Wei-Chau Xie *PhD, PEng*

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EDUCATION

- ***Doctor of Philosophy***, Civil Engineering, University of Waterloo, Canada, 1990
  PhD Thesis: Lyapunov Exponents and Their Applications to Structural Dynamics
- ***Master of Applied Science***, Civil Engineering, University of Waterloo, Canada, 1987
  MASc Thesis: Stochastic Sample Stability of Parametrically Excited Linear Systems
- ***Bachelor of Applied Science***, Precision Engineering, Shanghai Jiao-Tong University, Shanghai, China, 1984

AWARDS AND PRIZES

- ***Distinguished Teacher Award*** the highest formal recognition given by the University of Waterloo for a superior record of continued excellence in teaching, University of Waterloo, 2007
- ***Distinguished Performance Awards***
  - for outstanding contribution in teaching, scholarship and service during 2015, Faculty of Engineering, University of Waterloo, 2016
  - for outstanding contribution in teaching, scholarship and service during 2012, Faculty of Engineering, University of Waterloo, 2013
  - for outstanding contribution in teaching, scholarship and service during 2005, Faculty of Engineering, University of Waterloo, 2006
  - for outstanding contribution in teaching, scholarship and service during 1999, Faculty of Engineering, University of Waterloo, 2000
- ***Teaching Excellence Award*** in recognition of an exemplary record of outstanding teaching, concern for students and a commitment to the development and enrichment of engineering education at Waterloo, Faculty of Engineering, University of Waterloo, 2001
- ***Natural Sciences and Engineering Research Council of Canada*** (***NSERC***) ***Doctoral Prize*** for outstanding doctoral research and potential for a research career, 1992
- ***University of Waterloo Alumni Association Gold Medal*** for outstanding achievement in graduate studies at the PhD level, 1990

WORK EXPERIENCE

Since July 2002 ***Professor***	Civil and Environmental Engineering University of Waterloo
May 1999 to August 2002, Sept. 2003 to August 2008 ***Associate Chair for Undergraduate Studies***	Civil and Environmental Engineering University of Waterloo
September 2002 to April 2003 ***Visiting Professor***	Mechanical Engineering Hong Kong Polytechnic University
July 1997 to June 2002 ***Associate Professor***	Civil Engineering University of Waterloo
January 1992 to June 1997 ***Assistant Professor***	Civil Engineering University of Waterloo

❧ Principal Areas of Research

- seismic analysis and design of engineering structures
- structural dynamics and random vibration
- reliability and safety analysis of engineering systems
- dynamic stability of structures, nonlinear dynamics, and stochastic mechanics

The applications of particular interest are those pertaining to the reliability and safety analysis and design of nuclear power plants, on-shore and off-shore structures, tall buildings that are subjected to loadings caused by earthquakes, ocean waves and wind turbulence. The objective of research is to have a better understanding of the dynamic and stability behaviour of structures, and to provide methods for the reliability and safety analysis and design of structures, machinery, and engineering systems in general.

❧ Courses Taught

Graduate Courses

- CivE 614: Structural Dynamics
- CivE 601: Engineering Risk and Reliability
- CivE 701-I: Dynamic Stability of Structures
- CivE 701-II: Advance Structural Dynamics: Random Vibration and Seismic Risk Analysis

Undergraduate Courses

- CivE 405: Structural Dynamics
- CivE 306: Mechanics of Solids III
- CivE 224/EnvE 224: Probability and Statistics
- CivE 222/EnvE 223: Differential Equations
- CivE 221/EnvE 221/AE 221: Advanced Calculus
- CivE 127/EnvE 127: Statics and Solid Mechanics 1
- CivE 105/EnvE 105: Mechanics 2

