#### **Quan Wang - Curriculum Vitae**

Quan Wang, Executive President of Shantou University Chair Professor of Southern University of Science and Technology Email: wangquan@stu.edu.cn

Name	Quan Wang
Date of birth	February 8, 1967
Nationality	Canadian

#### **BRIEF SUMMARY**

Professor Q. Wang received his BS (Solid Mechanics) from Zhejiang University in 1988, his MEng (Solid Mechanics) in 1991 and PhD. (Solid Mechanics) in 1994 both from Peking University. He is now the Executive President of Shantou University. He has been an assistant professor, associate professor, professor and chair professor at the National University of Singapore, the University of Central Florida, University of Manitoba, City University of Hong Kong, and Southern University of Science and Technology since 1999 respectively.

Prof. Wang was inducted into the European Academy of Science, European Academy of Sciences and Arts, the Royal Society of Canada, and Canadian Academy of Engineering in 2019, 2018, 2016 and 2015 respectively. He has also been a fellow of some international professional societies such as the American Society of Civil Engineers, the American Society of Mechanical Engineers, and Institute of Physics. He was awarded the Blaise Pascal Medal of the European Academy of Sciences in 2019 and the Ivan Grishmanov Award of the Russian Academy of Engineering in 2020 respectively. In addition, he has served as a Deputy Editor-in-Chief of the International Journal of Mechanical Sciences, an Associate Editor and/or an editorial board member for a dozen of renowned international journals such as Smart Materials and Structures, and et al. Prof. Wang is an influential scholar in his research areas of energy harvesting, smart materials, and nanotechnology. Among top 2% influential global scientists, Dr. Wang was ranked around 8900 based on career-long impact as of the end of 2022 by the team of Dr. John P.A. Ioannidis of Stanford University, and ranked the 107th in the area of materials science out of a total of 281605 materials scholars worldwide. Research.com ranks Dr. Wang the 168th worldwide and the 12th in China among the best researchers in the arena of Mechanical and Aerospace Engineering. Because of the high impact of his research, his research works have been highlighted and introduced by many famous media, such as Science, Time, Fortune and other important media in the United States, Canada's largest television network (CTV) Gold News, Hindustan Times, the India's largest media.

#### Appointments

*Executive President*, 2018-Shantou University

*Chair Professor*, 2017-Department of Mechanics and Aerospace Engineering, Southern University of Science and Technology

*Chair Professor*, 2016-2017 Department of Architecture and Civil Engineering, City University of Hong Kong

*Professor and Canada Research Chair*, 2008-2015 University of Manitoba, Mechanical Engineering Department

Associate Professor and Canada Research Chair, 2006-2008 University of Manitoba, Mechanical Engineering Department

Associate Professor, 2003-2006 University of Central Florida, Mechanical Engineering Department

Associate Professor, 2002-2003 National University of Singapore, Civil Engineering Department

Assistant Professor, 1999-2001 National University of Singapore, Civil Engineering Department

#### Education

*Degree of PhD* Peking University, Department of Mechanics, Beijing, P.R. China Sept. 91-June 94

*Degree of M.S.* Peking University, Department of Mechanics, Beijing, P.R. China Sept. 88-June 91

*Degree of B.S.* Zhejiang University, Department of Mechanics, Hangzhou, P.R. China Sept. 84-June 88

#### **Impact of Research Works**

Professor Quan Wang has contributed a stream of original studies to addressing key challenges in green energy harvesting, nanotechnology, and structural health monitoring and repair. He is a pioneer in using smart materials and wavelets to achieve less costly and more accurate structural health monitoring and structural repair. In the field of nanotechnology, he addressed and overcome a major limitation of prior methods: the fact that the dependence of a material property on the size of a nano-material, i.e. scale effects, cannot be identified by the traditional continuum theories. He was among the first to introduce the application of nonlocal continuum theories to reveal scale effects of voluminous nano-materials. In the development of nano-sensors and energy storage, he contributed novel designs of nano-resonators and supercapacitors; and in energy harvesting, he showed how to use smart materials to enable more cost-efficient and effective energy harvesting from wind, high-rise buildings, and sea waves. The above accomplishments have been applied in civil and mechanical engineering, aerospace, new energy, biomedical engineering and many other fields, to resolve major engineering and technical challenges for achieving remarkable economic and social benefits.

#### **Professional Recognitions**

#### 1. Academician

- i. Foreign member of Russian Academy of Engineering, Class 2022
- ii. Member of European Academy of Science (EAS, Class 2019)
- iii. Member of European Academy of Sciences and Arts (EASA, Class 2018)
- iv. Fellow of Royal Society of Canada (RSC, Class 2016)
- v. Fellow of Canadian Academy of Engineering (CAE, Class 2015)

#### 2. Fellowship

- i. Fellow of Institute of Physics (IOP)
- ii. Fellow of American Society of Mechanical Engineers (ASME)
- iii. Fellow of American Society of Civil Engineers (ASCE)

#### 3. Other affiliations

- i. Member of board of trustees: Shantou University (2019-)
- ii. Member of board of trustees: Guangdong-Isreal Institute of Technology (2018-)
- iii. Member of board of trustees: Cheung Kong Graduate School of Business (2018-2021)
- iv. Executive member of the council: Chinese Society for Vibration Engineering (CSVE) (2019-)
- v. Adjunct professor: College of Engineering, Peking University (2018-)
- vi. Executive member of the council: Equipment Structural Health Monitoring and Prognostics Branch of China Instrument and Control Society (2018-)

vii. Qiushi professor: Zhejiang University (2017-)

