) V. Rabbani†, **N. Wu***, Active Broadband Sound Transmission Loss Control Through an Arbitrary Thick Smart Piezo-laminated Cylinder, *Aerospace Science and Technology*, Vol. 110, 106515, 2021. (IF: 5.10)
- (70) B. Bao*, Q. Wang*, **N. Wu**, S. Zhou, Hand-held piezoelectric energy harvesting structure: Design, dynamic analysis, and experimental validation, *Measurement*, Vol. 174, 109001, 2021. (IF: 3.36)
- (69) Z. Wang, **N. Wu**, Q. Wang, Y. Li, Q. Yang, F. Wu*, Novel Bionic Design Method for Skeleton Structures based on Load Path Analysis, *Applied Sciences*, Vol. 10, 8251, 2020. (IF: 2.474)
- (68) Z. Wang, Q. Wang, **N. Wu**, B. Guo, F. Wu*. Structural improvement of vehicle component based on the load path and load distribution analysis, *International Journal of Automotive Technology*, Accepted, 2020. (IF: 1.245)
- (67) J. Xiao, **N. Wu**, O. Ojo, C. Deng*, Electron localization governed plasticity in nanotwinned metals beyond the Hall-Petch type limit, *Materials Science and Engineering: A*, Vol. 797, 140-251, 2020. (IF: 4.65)
- (66) S. Zhao†, **N. Wu***, and Q. Wang, Deep residual U-net with input of static structural responses for efficient U* load transfer path analysis, *Advanced Engineering Informatics*, Vol. 46, 101184, 2020. (IF: 3.87)
- (65) N. Yang*, Y. Deng, Z. Mao, S. Wang, X. Niu, **N. Wu***, Cross-like lattices with tailorable mechanical properties, *Materials Letters*, Vol. 281, 128617, 2020. (IF: 3.2)
- (64) J. Xiao, **N. Wu**, O. Ojo, C. Deng*, Dislocation nucleation in CoNiCrFeMn high entropy alloy, *Materialia*, Vol. 12, 100749, 2020.
- (63) H. Bisheh†*, M. Bisheh, **N. Wu**, An investigation into Laminated Composite Automotive Driveshafts, *International Journal of Mechanical and Production Engineering*, in press, 2020. (IF: 3.05)
- (62) S. Zhao†, **N. Wu***, Q. Wang, Novel Damage Detection Tool Based on Load Path Analysis Using Ustar (U*), *IEEE Access*, Vol. 8, 82607, 2020. (IF: 4.09)
- (61) S. Bagheri†, **N. Wu***, and S. Filizadeh*, Application of Artificial Intelligence and Evolutionary Algorithms in Simulation-Based Optimal Design of a Piezoelectric Energy Harvester, *Smart Materials and Structures*, Vol. 29, 105004, 2020. (IF: 3.54)
- (60) M. Hodaiei, V. Rabbani†, P. Maghoul*, A. Bahari, K. Farhang, **N. Wu**, Analytical Modeling of
-

Contact Mechanics of Helical Gear, *Journal of Adhesion Science and Technology*, Vol. 34, 2176-2199, 2020.