❧ Graduate Student Supervision

M.A.Sc. Students

- Fred Foo, 1993, *Seismic Analysis of Rotating Machinery Using Response Spectrum Method.*
- Yuling Zhang, 1994*, Vibration Mode Localization of Disordered Large Planar Lattice Trusses.*
- Xing Wang, 1996, *Vibration Mode Localization in Randomly Disordered Weakly Coupled Two-Dimensional Cantilever-Spring Arrays*.
- Akram Ibrahim, 1997, *Buckling Mode Localization in Rib-Stiffened Plates with Randomly Misplaced Stiffeners Using a Finite Strip Method*.
- Hassan Zaheer, 1999, *Numerical Simulation for Peak Response Factors* (Project).
- Umar Rizwan, 2001, *Evaluation of Different Floor Vibration Criteria for Cold-Formed Steel Residential Construction* (Project).
- Wei Liu, 2001, *Vibration Studies of Floors Supported by Cold-Formed Steel Joists*.
- Yuan Du, 2002, *Random Fatigue Analysis of Structures under Stationary Excitations*.
- Richard Wiebe, 2009, *Stability of a Structural Column under Stochastic Axial Loading*.

M.Math. Students

- Zhaoxin Wan, 2012, *Flocking for Multi-Agent Dynamical Systems.* (Co-supervised with Professor Xinzhi Liu)

Ph.D. Students

- Ningyuan Li, 1997, *Development of a Probabilistic Based, Integrated Pavement Management System*. (Co-supervised with Professor R.C.G. Haas)
- Richard Zhi-Hua Chen, 2002, *Vibration Localization in Stiffened Plates.*
- Jinyu Zhu, 2008, *Stochastic Stability of Flow-Induced Vibration*.
- Qinghua Huang. 2008, *Stochastic Stability of Viscoelastic Systems*.
- Jun Liu, 2010, *Qualitative Studies on Nonlinear Hybrid Systems*. (Co-supervised with Professor Xinzhi Liu)
- Tianjin Cheng, 2011, *Stochastic Renewal Process Models for Maintenance Cost Analysis*. (Co-supervised with Professor Mahesh Pandey)
- Mohamad Sahib Alwan, 2011, *Qualitative Properties of Stochastic Hybrid Systems and Applications*. (Co-supervised with Professor Xinzhi Liu)
- Dongliang Lu, 2012, *Estimation of Stochastic Degradation Models Using Uncertain Inspection Data*. (Co-supervised with Professor Mahesh Pandey)
- Shun-Hao Ni, 2012, *Design Earthquakes Based on Probabilistic Seismic Hazard Analysis*. (Co-supervised with Professor Mahesh Pandey)
- Jian Deng, 2013, *Fractional Stochastic Dynamics in Structural Stability Analysis*. (Co-supervised with Professor Mahesh Pandey)
- De-yi Zhang, 2013, *Stochastic Modelling and Analysis for Bridges under Spatially Varying Ground Motions*. (Co-supervised with Professor Mahesh Pandey)
- Zhaoliang Wang, 2015, *Seismic Risk Analysis for Nuclear Energy Facilities*. (Co-supervised with Professor Mahesh Pandey)

- Bo Li, 2015, *Response Spectra for Seismic Analysis and Design*. (Co-supervised with Professor Mahesh Pandey)
- Wei Jiang, 2016, *Direct Method of Generating Floor Response Spectra*. (Co-supervised with Professor Mahesh Pandey)
- Zhen Cai, 2016, *Seismic Fragility Analysis for Structures, Systems, and Components in Nuclear Power Plants*. (Co-supervised with Professor Mahesh Pandey)
- Kexue Zhang, 2017, *Impulsive Control of Discrete Complex Dynamical Networks with Time-Delay*. (Co-supervised with Professor Xinzhi Liu)
- Donghui Lu, 2020, *Pavement Flooding Risk Assessment and Management in the Changing Climate*. (Co-supervised with Professor Susan Tighe)
- Yang Zhou, 2020, *Direct Method for Floor Response Spectra Considering Soil-Structure Interaction*.
- Rui Wang, 2023, *Direct Method of Generating Floor Response Spectra for Structures under Earthquake Excitations at Multiple Supports*. (Co-supervised with Professor Mahesh Pandey)
- Yue Li, 2024, *Direct Method of Generating Floor Response Spectra for Structures Considering Soil-Structure Interaction*.

