JIDONG ZHAO Curriculum Vitae

Jidong Zhao is Professor of Computational Geomechanics in the Department of Civil and Environmental Engineering and Director of Computational Granular Mechanics Lab at Hong Kong University of Science and Technology. He is holding a Chang Jiang Scholar Chair Professorship conferred by the Ministry of Education, China. He earned both his bachelor degree and PhD from Tsinghua University. Prior to joining HKUST in 2008, he spent five years, first as a research fellow and then a University Lecturer, at the University of Newcastle, Australia.

Dr Zhao's research has produced scalable computational approaches for rigorous simulation, analysis, and understanding of the complex multiscale mechanics and physics of granular media systems that underpin the operation and performance for key engineering and industrial processes. He establishes his signature on developing novel micromechanics models and computational multiscale modeling approaches for saturated or partially saturated granular media. His research helps to elucidate the intimate cross-scale connections between grain-scale and pore-scale physics (including particle morphology, frictional contact, sliding and rolling, and multi-phase pore fluid flows) and emerging phenomena at a continuum level (such as strain localisation, liquefaction, anisotropy, collapse and failure, phase transitions) in granular media. The computational approaches developed offer next-generation prediction and design tools in mitigating major geohazards including foundation and embankment failures, landslide and debris flow, and directing viable solutions to addressing major challenges in climate change and energy crisis, including deep underground carbon sequestration, safe and efficient offshore energy recovery (e.g., methane gas hydrate), thawing induced permafrost melting. Effort has been made to integrate all his computational tools to provide an integrated, physics-based scientific computing platform, empowered further by data science, machine learning and sensing technology, on futuristic digit twin realisations for engineering and industrial processes. His research team has also made promising progresses in providing paradigm-shifting computational solutions to metal additive manufacturing and pharmaceutical tablet manufacturing. His research is funded by the Research Grants Council of Hong Kong, National Natural Science Foundation of China, Croucher Foundation, K.C. Wong Education Foundation, and among others. He has authored over 130 papers in peer-reviewed journals and 120 conference papers which attract 7,100+ citations in Google Scholar with a h-index of 44. He has advised over 20 graduate students (including 15 PhD students) and 18 postdoc fellows.

Dr Zhao is currently serving as co-editor for Computers and Geotechnics (Elsevier), editor for Granular Matter (Springer), and associate editor for Journal of Engineering Mechanics (ASCE). He also serves on editorial board for International Journal for Numerical and Analytical Methods in Geomechanics (Wiley), Acta Geotechnica (Springer) and Science Progress (SAGE). He regularly assesses grant applications for Australian Research Council (ARC), Natural Sciences and Engineering Research Council of Canada (NSERC), European Research Council (ERC), Poland National Science Centre (NCN), Chilean National Science and Technology Commission (CONICYT) and Research Grants Council of Hong Kong (RGC/HK). He is the immediate past Secretary for TC103 Numerical Methods in Geomechanics and is a core committee member of TC105 Micromechanics of ISSMGE and Engineering Mechanics Institute (EMI) Granular Materials Committee. He has been awarded Excellent Ph.D. thesis Award of Tsinghua University (2002), University of Newcastle Research Fellowship Award (2007), "Scott Sloan Best Paper Award 2018" and "Scott Sloan Best Paper Award 2021", Granular Matter "Top 5 Cited Articles" Award (2018), JSPS Invitational Fellowship (2023). In 2021, he received a first-class in natural science for the MOE Higher Education Outstanding Scientific Research Output Award (Science and Technology) and was conferred the Chang Jiang Scholar Chair Professorship by MOE. He teaches both undergraduate and postgraduate level geotechnical courses at HKUST.