#### 4. Editorship

- i. International Journal of Mechanical Sciences Deputy Editor-in-Chief, Associate Editor, IJMS, 2019ii. Journal of Modeling in Mechanics and Materials Editor, De Gruyter a German publisher, German, 2016- 2019
- iii. Applied Mathematics and Mechanics Editor, Springer, 2012-
- iv. ASME Journal of Nanotechnology in Engineering and Medicine Associate Editor, ASME, 2011- 2016
- v. Current Nanoscience

Regional Editor, Bentham Science Publishers, 2010-2011

vi. Smart Materials and Structures Associate Editor, Institute of Physics Publishing, 2008- 2014

#### 5. Editorial Board Member

- i. Composite Structures (Elsevier, 2017-)
- ii. International Journal of Structural Stability and Dynamics(World Scientific, 2016-)
- iii. Scientific Reports (Nature Publishing Group, 2013-)
- iv. Carbon (Elsevier, 2011-)
- v. Journal of Sound and Vibration (Elsevier, 2009-)
- vi. Journal, Nanomaterials and Nanosciences (Herbert Publications, 2013-)
- vii. Journal of Nanotechnology (Hindawi Publishing Corporation, 2008-2012)
- viii. Journal of Comp. & Theoretical Nanoscience (American Scientific Publishers, 2008-2009)
- ix. Advances in Theoretical and Applied Mechanics (Hikari Ltd, 2008-2009)

#### 6. Major Awards (11)

- i. Ivan Grishmanov Award of the Russian International Academy of Engineering, 2020
- ii. The Blaise Pascal Medal of the European Academy of Sciences in Engineering, 2019
- iii. The Zhujiang Outstanding Scientist of Guangdong Province, 2019
- iv. The Outstanding Talent Award of Shenzhen City, 2017
- v. Friendship Award by Liaoning Province, 2017

- vi. Award of Exceptional Alumni of Peking University, 2013-2015
- vii. Top Scholar Program of Liaoning Province in China (8 awardees), 2014
- viii. Merit award in research of University of Manitoba (8 awardees), 2011
- ix. Technology Transfer Award: sponsored by University of South Carolina, 1999
- x. Intellectual Property Award: sponsored by University of South Carolina, 1997
- xi. Outstanding Young Scientist: sponsored by University of Peking University, 1994

#### 7. Professional Interviewers for International Journals (>100)

#### **Training of Highly Qualified Personnel**

#### 1. Award of distinguished professorship

Dr. Wenhui Duan (second PhD student): Fellow of Australian Academy of Technology and Engineering; ARC future fellow in Monash University, The Future Fellowships scheme supports research in areas of critical national importance by giving outstanding researchers incentives to conduct their research in Australia.

 $(\underline{http://www.arc.gov.au/ncgp/futurefel/future\_default.htm}).$ 

#### 2. Supervised Post Doctoral Fellows (8)

- i. Dr. G.Y. Zhou: Application of magnetorheological elastomer; 2004-2006
- ii. Dr. W.H. Duan: nano-mechanics; 2006-2007
- iii. Dr. Y.H. Wen: Xiamen Univ., Nano-wires; 2008-2009
- iv. Dr. N. Wu: Univ. Manitoba, Nanotechnology; 2012-2014
- v. Dr. Xiangdong Xie; Hubei University of Arts and Science, Smart Materials, 2013-
- vi. Dr. Bin Bao, Southern University of Science and Technology, Energy, 2018-
- vii. Dr. Shaoyi Zhou, Shantou University, Smart Materials, 2019-2020
- viii. Dr. Chuangjie Fang, Shantou University, Structural vibration isolation and damping, 2019-

#### 3. Supervised PhDs (16)

- i. Dr. J. Jin: Interdigital transducer; 1999-2003
- ii. Dr. W.H. Duan: Piezoelectric motor; 2002-2005
- iii. Dr. P.S. Tua: Structural damage detection with Lamb waves; 2002-2005
- iv. Dr. Abdul Mahmoud: Scattering of waves for structural damage detection; 2003-2010

- v. Dr. Y.G. Hu (City University of Hong Kong): Application of nonlocal elasticity in modeling of nano-materials; 2007-2010 (co-supervised)
- vi. Dr. Nan Wu: Structural repair with piezoelectric materials; 2008-2011
- vii. Dr. Behrouz Arash: Applications of nano-materials as gas sensors; 2011-2014
- viii. Mr. Darabi, Mohammad: Nano-sensors manufacturing and designs, 2014-2018
- ix. Mr. Ali Khosrozadeh, Nanotechnology, 2012-2016
- x. Mr. Yunlong Li, Enhancement of mechanical properties of polymer-composites, 2015-2018
- xi. Mr. Viet Nguyen, Modelling of nano-composites, 2015-2018
- xii. Mr. Qingxian Liu, Smart Materials, 2018-2022
- xiii. Mr. Weijian Ding, Smart Materials and Structure, 2019-
- xiv. Mr. Peng Dong, Civil Engineering, 2020-
- xv. Mr. Jinlong Liu, Energy Harvesting, 2021-
- xvi. Mr. Hamid Parsapour, Civil Engineering, 2022-