September 1990 to December 1991 — *Atomic Energy of Canada Limited, CANDU*
Stress Analyst and Design Engineer — *Mississauga, Ontario, Canada*

- Analysed acoustic resonance in reactor inlet header and discharge pipes.
- Studied flow-induced vibration of fuel bundles.
- Performed analysis on Large Scale Fuel Channels Replacement tools and installation.
- Provided consultation on probability and statistics in probabilistic analysis to delayed hydride crack initiation in pressure tube rolled joint.
- Prepared technical review package on the composite pressure tube to reduce the probability of pressure tube rupture by delayed hydride crack.
- Studied reduced risk of pressure tube rupture by redundancy in the number of garter springs by performing reliability analysis and economic assessment.

January 1987 to August 1990 — *Civil Engineering, University of Waterloo*
Research and Teaching Assistant — *Waterloo, Ontario, Canada*

PROFESSIONAL ACTIVITIES

- Licensee, *Professional Engineers Ontario*.
- Associate Editor, *Mechanics Based Design of Structures and Machines, An International Journal,* since March 2013
- Member, Editorial Board, *Journal of Nonlinear Systems and Applications*, since July 2009
- Member, Editorial Board, *Advances in Civil Engineering,* since March 2008
- Associate Editor, *ASME Journal of Applied Mechanics*, April 2007 to April 2014
- Member, Canadian Standards Association CSA N289 Technical Committee on Seismic Design, since February 2014
- Member, Canadian Standards Association CSA N289.3 Subcommittee on Design Procedures

for Seismic Qualification of Nuclear Power Plants, since July 2014

- Member, *American Society of Mechanical Engineers* (ASME).
- Member, Technical Committee on Dynamics of Structures and Systems of the ASME.
- Co-Organizer, Fields Institute Workshop on *Hybrid Dynamic Systems*, July 29-31, 2010, University of Waterloo, Waterloo, Ontario, Canada.
- Co-Organizer, *Symposium on Nonlinear Dynamics, Control and Stochastic Mechanics,* at 2008 International Mechanical Engineering Congress and Exposition (ASME), Boston, MA.
- Program Co-Chair, *International Conference on Advances in Engineering Structures, Mechanics & Construction*, May 14-17, 2006, Waterloo, Ontario, Canada.
- Principal Organizer, *Symposium on Nonlinear Dynamics and Stochastic Mechanics,* at 2003 International Mechanical Engineering Congress and Exposition (ASME), Washington, D.C.
- Guest Editor, Special Issue on *Localization Problems in Engineering*, Special Issue on *Nonlinear Dynamics and Stochastic Mechanics, Chaos, Solitons & Fractals*.
- Principal Organizer, *Symposium on Nonlinear Dynamics and Stochastic Mechanics,* at 2000 International Mechanical Engineering Congress and Exposition (ASME), Orlando, FL.
- Principal Organizer, *Symposium on Nonlinear Dynamics and Stochastic Mechanics,* at 1997 International Mechanical Engineering Congress and Exposition (ASME), Dallas, TX.
- Member of the Organizing Committee, Program Coordinator, *International Symposium on Nonlinear Dynamics and Stochastic Mechanics,* August 28–September 1, 1993, Waterloo, ON, Canada.
- Reviewer for *ASME Journal of Applied Mechanics, Journal of Sound and Vibration, International Journal of Solid & Structures, Computers and Structures, Shock and Vibration Journal, Mechanics Based Design of Structures and Machines, Nonlinear Dynamics, Transactions of the Canadian Society for Mechanical Engineering, Fields Institute Communications, Structural Engineering & Mechanics, Wave Motion, Stochastic Dynamics, AIAA Journal.*

LIST OF PUBLICATIONS

Books

1. Wei-Chau Xie, Shun-Hao Ni, Wei Liu, and Wei Jiang, 2019, ***Seismic Risk Analysis of Nuclear Power Plants***, Cambridge University Press, ISBN 978-1-107-04046-5, www.cambridge.org/9781107040465, DOI: 10.1017/9781139629010, xxi+611 pages.
2. Wei-Chau Xie, 2010, ***Differential Equations for Engineers***, Cambridge University Press, ISBN-13 978-0-521-19424-2, ISBN-10 0-521-19424-5, xvi+550 pages.
3. Wei-Chau Xie, 2006, ***Dynamic Stability of Structures***, Cambridge University Press, ISBN-13 978-0-521-85266-1, ISBN-10 0-521-85266-8, xvii+435 pages.