- (59) X. Wang†, N. Wu*, Q. Wang*, Frequency Comparison Function Method for Real-Time Identification of Breathing Crack at Welding Joint, *International Journal of Structural Stability and Dynamics*, Vol. 20, 2041001, 2020. (IF: 2.15)
- (58) H. Bisheh†*, T. Rabczuk*, N. Wu, Effects of nanotube agglomeration on wave dynamics of carbon nanotube-reinforced piezocomposite shells, *Composite Part B: Engineering*, Vol. 187, 107739, 2020. (IF: 6.86)
- (57) H.B. Oyelaja†*, N. Wu, O.A. Ojo, Fabrication and characterization of plastics with electrical and magnetic properties, *The International Journal of Advanced Manufacturing Technology*, Vol. 106, 3451–3462, 2020. (IF: 2.6)
- (56) N. Yang*, Y. Deng, Z.F. Mao, Y.T. Chen, N. Wu, X.D. Niu, New network architectures with tunable mechanical properties inspired by origami, *Materials Today Advances*, Vol. 4, 100028, 2020. (New journal under Materials Today)
- (55) H. Bisheh†, N. Wu, T. Rabczuk*, Free vibration analysis of smart laminated carbon nanotube-reinforced composite cylindrical shells with various boundary conditions in hygrothermal environments, *Thin-Walled Structures*, Vol. 181, 171758, 2020. (IF: 3.48)
- (54) A. Keshmiri†, S. Bagheri†, N. Wu*, Simulation-Based Optimization of a Non-Uniform Piezoelectric Energy Harvester with Stack Boundary, *International Journal of Mechanical and Materials Engineering*, Vol. 13, 500-505, 2019. (IF: 3.0)
- (53) X. Wang, Y. Liu*, H. Lu, N. Wu, D. Hui, Y. Fu, A coupling model for cooperative dynamics in shape memory polymer undergoing multiple glass transitions and complex stress relaxations, *Polymer*, Vol. 181, 121785, 2019. (IF: 3.77)
- (52) H. Bisheh†*, N. Wu*, D. Hui, Polarization effects on wave propagation characteristics of piezoelectric coupled laminated fiber-reinforced composite cylindrical shells, *International Journal of Mechanical Sciences*, Vol. 161-162, 105028, 2019. (IF: 4.13)
- (51) V. Rabbani†, M. Hodaei, X. Deng, H. Lu, D. Hui, N. Wu*, Sound Transmission Through a Thick-Walled FGM Piezo-laminated Cylindrical Shell Filled with and Submerged in Compressible Fluids, *Engineering Structures*, Vol. 197, 109323, 2019. (IF: 3.08)
- (50) X. Wang, H. Lu*, N. Wu, D. Hui, M. Chen, Y. Fu, Cooperative principle in multiple glass transitions and strain relaxations of thermochemically responsive shape memory polymer, *Smart Materials and Structures*, Vol. 28, 085011, 2019. (IF: 3.54)
- (49) X. Wang†, N. Wu*, Crack Identification at Welding Joint with a New Smart Coating Sensor and Entropy, *Mechanical Systems and Signal Processing*, Vol. 124, 65-82, 2019. (IF: 5.00)
- (48) S. Bagheri†, N. Wu*, S. Filizadeh*, Numerical modeling and analysis of self-powered synchronous switching circuit for the study of transient charging behavior of a vibration energy harvester, *Smart Materials and Structures*, Vol. 28, 105056, 2019. <https://iopscience.iop.org/article/10.1088/1361-665X/ab070f> (IF: 3.54)
- (47) H. Bisheh†*, N. Wu*, On dispersion relations in smart laminated fiber-reinforced composite membranes considering different piezoelectric coupling effects, *Journal of Low Frequency Noise, Vibration and Active Control*, Vol. 32, 487-509, 2019. (IF: 1.491)
- (46) A. Keshmiri†, N. Wu*, New Energy Harvester with Embedded Piezoelectric Stacks, *Composites Part B: Engineering*, Vol. 163, 303-313, 2019. (IF: 6.86)
- (45) H. Bisheh†*, N. Wu*, Wave propagation in smart laminated composite cylindrical shells reinforced with carbon nanotubes in hygrothermal environments, *Composites Part B: Engineering*, Vol. 162, 219-241, 2019. (IF: 6.86)
- (44) Q. Wang†, G. Zhang, C. Sun†, N. Wu*, High efficient load paths analysis with U* index generated by deep learning, *Computer Methods in Applied Mechanics and Engineering*, Vol.344, 499-511, 2019. (IF: 4.82)
- (43) X. Wang, H. Lu*, N. Wu, D. Hui, Y. Fu, Unraveling bio-inspired pre-swollen effects of tetra-polyethylene glycol double network hydrogels with ultra-stretchable yielding strain, *Smart Materials and Structures*, Vol. 28, 035005, 2019. (IF: 3.54)
- (42) X.W. Deng, N. Wu, K. Yang†*, W.L. Chan, Integrated design framework of next-generation 85-m wind turbine blade: Modelling, aeroelasticity and optimization, *Composite Part B: Engineering*, Vol.
-

159, 53-61, 2019. (IF: 6.86)