#### 4. Supervised Masters (14)

- i. Mr. Wang, Z.Q, National University of Singapore, 1999-2001
- ii. Mr. Liu, X., National University of Singapore, 1999-2001
- iii. Ms. Zhang, L., National University of Singapore, 2000-2002
- iv. Mr. Chen, H.B., National University of Singapore, 2000-2002
- v. Mr. Xu, Z.J., National University of Singapore, 1999-2001
- vi. Mr. Han, H.P., National University of Singapore, 1999-2001
- vii. Mr. Nazmul, I. M., National University of Singapore, 1999-2003
- viii. Mr. Chopra, Hari, University of Central Florida, 2003-2005
- ix. Mr. Kunal, A Navale University of Central Florida, 2003-2005
- x. Mr. D Shi, University of Manitoba, 2010-2012
- xi. Mr. Wen Chen, Southern University of Science and Technology, 2018-2020
- xii. Mr. Lingfeng Liu, Shantou University, 2019-2022
- xiii. Mr. Zhaobo Song, Shantou University, 2019-2022
- xiv. Mr. Jiatong Chen, Southern University of Science and Technology, 2020-

#### **Courses Taught as a Primary Teacher (19)**

- i. MAE 318 The Theory of Vibration, Southern University of Science and Technology
- ii. CA 2675 Fluid Mechanics

- iii. CA 5010 Structural Dynamics and Applications
- iv. MECH 201 Engineering Dynamics
- v. MECH 702 Selected Topics in Mechanical Engineering at Khalifa University
- vi. MECH 4650 Stress and Mechanical Design at University of Manitoba (UM), Canada
- vii. MECH 3420 Vibration and Acoustics at UM
- viii. MECH 7780 Applications of Smart materials and nanotechnology at UM
- ix. MECH 3482 Kinematics and Dynamics at UM
- x. EML 4220 Vibration analysis at University of Central Florida (UCF), USA
- xi. EML 6085 Research Methodology at UCF
- xii. EML 5237 Advanced (intermediate) Mechanics and materials at UCF
- xiii. EML 6223 Advanced vibrational analysis at UCF
- xiv. CE 2406 Engineering Mechanics II at National University of Singapore (NUS), Singapore
- xv. CE 4255 Structural stability and dynamics at NUS
- xvi. CE 5503 Plate structures at NUS
- xvii. CE 5506 Shell structures at NUS
- xviii. CE 6603 Numerical methods in engineering mechanics at NUS
  - xix. CE 5504 Finite element analysis and applications at NUS

#### Service in Committees (11)

- i. Executive President of Shantou University (Shantou University)
- Executive Vice-Dean of Graduate School (Southern University of Science and Technology)
- iii. Acting Head (City University of Hong Kong, CityU)
- iv. Senate member (CityU)
- v. Court, supreme advisory body (CityU)
- vi. Departmental Staffing Committee (CityU)
- vii. Departmental Performance Assessment Committee (CityU)
- viii. University promotion committee (Khalifa University)
- ix. Faculty Tenure and Promotion Committee; External Relation Committee; Faculty Selection Committee; PhD and Master's candidate Committees (University of Manitoba)
- x. Graduate Study Committee (University of Central Florida)

xi. Board of Exam Committee, External Planning Committee (National University of Singapore)

#### **Research Output**

#### 1. Research Grants (13)

- Application of piezoelectric technology in energy harvesting from ocean waves (Department of Education of Guangdong Province) Q.Wang, 2019-2022, CNY \$ 400,000
- Energy harvesting from ocean waves (Shenzhen science and Technology Commission)

Q. Wang, 2018-2021, CNY \$ 2,000,000

- iii. CityU internal fund in piezoelectric technology (CityU HK)Q. Wang, 2016-2019, HKD \$ 1,543,8000
- iv. Canada Research Chair in Solid Mechanics (University of Manitoba)

Q. Wang, Canada Research Chairs, 2011-2016, CAD\$ 500,000

- v. Canada Research Chair in Solid Mechanics (University of Manitoba)Q. Wang, Canada Research Chairs, 2006-2011, CAD\$ 500,000
- vi. Structural Engineering Research Laboratory for Advanced Structural Engineering with Smart Materials and Structures

Q. Wang, Canada Foundation for Innovation (CFI), 2006, CAD\$ 311,766

vii. Wave Propagation in Piezoelectric Laminate Smart Structures

Q. Wang and S.T. Quek, National University of Singapore, 1999-2002, SGD\$ 45,135.

- viii. Damage Detection of Structures with Piezoelectric Lamb Wave
  Q. Wang and S.T. Quek, National University of Singapore, 2000-2003, SGD\$ 51,750.
  - ix. Start-up fund

Q. Wang, University of Central Florida, 2003-2005, USD\$ 150,000.

x. Start-up fund

Q. Wang, University of Manitoba, 2006-2010, CAD\$ 50,000

- xi. Stability Analysis of Carbon Nanotubes with Continuum MechanicsQ. Wang, NSERC, 2007-2012, CAD\$ 107,500
- xii. Nonlocal theory in nanomaterials