Refereed Journal Publications, published or accepted

1. Rui Wang, Binh-Le Ly, Wei-Chau Xie, Mahesh Pandey, 2024, "Lagrange Interpolation in Matrix Form for Numerical Differentiation and Integration", *American Journal of Applied Mathematics*, **12**(3), 66-78. https://doi.org/10.11648/j.ajam.20241203.13.
2. Hangsheng Ma, Huanling Wang, Weiya Xu, Anchi Shi, Wei-Chau Xie, 2024, "Prediction of Impulse Waves Generated by the Wangjiashan Landslide Using a Hybrid SPH-SWEs Model", *Natural Hazards*, **120**: 3799–3826, https://doi.org/10.1007/s11069-023-06333-y.
3. Zhen Wang, Huanling Wang, Weiya Xu, Desheng Zhu, Wei-Chau Xie, 2024, "A New Uncertainty Analysis Method Based on Geostatistical Simulation and a Case Study", *Case Studies in Construction Materials*, **20**, https://doi.org/10.1016/j.cscm.2023.e02813.
4. Hangsheng Ma, Huanling Wang, Weiya Xu, Zhenggang Zhan, Shuyu Wu, Wei-Chau Xie, 2024, "Numerical Modeling of Landslide-Generated Impulse Waves in Mountain Reservoirs Using a Coupled DEM-SPH Method", *Landslides*, **21**: 2007–2019, https://doi.org/10.1007/s10346-024-02243-7.
5. Yuhang Jiang, Wei Wang, Lifang Zou, Yajun Cao, Wei-Chau Xie, 2024, "Investigating Landslide Data Balancing for Susceptibility Mapping Using Generative and Machine Learning Models", *Landslides*, **22**: 189–204, https://doi.org/10.1007/s10346-024-02352-3.
6. Weiya Xu, Changhao Lyu, Jiangjiang Zhang, Huanling Wang, Rubin Wang, Long Yan, Wei-Chau Xie, 2024, "Calibrating High-Dimensional Rock Creep Constitutive Models for Geological Disaster Prevention: an Application of Data Assimilation Methods", *International Journal of Rock Mechanics and Mining Sciences*, **183**, https://doi.org/10.1016/j.ijrmms.2024.105911.
7. Hongjuan Shi, Xiaoyi Xu, Huanling Wang, Wei Cai, Yuanze Liu, Wei-Chau Xie, 2024, "Spatio-Temporal Deformation Characteristics and Triggering Factors of Wangjiashan Landslide", *European Journal of Environmental and Civil Engineering*, 1–13, https://doi.org/10.1080/19648189.2024.2407869.
8. Huanling Wang, Yizhe Wu, Mei Li, Yuxuan Liu, Weiya Xu, Long Yan, Wei-Chau Xie, "A Novel FDEM-GSA Method with Applications in Deformation and Damage Analysis of Surrounding Rock in Deep-Buried Tunnels", *Tunnelling and Underground Space Technology*, **154**, https://doi.org/10.1016/j.tust.2024.106106.
9. Hangsheng Ma, Huanling Wang, Hongjuan Shi, Weiya Xu, Jing Hou, Weiwei Wu, Wei-Chau Xie, 2024, "Probabilistic Landslide-Generated Impulse Waves Estimation in Mountain Reservoirs, a Case Study", *Bulletin of Engineering Geology and the Environment*, 83: Article number 494, https://doi.org/10.1007/s10064-024-04003-2.
10. Shizhuang Chen, Weiya Xu, Yelin Feng, Long Yan, Huanling Wang, Wei-Chau Xie, 2024, "Experimental Investigation on Potential High-Position Landslide-Generated Impulse Waves: a Case Study of the Meilishi Landslide in the Gushui Reservoir, China", *Ocean Engineering*, **314**, Part 1, https://doi.org/10.1016/j.oceaneng.2024.119723.