- (41) V. Rabbani†, A. Bahari†, M. Hodaie†, P. Maghoul, **N. Wu***, Three-Dimensional Free Vibration Analysis of Triclinic Piezoelectric Hollow Cylinder, *Composites Part B: Engineering*, Vol. 158, 352-363, 2018. (IF: 6.86)
- (40) A. Keshmiri†, **N. Wu***, A wideband piezoelectric energy harvester design by using multiple non-uniform bimorphs, *Vibration*, Vol. 1, 93-104, 2018. (new journal 2018)
- (39) A. Keshmiri†, **N. Wu*** and Q. Wang, Vibration analysis of non-uniform tapered beams with FGM properties, *Journal of Mechanical Science and Technology*, Vol. 32, 1-13, 2018. (IF: 1.22)
- (38) A. Keshmiri†, **N. Wu***, Structural stability enhancement by nonlinear geometry design and piezoelectric layers, *Journal of Vibration and Control*, Available online, 2018. (IF: 2.86)
<https://doi.org/10.1177/1077546318794540>
- (37) H. Kh. Bisheh†* and **N. Wu***, Analysis of wave propagation characteristics in piezoelectric cylindrical composite shells reinforced with carbon nanotubes, *International Journal of Mechanical Science*, Vol.145, 200-220, 2018. (IF: 4.13)
- (36) A. Keshmiri†, **N. Wu*** and Quan Wang*, A new nonlinearly tapered FGM piezoelectric energy harvester, *Engineering Structures*, Vol. 173, 52-60, 2018. (IF: 3.08)
- (35) S. Bagheri†, **N. Wu*** and Shaahin Filizadeh, Modeling of capacitor charging dynamics in an energy harvesting system considering accurate electromechanical coupling effects, *Smart Materials and Structures*, Vol.27, 065026, 2018. (IF: 3.54)
- (34) H. Kheirollahi† and **N. Wu***, Wave propagation characteristics in a piezoelectric coupled laminated composite cylindrical shell by considering transverse shear effects and rotary inertia, *Composite Structures*, Vol. 191, 123-144, 2018. (IF: 4.82)
- (33) S. Osho†, **N. Wu***, M. Aramfard†, C. Deng, O. Ojo, Fabrication and calibration of a piezoelectric nanocomposite paint, *Smart Materials and Structures*, Vol. 27, 035007, 2018. (IF: 3.54)
- (32) E. Rahman†, **N. Wu*** and C. Wu, Automotive components fatigue and durability testing with flexible vibration testing table, *SAE International Journal of Vehicle Dynamics, Stability, and NVH*, 10-02-01-0004, 2018.
- (31) A. Keshmiri†, **N. Wu*** and Q. Wang, Analytical vibration analysis of nonlinearly tapered cone beam using Adomian Decomposition Method, *International Journal of Structural Stability and Dynamics*, Vol. 18, 07, 2018. <https://doi.org/10.1142/S0219455418501018>, 2018. (IF: 2.15)
- (30) A. Ghanbari†, **N. Wu*** and C. Wu, Experimental study on the crack detection with optimized spatial wavelet analysis and windowing, *Mechanical Systems and Signal Processing*, Vol.104, 619-630, 2018. (IF: 5.00)
- (29) B. Wimarshana†, F. Goes†, **N. Wu*** and C. Wu, Experimental study on breathing crack detection and evaluation under random loading with Entropy, *Transactions of CSME*, Vol. 41, 2018.
- (28) V. Nguyen*, **N. Wu** and Q. Wang, A review on energy harvesting from ocean waves by piezoelectric technology, *Journal of Modeling in Mechanics and Materials*, Vol. 1, ISSN (Online) 2328-2355, 2017. DOI: <https://doi.org/10.1515/jmmm-2016-0161> (New journal for 2016)
- (27) A. Ghanbari Mardasi†, **N. Wu*** and C. Wu, High Sensitivity Crack Detection and Locating with Optimized Spatial Wavelet Analysis, *International Journal of Mechanical, Aerospace, Industrial, Mechatronic and Manufacturing Engineering*, Vol.11, 858-863, 2017.
- (26) B. Wimarshana†, **N. Wu*** and C. Wu, Application of entropy to breathing crack identification on a beam structure: simulation and experiment studies, *Structural Health Monitoring*, Vol.17, 549-564, 2017. (IF: 4.93)
- (25) B. Wimarshana†, **N. Wu*** and C. Wu, Entropy parameter optimization for high sensitive damage identification, *Structural Monitoring and Maintenance*, Vol.4, 33-52, 2017. (IF: 2.10)
- (24) Y.K. Cheng†, **N. Wu*** and Q. Wang, An efficient piezoelectric energy harvester with frequency self-tuning, *Journal of Sound and Vibration*, Vol. 396, 69-82, 2017. (IF: 3.12)
- (23) S. Zhao†, **N. Wu*** and Q. Wang, Crack identification through scan-tuning of vibration characteristics using piezoelectric materials, *Smart Materials and Structures*, Vol.26, 025005, 2016. (IF: 3.54)
- (22) S. Zhao†, **N. Wu** and Q. Wang*, Damage detection of beams by a vibration characteristics tuning technique through an optimal design of piezoelectric, *International Journal of Structural Stability and Dynamics*, Vol.16, 1550070, 2016. (IF: 2.15)
- (21) **N. Wu***, Study on the forced vibration of a beam with a breathing crack using iteration method,
-