Q. Wang, NSERC, 2012-2017, CAD\$ 155,000

xiii. Health Monitoring of Structures, sponsored

X. Su, D. Wang, and Q. Wang, Natural Science Foundation of China, 1998.

#### 2. Patents (17)

- Bao Bin, Wang Quan. Ocean energy collecting device, China Patent Application. Application No.: CN 202011403697.9.
- Bao Bin, Wang Quan. Ocean energy capturing structure, China Patent Application. Application No.: CN 202011566905.7.
- Bao Bin, Wang Quan. Ocean energy collecting and utilizing structure, China Patent Application. Application No.: CN 202011568476.7.
- iv. Bao Bin, Wang Quan. Ocean energy generating device, China Patent Application. Patent No.: CN 202022902862.7.
- v. Bao Bin, Wang Quan. Ocean energy harvesting device, China Patent Application.
  Patent No.: CN 202023200077.3.
- vi. Bao Bin, Wang Quan. Ocean energy collection and utilization device, China Patent Application. Patent No.: CN 202023205503.2.
- vii. Bao Bin, Wang Quan. Device for collecting liquid energy, China Patent Application.
  Patent No.: CN 201920053219.6.
- viii. Bao Bin, Wang Quan. Device and method for collecting liquid energy, China Patent Application. Application No.: CN 201910027267.2.
- ix. Bao Bin, Wang Quan. Liquid energy collection device, China Patent Application. Application No.: CN 201910904175.8.
- x. Bao Bin, Wang Quan. Liquid energy collection device, China Patent Application. Patent No.: CN 201921603573.8.
- xi. Bao Bin, Wang Quan. Liquid energy collection device, China Patent Application.
  Patent No.: CN 201921608670.6.
- xii. Bao Bin, Chen Wen, Wang Quan. Liquid energy collection device, China Patent Application. Patent No.: CN 201921598128.7.
- xiii. Chen Wen, Bao Bin, Wang Quan. Energy collection device and wearable electronic equipment, China Patent Application. Patent No.: CN 201920881725.4.
- xiv. Chen Wen, Bao Bin, Wang Quan. Energy collection device and wearable electronic equipment, China Patent Application. Application No.: CN 201910506196.4.
- xv. Wang Quan, Wu Nan. Repair of delaminated plates with piezoelectric materials, U.S.
  Patent Application. Pub. No.: WO2012021997A1.

- xvi. Wu Nan, Wang Quan, Xie Xiangdong. Ocean wave energy harvesting with a piezoelectric coupled buoy, U.S. Patent. Patent No.: US009726143B2.
- xvii. Xie Xiangdong, Wang Quan, Wu Nan. A ring piezoelectric energy harvester excited by magnetic forces, PCT patent application, Pub. No.: WO2015154176A1.

#### **Publication List** (>300)

Publons (Researcher ID): <u>https://publons.com/researcher/2758362/quan-</u>wang/

Google Scholar:

https://scholar.google.com.hk/citations?user=MSHB3NAAAAJ&hl=zh-CN Scopus: <u>https://www.scopus.com/authid/detail.uri?authorId=55893067400</u> Orcid: <u>orcid.org/0000-0002-9808-5035</u>

Publications in recent ten years:

#### 2023

- 1. Zhou, Y., Yang, L., Liu, Z., Sun, Y., Huang, J., Liu, B., Wang, Q., Wang, L., Miao, Y., Xing, M., Hu, Z. (2023). Reversible adhesives with controlled wrinkling patterns for programmable integration and discharging. Science Advances, 9, eadf1043.
- 2. Yang, B., Li, Y., Wang, S., Nie, R., & Wang, Q. (2023). Aminosilane modified graphene oxide for reinforcing nitrile butadiene rubber: Experiments and molecular dynamic simulations. Composites Science and Technology, 235, 109956.
- 3. Liu, J., Bao, B., Chen, J., Wu, Y., & Wang, Q. (2023). Passively adaptive wind energy harvester featuring a double-airfoil bluff body with adjustable attack angles. Mechanical Systems and Signal Processing, 185, 109814.

- 4. Liu, Q., Liu, Y., Shi, J., Liu, Z., Wang, Q., & Guo, C. F. (2022). High-Porosity Foam-Based Iontronic Pressure Sensor with Superhigh Sensitivity of 9280 kPa- 1. Nano-Micro Letters, 14(1), 1-12.
- 5. Chen, J., Bao, B., Liu, J., Wu, Y., & Wang, Q. (2022). Piezoelectric energy harvester featuring a magnetic chaotic pendulum. Energy Conversion and Management, 269, 116155.
- 6. Cui, S., Maghoul, P., Liang, X., Wu, N., & Wang, Q. (2022). Structural fatigue crack localisation based on spatially distributed entropy and wavelet transform. Engineering Structures, 266, 114544.
- 7. Xie, X., Liao, H., Zhang, J., Du, G., Wang, Q., & Hao, Y. (2022). An investigation on a cylinder harvester made of piezoelectric coupled torsional beams. Energy Conversion and Management, 251, 114857.
- 8. Dong, P., Ding, W., Yuan, H., & Wang, Q. (2022). 3D-printed polymeric lattice-enhanced sustainable municipal solid waste incineration fly ash alkali-activated cementitious composites. Developments in the Built Environment, 12, 100101.
- 9. Bao, B., Tao, J., Liu, J., Chen, J., Wu, Y., & Wang, Q. (2022). Energy harvester using two-phase flow conditions. Energy Conversion and Management, 273, 116405.
- 10. Liu, Y., Li, Y., Shang, H., Zhong, W., Wang, Q., Mequanint, K., ... & Wei, H. (2022). Underwater instant adhesion mechanism of self-assembled amphiphilic hemostatic granular hydrogel from Andrias davidianus skin secretion. Iscience, 25(10), 105106.

- 11. Liu, Y., Guan, G., Li, Y., Tan, J., Cheng, P., Yang, M., ... & Xing, M. (2022). Gelation of highly entangled hydrophobic macromolecular fluid for ultrastrong underwater in situ fast tissue adhesion. Science Advances, 8(20), eabm9744.
- 12. Chen, J., Bao, B., Liu, J., Wu, Y., & Wang, Q. (2022). Pendulum Energy Harvesters: A Review. Energies, 15(22), 8674.