11. Yue Li, Wei-Chau Xie, Binh-Le Ly, Weiya Xu, Chuan-Hua Xu, 2023, "Limit-Equilibrium Analysis Using a Lateral Force as Functional", *International Journal of Geomechanics*, **23**(5), https://doi.org/10.1061/IJGNAI.GMENG-7927.

12. Rui Wang, Wei-Chau Xie, Binh-Le Ly, 2023, "Damping Matrix of a Lightly Damped Dynamic System", *Journal of Engineering Mathematics*, **143**: 4, https://doi.org/10.1007/ s10665-023-10300-8.

13. Shizhuang Chen, Anchi Shi, Weiya Xu, Long Yan, Huanling Wang, Lei Tian, Wei-Chau Xie, 2023, "Numerical Investigation of Landslide-Induced Waves: A Case Study of Wangjiashan Landslide in Baihetan Reservoir, China", *Bulletin of Engineering Geology and the Environment*, **82**: Article number 110, https://doi.org/10.1007/s10064-023-03148-w.

14. Shiqi Liu, Huanling Wang, Xiao Qu, Bing Pan, Wei-Chau Xie, 2023, "Experimental Investigation on the Effect of Strain Rate on Brittle Limestone in Post-earthquake Landslide Area", *Pure and Applied Geophysics*, **180**: 2705–2718, https://doi.org/10.1007/ s00024-023-03294-y.

15. Xiao Qu, Huanling Wang, Wei-Chau Xie, Hangsheng Ma, 2023, "Experimental Investigation on Dynamic Compressive Mechanical Properties of Weathered Granite and Statistical Damage Constitutive Model", *Bulletin of Engineering Geology and the Environment*, **82**: Article number 313, https://doi.org/10.1007/s10064-023-03326-w.

16. Huanling Wang, Xufei Zhao, Hongjie Chen, Kui Yi, Wei-Chau Xie, Weiya Xu, 2023, "Evaluation of Toppling Rock Slopes Using a Composite Cloud Model with DEMATEL-CRITIC Method", *Water Science and Engineering*, **16**(3): 280-288, https://doi.org/10. 1016/j.wse.2023.04.002.

17. Weijie Zhou, Weiya Xu, Yu Ning, Haibin Xiao, Wei-Chau Xie, 2023, "Analytical Method of Stability Analyses of Toppling Rock Slopes Subjected to Flexural Toppling Failure Damage", *European Journal of Environmental and Civil Engineering*, **27**(6), 2373-2387, https://doi.org/10.1080/19648189.2020.1763840.

18. Weiya Xu, Zhichao Cheng, Haibo Wang, Qingxiang Meng, Wei-Chau Xie, 2023, "Correlation between Valley Deformation and Water Level Fluctuations in High Arch Dam", *European Journal of Environmental and Civil Engineering*, **27**(7), 2519-2528, https://doi.org/10.1080/19648189.2020.1763851.

19. Zihua Jiang, Huanling Wang, Jianrong Xu, Hongjie Chen, Wei-Chau Xie, 2023, "Variation of Permeability of Natural Filled Jointed Rock under Repeated Loading and Unloading Conditions", *European Journal of Environmental and Civil Engineering*, **27**(7),

    2447-2459, https://doi.org/10.1080/19648189.2020.1763846.

20. Rui Wang, Wei-Chau Xie, and Mahesh D. Pandey, 2022, "Generation of Floor Response Spectra of Structures under Seismic Excitations at Multiple Support", *Nuclear Engineering and Design*, **389**, https://doi.org/10.1016/j.nucengdes.2021.111527.

21. Rui Wang, Wei-Chau Xie, and Mahesh D. Pandey, 2022, "Generation of Floor and Tertiary Response Spectra of Structures under Seismic Excitations at Multiple Supports", *Earthquake Engineering & Structural Dynamics*, **51**(4), 853-874, https://doi.org/10.1002/eqe.3594.