Journal of Mechanical Science Technology, Vol.29 pp. 2827-2835, 2015. (IF: 1.22)

- (20) N. Wu, Q. Wang* and X.D. Xie, Ocean wave energy harvesting by a piezoelectric coupled buoy structure, *Applied Ocean Research*, Vol.50 pp. 110-118, 2015. (IF: 1.95)
- (19) X.D. Xie, Q. Wang* and N. Wu, Energy harvesting from transverse ocean waves by a piezoelectric plate, *International Journal of Engineering Science*, Vol. 81 pp.41-48, 2014. (IF: 9.05)
- (18) X.D. Xie, Q. Wang* and N. Wu, A ring piezoelectric energy harvester excited by magnetic forces, *International Journal of Engineering Science*, Vol. 77 pp.71-78, 2014. (IF: 9.05)
- (17) X.D. Xie, Q. Wang* and N. Wu, Potential of a piezoelectric energy harvester from sea waves, *Journal of Sound and Vibration*, Vol. 333 pp.1421-1429, 2014. (IF: 3.12)

Before 2014:

- (16) N. Wu, Q. Wang* and X.D. Xie, Wind energy harvesting with a piezoelectric harvester, *Smart Materials and Structures*, Vol. 22 (095023), 2013. (IF: 3.54)
- (15) X.D. Xie, N. Wu, K.V. Yuen, Q. Wang*, Energy harvesting from high-rise buildings by a piezoelectric coupled cantilever with a proof mass, *International Journal of Engineering Science*, Vol. 72 pp.98-106, 2013. (IF: 9.05)
- (14) N. Wu, Q. Wang* and S.S. Pang, Dispersion of a bundle of carbon nanotubes by mechanical torsional energy, *Carbon*, Vol. 59 pp.229-236, 2013. (IF: 7.46)
- (13) N. Wu and Q. Wang*, A study on interaction of DNA molecules and carbon nanotubes for an effective ejection of the molecules, *Physics Letter A*, Vol. 376 pp.3267-3271, 2012. (IF: 2.08)
- (12) N. Wu, Q. Wang* and B. Arash, Ejection of DNA Molecules with Carbon Nanotubes, *Carbon*, Vol.50 pp. 4945-4952, 2012. (IF: 7.46)
- (11) Q. Wang* and N. Wu, Optimal design of piezoelectric coupled vibrating beam for power harvesting, *Smart Materials and Structures*, Vol. 21 (085013), 2012. (IF: 3.54)
- (10) B. Arash, Q. Wang* and N. Wu, Gene detection with carbon nanotubes, *ASME Journal of Nanotechnology in Engineering and Medicine*, Vol. 3 (020901), 2012.
- (9) Q. Wang* and N. Wu, An review on structure enhancement and repair using piezoelectric materials and shape memory alloys, *Smart Materials and Structures*, Vol.21 (013001), 2012. (Downloaded 3000+ times from Jan. 2012 till now) (Journal highlights collection 2012) (IF: 3.54)
- (8) N. Wu and Q. Wang*, An experimental study on repair of a cracked beam subjected to dynamic loading with piezoelectric patches, *Smart Materials and Structures*, Vol.20 (115023), 2011. (IF: 3.54)
- (7) N. Wu and Q. Wang*, Experimental study on damage detection of beam structures with wavelets transform, *International Journal of Engineering Science*, Vol.49 pp. 253-261, 2011. (IF: 9.05)
- (6) Q. Wang* and N. Wu, Detecting the delamination location of a beam with wavelet transform: An experimental study, *Smart Materials and Structures (Feature article)*, Vol. 20 (012002), 2011. (Journal highlights collection 2011) (IF: 3.54)
- (5) N. Wu and Q. Wang*, Repair of a delaminated plate under static loading with piezoelectric patches, *Smart Materials and Structures*, Vol.19 (105025), 2010. (IF: 3.54)
- (4) N. Wu and Q. Wang*, Repair of vibrating delaminated beam structures using piezoelectric patches, *Smart Materials and Structures*, Vol.19 (035027), 2010. (IF: 3.54)
- (3) N. Wu, Q. Wang* and S.T. Quek, Free vibration analysis of piezoelectric coupled circular plate with open circuit, *Journal of Sound and Vibration*, Vol. 329 pp. 1126-1136, 2010. (IF: 3.12)
- (2) Q. Wang*, N. Wu and S.T. Quek, Acoustic wave in piezoelectric coupled plates with open circuit, *International Journal of Structural Stability and Dynamics*, Vol.10 pp. 1-15, 2010. (IF: 2.15)
- (1) Q. Wang* and N. Wu, A review on repair of cracked and delaminated structures with piezoelectric materials, *CSME Bulletin*, June, 2011.