- 13. Bao, B., Zhou, S., & Wang, Q. (2021). Interplay between internal resonance and nonlinear magnetic interaction for multi-directional energy harvesting. Energy Conversion and Management, 244, 114465.
- 14. Guo, Y., Wang, Y., Zhao, X., Li, X., Wang, Q., Zhong, W., ... & Luo, G. (2021). Snake extract–laden hemostatic bioadhesive gel cross-linked by visible light. Science Advances, 7(29), eabf9635.
- 15. Wu, N., Bao, B., & Wang, Q. (2021). Review on engineering structural designs for efficient piezoelectric energy harvesting to obtain high power output. Engineering Structures, 235, 112068.
- Zhao, S., Wu, N., & Wang, Q. (2021). Load path-guided fiber trajectory in composite panels: A comparative study and a novel combined method. Composite Structures, 263, 113689.
- 17. Bao, B., Wang, Q., Wu, N., & Zhou, S. (2021). Hand-held piezoelectric energy harvesting structure: Design, dynamic analysis, and experimental validation. Measurement, 174, 109011.
- Bao, B., Lallart, M., & Wang, Q. (2021). Bandgap coupling effects between hybrid nonlinear synchronized switch damping and linear two-order resonant bandgaps in piezoelectric meta-structures. Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications, 14644207211001891.
- 19. Gu, Y., Zhong, H., Bao, B., Wang, Q., & Wu, J. (2021). Experimental investigation of underwater locally multi-resonant metamaterials under high hydrostatic pressure for low frequency sound absorption. Applied Acoustics, 172, 107605.
- 20. Ding, W., Liu, Y., Shiotani, T., Wang, Q., Han, N., & Xing, F. (2021). Cement-based piezoelectric ceramic composites for sensing elements: a comprehensive state-of-the-art review. Sensors, 21(9), 3230.
- 21. Bao, B., Wang, Q., Wu, Y., & Li, P. (2021). Experimental Study on Hydroelectric Energy Harvester Based on a Hybrid Qiqi and Turbine Structure. Energies, 14(22), 7601.

- 22. Viet, N. V., Zaki, W., & Wang, Q. (2020). Free vibration characteristics of sectioned unidirectional/bidirectional functionally graded material cantilever beams based on finite element analysis. Applied Mathematics and Mechanics, 41(12), 1787-1804.
- 23. Zhao, S., Wu, N., & Wang, Q. (2020). Deep residual U-net with input of static structural responses for efficient U\* load transfer path analysis. Advanced Engineering Informatics, 46, 101184.
- 24. Bao, B., & Wang, Q. (2020). Small-scale experimental study on the optimisation of a rooftop rainwater energy harvester using electromagnetic generators in light rains. International Journal of Energy Research, 44(13), 10778-10796.
- 25. Wu, H., Zhu, J., Kitipornchai, S., Wang, Q., Ke, L. L., & Yang, J. (2020). Large amplitude vibration of functionally graded graphene nanocomposite annular plates in thermal environments. Composite Structures, 239, 112047.
- 26. Liu, Q., Liu, Z., Li, C., Xie, K., Zhu, P., Shao, B., ... & Guo, C. F. (2020). Highly transparent and flexible iontronic pressure sensors based on an opaque to transparent transition. Advanced Science, 7(10), 2000348.

- 27. Zhao, S., Wu, N., & Wang, Q. (2020). Novel damage detection tool based on load path analysis using ustar (U\*). IEEE Access, 8, 82607-82616.
- 28. Wang, X., Wu, N., & Wang, Q. (2020). Frequency comparison function method for realtime identification of breathing crack at welding joint. International Journal of Structural Stability and Dynamics, 20(13), 2041001.
- 29. Chang, Q., He, Y., Liu, Y., Zhong, W., Wang, Q., Lu, F., & Xing, M. (2020). Protein Gel Phase Transition: Toward Superiorly Transparent and Hysteresis-Free Wearable Electronics. Advanced Functional Materials, 30(27), 1910080.
- 30. Munir, M. J., Kazmi, S. M. S., Wu, Y. F., Patnaikuni, I., Wang, J., & Wang, Q. (2020). Development of a unified model to predict the axial stress–strain behavior of recycled aggregate concrete confined through spiral reinforcement. Engineering structures, 218, 110851.
- 31. Viet, N. V., Zaki, W., Umer, R., & Wang, Q. (2020). Modeling the behavior of bilayer shape memory alloy/functionally graded material beams considering asymmetric shape memory alloy response. Journal of Intelligent Material Systems and Structures, 31(1), 84-99.

- 32. Bao, B., Chen, W., & Wang, Q. (2019). A piezoelectric hydro-energy harvester featuring a special container structure. Energy, 189, 116261.
- 33. Viet, N. V., Carpinteri, A., & Wang, Q. (2019). A Novel Heaving Ocean Wave Energy Harvester with a Frequency Tuning Capability. Arabian Journal for Science and Engineering, 44(6), 5711-5722.
- Xu, W., Fang, H., Cao, M., Zhou, L., Wang, Q., & Ostachowicz, W. (2019). A noiserobust damage indicator for characterizing singularity of mode shapes for incipient delamination identification in CFRP laminates. Mechanical Systems and Signal Processing, 121, 183-200.
- 35. Zhong, H., Gu, Y., Bao, B., Wang, Q., & Wu, J. (2019). 2D underwater acoustic metamaterials incorporating a combination of particle-filled polyurethane and spiral-based local resonance mechanisms. Composite Structures, 220, 1-10.
- 36. Bao, B., & Wang, Q. (2019). Elastic wave manipulation in piezoelectric beam metastructure using electronic negative capacitance dual-adjacent/staggered connections. Composite Structures, 210, 567-580.