22. Yang Zhou and Wei-Chau Xie, 2022, "The Generation of Uniform Hazard Floor Response Spectra", *Soil Dynamics and Earthquake Engineering*, **161**, https://doi.org/10.1016/j.soildyn.2022.107383.

23. Lanlan Yang, Binh-Le Ly, Wei-Chau Xie, Chenxi Mao, and Xiangnan Qin, 2022, "A Novel Approach to the Integration for Generating Consistent Ground Acceleration, Velocity and Displacement Time Histories", *International Journal of Structural Stability and Dynamics*, **22**(13), https://doi.org/10.1142/S0219455422710031.

24. Huanling Wang, Zihua Jiang, Weiya Xu, Rubin Wang, and Weichau Xie, 2022, "Physical Model Test on Deformation and Failure Mechanism of Deposit Landslide under Gradient Rainfall", *Bulletin of Engineering Geology and the Environment*, **81**(1), 66, https://doi.org/10.1007/s10064-021-02566-y.

25. Shizhuang Chen, Weiya Xu, Mengcheng Sun, Long Yan, Jing Hou, Weiwei Wu, and Wei-Chau Xie, 2022, "Shear Creep Properties and Creep Model of Gravel Sliding Zone: A Case Study of the Zhoujia Landslide in China", *Frontiers in Earth Science*, **10**: 838183. doi:10.3389/feart.2022.838183.

26. Wei Jiang, Yang Zhou, Wei-Chau Xie, and Mahesh D. Pandey, 2021, "Direct Method for Generating Floor Response Spectra Considering Soil-Structure Interaction", *Journal of Earthquake Engineering*, https://doi.org/10.1080/13632469.2020.1852137.

27. Lanlan Yang, Wei-Chau Xie, Weiya Xu, Binh-Le Ly, Huanling Wang, Qingxiang Meng, 2021, "Directional Components of a Seismic Design Accelerogram", *Journal of Earthquake Engineering*, https://doi.org/10.1080/13632469.2021.1881657.

28. Lanlan Yang, Wei-Chau Xie, Weiya Xu, Binh-Le Ly, Wenhua Liu, Wugang Li, 2021, "Generation of Tri-Directional Spectra-Compatible Time Histories Coupling the Influence Matrix Method and Gram-Schmidt Orthogonalization", *International Journal of Structural Stability and Dynamics*, **21**(13), https://doi.org/10.1142/S0219455421501868.

29. Lanlan Yang, Wei-Chau Xie, Wenhua Liu, Xiuli Sun, Chaojun Jia, 2021, "Generation of Tri-directional Seismic Time Histories Compatible with Floor Response Spectra", *Nuclear Power Engineering*, **40**(3): 1-12.

30. Long Yan, Weiya Xu, Rubin Wang, Huanling Wang, Wei-Chau Xie, 2021, "Mechanical and Permeability Characteristics of Basalt during Unloading Confining Pressure Creep Tests under Coupled Hydro-Mechanical Conditions", *Rock Mechanics and Rock Engineering*, **54** (12): 6091-6103, https://doi.org/10.1007/s00603-021-02616-7.

31. Mengcheng Sun, Weiya Xu, Huanling Wang, Qingxiang Meng, Long Yan, Wei-Chau Xie, 2021, "A Novel Hybrid Intelligent Prediction Model for Valley Deformation: A Case Study in Xiluodu Reservoir Region, China", *CMC-Computers Materials & Continua,* **66**(1), 1057–1074, doi:10.32604/cmc.2020.012537.

32. Zhen Wang, Huanling Wang, Weiya Xu, and Wei-Chau Xie, 2021, "Slope Stability Analysis Considering the Rotated Anisotropy in Soil Properties", *Engineering Computations*, **38**(7), 3021–3035, https://doi.org/10.1108/EC-05-2020-0248.

33. Donghui Lu, Susan Tighe, and Wei-Chau Xie, 2020, "Impact of Flood Hazards on Pavement Performance," *International Journal of Pavement Engineering*, **21**(6), 746-752, DOI: 10.1080/ 10298436.2018.1508844.