Referred Conference Papers (31):

- (31) M. Alaei Varnosfaderani, P. Maghoul, N. Wu, Penetration Analysis of High-Frequency Vibro-Based Probes in Granular Media Using the Discrete Element Method, ASCE Proceedings, Earth and Space 2022. doi/10.1061/9780784484470.016
- (30) A. Safian, N. Wu, and X. Liang, Simulation of a Cylindrical Roller Bearing with an Embedded Piezoelectric Sensor for Local Fault Detection, in *2021 2nd Asia Symposium on Signal Processing (ASSP)*, Nov. 2021, pp. 232–238. doi: 10.1109/ASSP54407.2021.00043.
- (29) A. Safian, N. Wu, X. Liang, Design and Calibration of a Piezoelectric Force Sensor for Bearing Fault Detection, *2022 Canadian Society fo Mechanical Engineering International Congress*, June 5-8,
-

University of Alberta, Edmonton, Canada, 2022.

- (28) N. Riaz, C. Shafai, N. Wu, Structural response of flexible KAPTON beam when coated with piezoelectric polymer, **2022 Canadian Society fo Mechanical Engineering International Congress**, June 5-8, University of Alberta, Edmonton, Canada, 2022.
- (27) X. Wang, X. Liang, N. Wu, A simulation strudy for distributed load measurement of a cylindrical rolling element bearing, **2022 Canadian Society fo Mechanical Engineering International Congress**, June 5-8, University of Alberta, Edmonton, Canada, 2022.
- (26) S. Wang, N. Wu, Design and tests on modified 3D auxetic structures, July 19-22, University of Porto, Portugal, 2022.
- (25) Alaei Varnosfaderani, M., Maghoul, P., Wu, N., Penetration analysis of high-frequency vibro-based probes in granular materials using the Discrete Element Method, **18th Biennial International Conference on Engineering, Science, Construction, and Operations in Challenging Environments**, April 25-28, Denver, Colorado, USA, 2022.
- (24) M. Alaei Varnosfaderani, P. Maghoul, N. Wu, Modeling penetration of self-burrowing impactor probes into granular regolith using the cavity expansion theory, **Biot-Bažant Conference on Engineering Mechanics and Physics of Porous Materials and Structures**, June 1-3, Northwestern University, Evanston, IL, 2021.
- (23) A. Safian, N. Wu, X. Liang, Dynamic simulation of a roller bearing by combining finite element and lumped parameter models, **Proceedings of the Canadian Society for Mechanical Engineering International Congress 2021**, June 27-30, Charlottetown, PE, Canada, 2021.
- (22) A. Keshmiri, S. Bagheri, N. Wu, Simulation-Based Optimization of a Non-Uniform Piezoelectric Energy Harvester with Stack Boundary, **International Conference on Advances in Electroceramic Materials (ICAEM-2019)**, August 7-8, Vancouver, British Columbia, Canada, 2019. **(Best paper award)**
- (21) X. Wang, N. Wu, Crack Identification at the Welding Joint with Frequency Comparison Function Method, **IEEE/ASME International Conference on Advanced Intelligent Mechatronics**, July 8-12, Hongkong, China, 2019.