- 37. Li, Y., Wang, Q., & Wang, S. (2019). A review on enhancement of mechanical and tribological properties of polymer composites reinforced by carbon nanotubes and graphene sheet: Molecular dynamics simulations. Composites Part B: Engineering, 160, 348-361.
- 38. Li, Y., Wang, S., & Wang, Q. (2018). Molecular dynamics simulations of thermal properties of polymer composites enhanced by cross-linked graphene sheets. Acta Mechanica Solida Sinica, 31(6), 673-682.
- 39. Keshmiri, A., Wu, N., & Wang, Q. (2018). A new nonlinearly tapered FGM piezoelectric energy harvester. Engineering Structures, 173, 52-60.
- 40. Viet, N. V., & Wang, Q. (2018). Ocean wave energy pitching harvester with a frequency tuning capability. Energy, 162, 603-617.
- 41. Keshmiri, A., Wu, N., & Wang, Q. (2018). Free vibration analysis of a nonlinearly tapered cone beam by Adomian decomposition method. International Journal of Structural Stability and Dynamics, 18(07), 1850101.

- 42. Li, Y., Wang, S., Wang, Q., & Xing, M. (2018). Enhancement of fracture properties of polymer composites reinforced by carbon nanotubes: a molecular dynamics study. Carbon, 129, 504-509.
- 43. Keleshteri, M. M., Asadi, H., & Wang, Q. (2018). On the snap-through instability of postbuckled FG-CNTRC rectangular plates with integrated piezoelectric layers. Computer Methods in Applied Mechanics and Engineering, 331, 53-71.
- 44. Chen, S. J., Yao, X. P., Wang, Q., & Duan, W. H. (2018). Snubbing effect in atomic scale friction of graphene. Composites Part B: Engineering, 136, 119-125.
- 45. Li, Y., Wang, S., Wang, Q., & Xing, M. (2018). A comparison study on mechanical properties of polymer composites reinforced by carbon nanotubes and graphene sheet. Composites Part B: Engineering, 133, 35-41.
- 46. Khosrozadeh, A., Singh, G., Wang, Q., Luo, G., & Xing, M. (2018). Supercapacitor with extraordinary cycling stability and high rate from nano-architectured polyaniline/graphene on Janus nanofibrous film with shape memory. Journal of Materials Chemistry A, 6(42), 21064-21077.
- 47. Keshmiri, A., Wu, N., & Wang, Q. (2018). Vibration analysis of non-uniform tapered beams with nonlinear FGM properties. Journal of Mechanical Science and Technology, 32(11), 5325-5337.
- 48. Kiani, K., & Wang, Q. (2018). Nonlocal magneto-thermo-vibro-elastic analysis of vertically aligned arrays of single-walled carbon nanotubes. European Journal of Mechanics-A/Solids, 72, 497-515.
- 49. Keshmiri, A., Wu, N., & Wang, Q. (2018). A new nonlinearly tapered FGM piezoelectric energy harvester. Engineering Structures, 173, 52-60.

- Darabi, M. A., Khosrozadeh, A., Mbeleck, R., Liu, Y., Chang, Q., Jiang, J. (2017). Skin-inspired multifunctional autonomic-intrinsic conductive self-healing hydrogels with pressure sensitivity, stretchability, and 3D printability. Advanced Materials, 29(31), 1700533.
- 51. Xie, X. D., & Wang, Q. (2017). A study on an ocean wave energy harvester made of a composite piezoelectric buoy structure. Composite Structures, 178, 447-454.
- 52. Asadi, H., & Wang, Q. (2017). An investigation on the aeroelastic flutter characteristics of FG-CNTRC beams in the supersonic flow. Composites Part B: Engineering, 116, 486-499.
- 53. Khosrozadeh, A., Darabi, M. A., Wang, Q., &xing, M. (2017). Polyaniline nanoflowers grown on vibration-isolator-mimetic polyurethane nanofibers for flexible supercapacitors with prolonged cycle life. Journal of Materials Chemistry A, 5(17), 7933-7943.
- 54. Chen, S. J., Li, C. Y., Wang, Q., & Duan, W. H. (2017). Reinforcing mechanism of graphene at atomic level: Friction, crack surface adhesion and 2D geometry. Carbon, 114, 557-565.
- 55. Viet, N. V., Al-Qutayri, M., Liew, K. M., & Wang, Q. (2017). An octo-generator for energy harvesting based on the piezoelectric effect. *Applied Ocean Research*, 64, 128-134.
- 56. Asadi, H., Souri, M., & Wang, Q. (2017). A numerical study on flow-induced instabilities of supersonic FG-CNT reinforced composite flat panels in thermal environments. Composite structures, 171, 113-125.
- 57. Tao, J. X., Viet, N. V., Carpinteri, A., & Wang, Q. (2017). Energy harvesting from wind by a piezoelectric harvester. Engineering Structures, 133, 74-80.
- 58. Xie, X. D., & Wang, Q. (2017). A study on a high efficient cylinder composite piezoelectric energy harvester. Composite Structures, 161, 237-245.
- 59. Keleshteri, M. M., Asadi, H., & Wang, Q. (2017). Postbuckling analysis of smart FG-CNTRC annular sector plates with surface-bonded piezoelectric layers using generalized differential quadrature method. Computer Methods in Applied Mechanics and Engineering, 325, 689-710.
- 60. Keleshteri, M. M., Asadi, H., & Wang, Q. (2017). Large amplitude vibration of FG-CNT reinforced composite annular plates with integrated piezoelectric layers on elastic foundation. Thin-Walled Structures, 120, 203-214.