34. Huanling Wang, Shiqi Liu, Weiya Xu, Long Yan, Xiao Qu, Wei-Chau Xie, 2020, "Numerical Investigation on the Sliding Process and Deposit Feature of an Earthquake-Induced Landslide: A Case Study," *Landslides*, **17**(11), 2671–2682, https://doi.org/10.1007/ s10346-020-01446-y.

35. Zhipeng Xiang, Huanling Wang, Weiya Xu, Wei-Chau Xie, 2020, "Experimental Study on Hydro-Mechanical Behaviour of Anisotropic Columnar Jointed Rock-Like Specimens", *Rock Mechanics and Rock Engineering*, **53**(12), 5781–5794, https://doi.org/10.1007/s00603-020-02245-6.

36. Susheng Wang, Weiya Xu, Long Yan, Xia-Ting Feng, Wei-Chau Xie, Hongjie Chen, 2020, "Experimental Investigation and Failure Mechanism Analysis for Dacite under True Triaxial Unloading Conditions", *Engineering Geology*, **264** (2020) 105407, https://doi.org/10.1016/ j.enggeo.2019.105407.

37. QingXiang Meng, WeiYa Xu, HuanLing Wang, XiaoYing Zhuang, Wei-Chau Xie, Timon Rabczuk, 2020, "DigiSim—An Open Source Software Package for Heterogeneous Material Modeling Based on Digital Image Processing", *Advances in Engineering Software*, **148** (2020) 102836, https://doi.org/10.1016/j.advengsoft.2020.102836.

38. Shiqi Liu, Huanling Wang, Weiya Xu, Zhichao Cheng, Zhipeng Xiang, and Wei-Chau Xie, 2020, "Numerical Investigation of the Influence of Rock Characteristics on the Soil-Rock Mixture (SRM) Slopes Stability", *KSCE Journal of Civil Engineering*, **24**(11), 3247–3256, https://doi.org/10.1007/s12205-020-0034-1.

39. Shiqi Liu, Huanling Wang, Weiya Xu, Xiao Qu, and Wei-Chau Xie, 2020, "Numerical Brazilian Split Test of Pre-Cracked Granite with Randomly Distributed Micro-Components", *Engineering Computations*, DOI: 10.1108/EC-03-2019-0123.

40. Weiya Xu, Zhichao Cheng, Haibo Wang, Qingxiang Meng, Wei-Chau Xie, 2020, "Correlation between Valley Deformation and Water Level Fluctuations in High Arch Dam", *European Journal of Environmental and Civil Engineering*, https://doi.org/10.1080/ 19648189.2020.1763851.

41. Yue Li, Weiya Xu, Wei-Chau Xie, Qiang Zhang, Qingxiang Meng, 2020, "Experimental Study on the Unsaturated-Saturated Seepage Characteristics of Slip Soil in Landslide Deposits", *Rock and Soil Mechanics*, August 2020, 1000-7598-(2020)02-0304-03.

42. Weijie Zhou, Weiya Xu, Yu Ning, Haibin Xiao, and Wei-Chau Xie, 2020, "Analytical Method of Stability Analyses of Toppling Rock Slopes Subjected to Flexural Toppling Failure Damage", *European Journal of Environmental and Civil Engineering*, https://doi.org/ 10.1080/19648189.2020.1763840.

43. Biao Li, Jianrong Xu, Weiya Xu, Huanling Wang, Long Yan, Qingxiang Meng, and Wei-Chau Xie, 2020, "Mechanism of Valley Narrowing Deformation during Reservoir Filling of a High Arch Dam", *European Journal of Environmental and Civil Engineering*, https:// doi.org/10.1080/19648189.2020.1763843.

44. Zihua Jiang, Huanling Wang, Jianrong Xu, Hongjie Chen, Wei-Chau Xie, 2020, "Variation of Permeability of Natural Filled Jointed Rock under Repeated Loading and Unloading Conditions", *European Journal of Environmental and Civil Engineering*, https://doi.org/10.1080/19648189.2020.1763846.

45. Biao Li, Weiya Xu, Long Yan, Jianrong Xu, Mingjie He, Wei-Chau Xie, 2020, "Effect of Shearing on Non-Darcian Fluid Flow Characteristics through Rough-Walled Fracture", *Water*, **12**(11), 3260; https://doi.org/10.3390/w12113260.