- (20) S. Bagheri, N. Wu, S. Filizadeh, Simulation-Based Optimization of a Piezoelectric Energy Harvester using Artificial Neural Networks and Genetic Algorithm, **The 28th international symposium on industrial electronics (ISIE 2019)**, June 12-14, Vancouver, British Columbia, Canada, 2019.
- (19) M. Hodaei, V. Rabbani, P. Maghoul, N. Wu, Time domain computation and visualization of acoustic sound field for a Human Cancellous Bone Using Biot's Theory of Poroelasticity, **International Conference on Applied Physics and Mathematics (ICAPM)**, September 29-30, Montreal, Canada, 2018.
- (18) V. Rabbani, M. Hodaei, N. Wu, Nonlinear behavior of spur gears using contact forces, **International Conference on Applied Physics and Mathematics (ICAPM)**, September 29-30, Montreal, Canada, 2018.
- (17) X. Wang and N. Wu, Application of Entropy in Crack Identification at Welding Joint with a New Smart Coating Sensor, **The ASME 2018 Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS)**, September 10-12, Grand Hyatt San Antonio, San Antonio, Texas, 2018.
- (16) H. K. Bisheh and N. Wu, Effects of transverse shear and rotary inertia on wave propagation in a smart laminated composite cylindrical shell, **ICCE International conference 2018**, July 15-21, 2018, Paris, France.
- (15) A. Keshmiri and N. Wu, A new mechanical band-pass filter design for energy harvesting, **CSME International Congress 2018**, May 27-30, 2018, Toronto, Ontario, Canada.
- (14) A. Ghanbari Mardasi, N. Wu and C. Wu, High Sensitivity Crack Detection and Locating with Optimized Spatial Wavelet Analysis, **19th International Conference on Vibration Problems and Mechanical Engineering**, May 28-29, 2017, Tokyo, Japan. **(Best paper award)**
- (13) M. Hodaei, N. Wu and P. Maghoul, Comparison of Energy Absorption Between Lumbar Spine Implants During Daily Activity, **The Canadian Medical and Biological Engineering Society 40**, May 23-26, 2017, Winnipeg, MB, Canada. **(Top 20 paper)**
- (12) S. Osho, N. Wu and O. Ojo, Design and Analysis of a piezoelectric nano-composite paint, **33rd Annual Meeting of the Canadian Biomaterials Society**, May 24-27, 2017, Winnipeg, MB, Canada.
- (11) M. Hodaei, N. Wu and P. Maghoul, A contact mechanics model for lumbar implant-natural frequency and damping ratio, **33rd Annual Meeting of the Canadian Biomaterials Society**, May 24-
-

27, 2017, Winnipeg, MB, Canada.

(10) **N. Wu**, S. Osho, F. Faisal and S. Zhao, Crack detection with self-powered wireless smart coating sensor, *The NDT in Canada 2016 Conference*, Nov. 15-17, 2016, Burlington, ON, Canada.

(9) F. Faisal, **N. Wu** and Kartik Kapoor, Energy harvesting in pavement from passing vehicles with piezoelectric composite plate for ice melting, *SPIE Active and Passive Smart Structures and Integrated Systems 2016 conference*, March 21-24, 2016, Las Vegas, Nevada, USA.

(8) B. Wimarshana, **N. Wu** and C. Wu, Identification of breathing cracks in a beam structure with entropy, *SPIE Nondestructive Characterization and Monitoring of Advanced Materials, Aerospace, and Civil Infrastructure*, March 21-24, 2016, Las Vegas, Nevada, USA.