- 61. Viet, N. V., Wang, Q., & Carpinteri, A. (2018). Development of an ocean wave energy harvester with a built-in frequency conversion function. International Journal of Energy Research, 42(2), 684-695.
- 62. Nikrad, S. F., Asadi, H., & Wang, Q. (2017). Postbuckling behaviors of open section composite struts with edge delamination using a layerwise theory. International Journal of Non-Linear Mechanics, 95, 315-326.
- 63. Viet, N. V., Wu, N., & Wang, Q. (2017). A review on energy harvesting from ocean waves by piezoelectric technology. Journal of Modeling in Mechanics and Materials, 1(2), 20160161.
- 64. He, E., Wang, S., Li, Y., & Wang, Q. (2017). Enhanced tribological properties of polymer composites by incorporation of nano-SiO2 particles: A molecular dynamics simulation study. Computational Materials Science, 134, 93-99.
- 65. Xie, X. D., Carpinteri, A., & Wang, Q. (2017). A theoretical model for a piezoelectric energy harvester with a tapered shape. Engineering Structures, 144, 19-25.
- 66. Asadi, H., & Wang, Q. (2017). An investigation on the aeroelastic flutter characteristics of FG-CNTRC beams in the supersonic flow. Composites Part B: Engineering, 116, 486-499.
- 67. Cao, M. S., Ding, Y. J., Ren, W. X., Wang, Q., Ragulskis, M., & Ding, Z. C. (2017). Hierarchical wavelet-aided neural intelligent identification of structural damage in noisy conditions. Applied Sciences, 7(4), 391.
- 68. Li, Y., Wang, S., & Wang, Q. (2017). Enhancement of tribological properties of polymer composites reinforced by functionalized graphene. Composites Part B: Engineering, 120, 83-91.
- 69. Viet, N. V., Wang, Q., & Kuo, W. S. (2017). A studying on load transfer in carbon nanotube/epoxy composites under tension. Journal of Modeling in Mechanics and Materials, 1(1), 20160153.
- 70. Viet, N. V., Wang, Q., & Kuo, W. S. (2017). A studying on load transfer in carbon nanotube/epoxy composites under tension. Journal of Modeling in Mechanics and Materials, 1(1), 20160153.
- 71. Cheng, Y., Wu, N., & Wang, Q. (2017). An efficient piezoelectric energy harvester with frequency self-tuning. Journal of Sound and Vibration, 396, 69-82.
- 72. Cheng, Y., Wu, N., & Wang, Q. (2017). An efficient piezoelectric energy harvester with frequency self-tuning. Journal of Sound and Vibration, 396, 69-82.

- 73. Zhao, S., Wu, N., & Wang, Q. (2016). Damage detection of beams by a vibration characteristic tuning technique through an optimal design of piezoelectric layers. International Journal of Structural Stability and Dynamics, 16(10), 1550070.
- 74. Viet, N. V., Xie, X. D., Liew, K. M., Banthia, N., & Wang, Q. (2016). Energy harvesting from ocean waves by a floating energy harvester. Energy, 112, 1219-1226.
- 75. Mehri, M., Asadi, H., & Wang, Q. (2016). On dynamic instability of a pressurized functionally graded carbon nanotube reinforced truncated conical shell subjected to yawed supersonic airflow. Composite Structures, 153, 938-951.
- Li, Y., Wang, S., Wang, Q., & Xing, M. (2016). Molecular dynamics simulations of tribology properties of NBR (Nitrile-Butadiene Rubber)/carbon nanotube composites. Composites Part B: Engineering, 97, 62-67.
- 77. Xie, X. D., & Wang, Q. (2016). Design of a piezoelectric harvester fixed under the roof of a highrise building. Engineering Structures, 117, 1-9.
- 78. Viet, N. V., Wang, Q., & Kuo, W. S. (2016). Effective Young's modulus of carbon nanotube/epoxy composites. Composites Part B: Engi
- 79. Mehri, M., Asadi, H., & Wang, Q. (2016). Buckling and vibration analysis of a pressurized CNT reinforced functionally graded truncated conical shell under an axial compression using HDQ method. Computer Methods in Applied Mechanics and Engineering, 303, 75-100.
- Li, Y., Wang, S., Arash, B., & Wang, Q. (2016). A study on tribology of nitrile-butadiene rubber composites by incorporation of carbon nanotubes: Molecular dynamics simulations. Carbon, 100, 145-150.
- 81. Li, Y., Wang, S., He, E., & Wang, Q. (2016). The effect of sliding velocity on the tribological properties of polymer/carbon nanotube composites. Carbon, 106, 106-109.
- Khosrozadeh, A., Darabi, M. A., Xing, M., & Wang, Q. (2016). Flexible electrode design: fabrication of freestanding polyaniline-based composite films for high-performance supercapacitors. ACS applied materials & interfaces, 8(18), 11379-11389.

 Samadpour, M., Asadi, H., & Wang, Q. (2016). Nonlinear aero-thermal flutter postponement of supersonic laminated composite beams with shape memory alloys. European Journal of Mechanics-A/Solids, 57, 18-28.