46. Jian Deng, Navjot S. Kanwar, Mahesh D. Pandey, Wei-Chau Xie, 2019, "Dynamic Buckling Mechanism of Pillar Rockbursts Induced by Stress Waves," *Journal of Rock Mechanics and Geotechnical Engineering*, **11**, 944–953, https://doi.org/10.1016/j.jrmge.2019.02.005.

47. Long Yan, Weiya Xu, Huanling Wang, Rubin Wang, Qingxiang Meng, Jun Yu, Wei-Chau Xie, 2019, "Drainage Controls on the Donglingxing Landslide (China) Induced by Rainfall and Fluctuation in Reservoir Water Levels," *Landslides*, **16**(8), 1583–1593, https://doi.org/10.1007/s10346-019-01202-x.

48. Lanlan Yang, Weiya Xu, Qingxiang Meng, Wei-Chau Xie, Huanling Wang, Mengcheng Sun, 2019, "Numerical Determination of RVE for Heterogeneous Geomaterials Based on Digital Image Processing Technology," *Processes*, **7**(6), 346; doi:10.3390/pr7060346.

49. Lanlan Yang, Wei-Chau Xie, Weiya Xu, Binh-Le Ly, 2019, "Generating Drift-Free, Consistent, and Perfectly Spectrum-Compatible Time Histories," *Bulletin of the Seismological Society of America*, **109**(5), 1674–1690, doi: 10.1785/0120190005.

50. Zhen Cai, Wei-Chau Xie, Mahesh D. Pandey, 2018, "Improving Seismic Margin Assessment Procedure Using Multiple Ground Motion Parameters," *Civil Engineering Research Journal,* **5**(1): 555652. DOI: 10.19080/CERJ.2018.05.555652.

51. Donghui Lu, Susan Tighe, and Wei-Chau Xie, 2018, "Pavement Risk Assessment for Future Extreme Precipitation Events under Climate Change," *Transportation Research Record*, DOI: 10.1177/0361198118781657.

52. Bo Li, Zhen Cai, Wei-Chau Xie, Mahesh Pandey, 2018, "Probabilistic Seismic Hazard Analysis Considering Site-Specific Effects," *Soil Dynamics and Earthquake Engineering*, **105**, 103-113, doi.org/10.1016/j.soildyn.2017.11.029.

53. Zhen Cai, Wei-Chau Xie, Mahesh D. Pandey, Shun-Hao Ni, 2018, "Determining Seismic Fragility of Structures and Components in Nuclear Power Plants Using Multiple Ground Motion Parameters – Part I: Methodology," *Nuclear Engineering and Design*, **335**, 195–201, doi.org/10.1016/j.nucengdes.2018.05.013.

54. Zhen Cai, Wei-Chau Xie, Mahesh D. Pandey, Shun-Hao Ni, 2018, "Determining Seismic Fragility of Structures and Components in Nuclear Power Plants Using Multiple Ground Motion Parameters – Part II: Application," *Nuclear Engineering and Design*, **335**, 186–194, doi.org/10.1016/j.nucengdes.2018.05.016.

55. Wei Jiang, Wei Liu, Wei-Chau Xie, Mahesh D. Pandey, 2017, "A Scaling Method for Generating Floor Response Spectra," *Annals of Nuclear Energy*, **110**, 613–632.

56. Bo Li, Binh-Le Ly, Wei-Chau Xie, Mahesh D. Pandey, 2017, "Generating Spectrum-Compatible Time Histories Using Eigenfunctions," *Bulletin of the Seismological Society of America*, **107**(3) 1512–1525, DOI: 10.1785/0120160206.

57. Xinzhi Liu, Kexue Zhang, and Wei-Chau Xie, 2017, "Consensus Seeking in Multi-Agent Systems via Hybrid Protocols with Impulse Delays," *Nonlinear Analysis: Hybrid Systems*, **25**, 90–98, http://dx.doi.org/10.1016/j.nahs.2017.03.002.

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