(7) S. Zhao, **N. Wu** and Y. Cheng, High sensitivity damage detection with vibration mode shape tuning through the optimal design of piezoelectric actuators, *ASME 2015 International Mechanical Engineering Congress & Exposition*, November 13-19, 2015, Houston, Texas, USA.

(6) Y. Cheng, **N. Wu** and S. Zhao, Study on high efficiency energy harvesting using piezoelectric coupled beam with self-tuning process, *ASME 2015 International Mechanical Engineering Congress & Exposition*, November 13-19, 2015, Houston, Texas, USA.

(5) A. Maddahi, A.Y. Goharrizi, **N. Wu** and N. Sepehri, Sensitivity of Wavelet-Based Internal Leakage Detection to Fluid Bulk Modulus in Hydraulic Actuators, *Proceedings of the 2nd International Conference of Control, Dynamic Systems, and Robotics*, May 7-8, 2015, Ottawa, Ontario, Canada.

(4) **N. Wu** and Q. Wang, Repair of notched beam subjected to dynamic loading using piezoelectric patches – numerical simulation, *CSME Congress 2012*, June 4-6, 2012, Winnipeg, Canada.

(3) **N. Wu** and Q. Wang, Experimental study of repair of notched beam using piezoelectric materials, *SPIE Smart Structures and Materials + Non-destructive Evaluation and Monitoring*, March 11-15, 2012, San Diego, California, USA.

(2) **N. Wu** and Q. Wang, Repair of a square delaminated plate under a static loading, *5th World Conference on Structural Control and Monitoring*, July 12-July 14, 2010, Tokyo, Japan.

(1) **N. Wu** and Q. J. Peng, Maintainability evaluation based on product disassembly analysis, *Proceedings of the ASME 2009 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference*, August 30 - September 2, 2009, San Diego, California, USA.

PROFESSIONAL SERVICES

Associate Editor:

Current Journal of Applied Science and Technology
Journal of Applied and Computational Mechanics

Guest Editor:

Applied Sciences (2022)
International Journal of Distributed Sensor Networks (2019-2020)
Advanced Composite Letters (2019-2020)

Editorial Board Member Services:

Highlights of Vehicles
International Journal of Mechanical Sciences
Nanotechnology Reviews
Composite Part B: Engineering (2018 - 2021)
Vibration (2017-2019)

Some Book Review Services:

‘Qualitative Theory in Structural Mechanics’, for Springer
‘Vibration Tests and Applications in System Identification of Civil Engineering Structures’, for CRC Press Taylor & Francis Group
‘Smart Multifunctional Coatings: Design, Properties and Applications’, for Elsevier

Some Journal Reviewer Services (50+):

ACTA Mechanica
Actuators
Advances in Structural Engineering
Aerospace Science and Technology
Applied Mathematical Modeling
Applied Ocean Research

ASME, Energy
ASME, Journal of Applied Mechanics
ASME, Journal of Nanotechnology in Engineering and Medicine
ASME, Journal of Vibration and Acoustics
Carbon
China Ocean Engineering
Composite Part B: Engineering
Computational Materials Science
Computers in Industry
Computer Methods in Applied Mechanics and Engineering
Current Opinion in Solid State & Materials Science
Device from Cell Press
Diamond and Related Materials
Energies
Engineering Structures
European Journal of Mechanics - A/Solids
IEEE Sensors
IES Journal Part A: Civil and Structural Engineering
International Journal of Energy Research
International Journal of Mechanical Science
Inverse Problems in Science and Engineering
Journal of Applied and Computational Mechanics
Journal of Aerospace Engineering
Journal of Energy Engineering
Journal of Mechanical Engineering Science
Journal of Molecular Liquids
Journal of Sound and Vibration
Journal of Vibration and Control
Mathematical problems in Engineering
Measurement
Mechanical system and signal processing
Mechanics of Advanced Materials and Structures
Micromachines
Nanotechnology Review
Nano energy
Physica B
Piezoelectric Sensors and Actuators
Recent Patents on Engineering
Renewable Energy
Scientific Reports – Nature
Sensors Actuators A. Physical
Ships and Offshore Structures
Shock and Vibration
Smart Materials and Structures
Smart Structures and Systems, An International Journal
Theoretical & Applied Mechanics Letters
Thin-walled Structures
Transactions of the Canadian Society for Mechanical Engineering