#### 2015

- 84. Wang, Q., & Arash, B. (2015). Announcement of a virtual special issue on computational carbon nanoscience.
- 85. Darabi, M. A., Khosrozadeh, A., Wang, Q., & Xing, M. (2015). Gum sensor: a stretchable, wearable, and foldable sensor based on carbon nanotube/chewing gum membrane. ACS applied materials & interfaces, 7(47), 26195-26205.
- 86. Wu, N., Wang, Q., & Xie, X. (2015). Ocean wave energy harvesting with a piezoelectric coupled buoy structure. Applied Ocean Research, 50, 110-118.
- 87. Asadi, H., Akbarzadeh, A. H., & Wang, Q. (2015). Nonlinear thermo-inertial instability of functionally graded shape memory alloy sandwich plates. Composite Structures, 120, 496-508.
- Khosrozadeh, A., Ali Darabi, M., Xing, M., & Wang, Q. (2015). Flexible cellulose-based films of polyaniline–Graphene–Silver nanowire for high-performance supercapacitors. Journal of Nanotechnology in Engineering and Medicine, 6(1), 011005.
- 89. Xie, X. D., Wang, Q., & Wang, S. J. (2015). Energy harvesting from high-rise buildings by a piezoelectric harvester device. Energy, 93, 1345-1352.
- 90. Xie, X., & Wang, Q. (2015). A mathematical model for piezoelectric ring energy harvesting technology from vehicle tires. International Journal of Engineering Science, 94, 113-127.
- 91. Xie, X. D., & Wang, Q. (2015). Energy harvesting from a vehicle suspension system. Energy, 86, 385-392.
- 92. Khosrozadeh, A., Xing, M., & Wang, Q. (2015). A high-capacitance solid-state supercapacitor based on free-standing film of polyaniline and carbon particles. Applied Energy, 153, 87-93.
- 93. Viet, N. V., Wang, Q., & Kuo, W. S. (2015). Load sharing inside multi-layered graphene nanosheets under bending and tension. Computational Materials Science, 110, 62-70.

- 94. Wang, Q., & Arash, B. (2014). Nanoresonators in sensors and molecular transportation: An introduction to the possibilities of carbon nanotubes and graphene sheets. IEEE Nanotechnology Magazine, 8(4), 29-37.
- 95. Xie, X. D., Wang, Q., & Wu, N. (2014). Energy harvesting from transverse ocean waves by a piezoelectric plate. International Journal of Engineering Science, 81, 41-48.
- 96. Arash, B., & Wang, Q. (2014). Molecular separation with carbon nanotubes. Computational materials science, 90, 50-55.
- 97. Asadi, H., Eynbeygi, M., & Wang, Q. (2014). Nonlinear thermal stability of geometrically imperfect shape memory alloy hybrid laminated composite plates. Smart materials and structures, 23(7), 075012.
- Xie, X. D., Wang, Q., & Wu, N. (2014). A ring piezoelectric energy harvester excited by magnetic forces. International Journal of Engineering Science, 77, 71-78.
- 99. Xie, X. D., Wang, Q., & Wu, N. (2014). Potential of a piezoelectric energy harvester from sea waves. Journal of Sound and Vibration, 333(5), 1421-1429.
- 100. Wang, Q., & Arash, B. (2014). A review on applications of carbon nanotubes and graphenes as nano-resonator sensors. Computational Materials Science, 82, 350-360.
- 101. Khosrozadeh, A., Wang, Q., & Varadan, V. K. (2014). Molecular simulations on separation of atoms with carbon nanotubes in torsion. Computational materials science, 81, 280-283.
- 102. Challamel, N., Zhang, Z., Wang, C. M., Reddy, J. N., Wang, Q., Michelitsch, T., & Collet, B. (2014). On nonconservativeness of Eringen's nonlocal elasticity in beam mechanics: correction from a discrete-based approach. Archive of Applied Mechanics, 84, 1275-1292.
- 103. Arash, B., Wang, Q., & Varadan, V. K. (2014). Mechanical properties of carbon nanotube/polymer composites. Scientific reports, 4(1), 6479.

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Soyez informés que suivant la décision des membres et en reconnaissance de votre expérience et distinction dans l'art et la science du génie au Canada, vous:

Luan Wang

have been elected as a Fellow of the Academy and on this day were admitted by me to the Fellowship with all rights, privileges and obligations which that entails.

June 4, 2015

devenez à compter de ce jour, membre de l'Académie avec tous les privilèges et obligations qui s'y rattachent.

Le 4 juin 2015

11220 President - Président



RSC The Royal Society of Canada The Academies of Arts, Humanities and Sciences of Canada



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### 加拿大皇家科學院院士

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July 18, 2016

Quan Wang 172 Red Spruce Rd Winnipeg, MB R3Y 0R1

Dear Prof. Wang,

Every year, distinguished scholars and artists are elected to the Fellowship of the Royal Society of Canada on the basis of their exceptional contributions to Canadian intellectual life. It is with great pleasure that I write to inform you of your election to the Fellowship of the Royal Society of Canada. You have been elected as a Fellow by your peers in the *Applied Sciences and Engineering division* of the Academy of Science.

Your election is a telling recognition of your remarkable accomplishments and an invitation to further the leadership you have already shown in advancing knowledge and scholarship in Canada. Like its counterpart national academies throughout the world, the Royal Society of Canada has evolved from a largely honorific society into a dynamic national collegium of engaged intellectuals. Let me take this opportunity to invite your active participation in the programmes and governance of Canada's national academy.

On behalf of the RSC and on my behalf, please accept my warmest congratulations on this prestigious recognition from your peers. Should you accept the honour of election we will be strengthened by your contribution to the Fellowship.

Yours sincerely,

Maryse Lassonde, FRSC President

cc: Jamal Deen, President, Academy of Science cc: Federico Rosei, Primary Nominator

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June, 2013

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## This is to certify that at a meeting of Council in May 2013 Quan Wang was elected a Fellow of

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