CONTACT

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EDUCATION

1997-2002 Ph.D. in Geotechnical Engineering, Tsinghua University
1992-1997 Bachelor in Hydraulic Engineering, Tsinghua University

EMPLOYMENT

07/2020–Present Professor, Department of Civil & Environmental Engineering, HKUST
01/2015–06/2020 Associate Professor, Department of Civil & Environmental Eng., HKUST
09/2008–12/2014 Assistant Professor, Department of Civil & Environmental Eng., HKUST
01/2007–09/2008 Lecturer, Dept of Civil & Environ. Eng., Uni. of Newcastle, Australia
07/2003–12/2006 Research Fellow, Dept. of Civil & Environ Eng., Uni. of Newcastle, Australia
02/2003–06/2003 Research Associate, Civil & Structural Eng., Hong Kong Polytechnic University
09/1997–07/2002 Research Assistant, Dept of Hydraulic Eng., Tsinghua University, Beijing

AWARDS, EDITORSHIPS & RECOGNITIONS

2024 Appointed to be **Co-Editor-In-Chief** for *Computers and Geotechnics* (Elsevier)
2023 JSPS International Invitational Fellowship
2023 Invited Contribution for *Nature Reviews Physics*
2022 Scott Sloan Best Paper Award 2021 (*Computers and Geotechnics*, Elsevier)
2021 Natural Science Award (first class), Ministry of Education, PR China
2021 Chang Jiang Scholar Chair Professor, Ministry of Education, PR China
2020 Co-Editor for *Computers and Geotechnics* (Elsevier)
2019 Associate Editor for *Journal of Engineering Mechanics* (ASCE)
2019 Editorial board: *Acta Geotechnica*, *Int. J. Numer. Analy. Meth. Geomech.*, *Science Progress*
2018 Editor for *Granular Matter* (Springer Nature)
2012 Editorial board for *Computers and Geotechnics* (Elsevier)
2019 Scott Sloan Best Paper Award 2018 (*Computers and Geotechnics*, Elsevier)
2018 2018 Outstanding Paper Award *Computers and Geotechnics* (Elsevier)
2018 Top 5 Cited Articles Award for *Granular Matter* (Springer Nature)
2016 K.C. Wong Education Foundation Academic Exchange Award
2007 University of Newcastle Research Fellowship Award (Australia)
2002 Excellent PhD Thesis Award of Tsinghua University (China)
1992-2002 Miscellaneous scholarships and awards at Tsinghua University (China)

SELECTIVE KEYNOTE/THEME LECTURES

2024 14th International Symposium on Landslides, Chambery, France, 8-12 July 2024

2023 X International Conference of Computational Methods for Coupled Problems in Science and Engineering, Chania, Crete, Greece, 5-7 June 2023

2023 International Symposium on "Numerical Analysis of Geomaterials", Assisi, Italy, 9-12 May 2023

2023 14th National Conference on Numerical and Analytical Methods in Geomechanics, Wuhan, China, 7-9 Apr 2023

2022 17th Symposium of Earthquake Engineering (17SEE), IIT Roorkee, India, 14-17 Nov 2022

2022 Beijing Jiao Tong University "Frontier of Geotechnical Engineering Open Lecture", Invited 3-hour Online Lecture, 13 Nov 2022

2022 4th International Conference on Performance-based Design in Earthquake Geotechnical Engineering (PBD-IV), Beijing, 15-17 July 2022

2022 International Symposium of Intelligent Geotechnics, Hong Kong, 10-11 June 2022

2022 HKSTAM Distinguished Lecture, Hong Kong, 23 April 2022

2022 Special Invited Lecture by National Central Facility for Earthquake Engineering Simulation, Tianjin University, 17 April 2022

2022 **State of the Art (SOA) Lecture**, Geo-congress 2022, NC, USA, 20-23 Mar 2022

2021 International Workshop on Computational Mechanics of Granular Materials, Belarusian State University and Dalian University of Technology, 23 Dec 2021

2021 Annual Workshop on "Marine Geology and Carbon Sequestration", Key Laboratory of Zhejiang Province on Marine Geology and Resources, 25 Dec 2021

2021 3rd International Symposium on Computational Particle Technology (CPT 2021), Melbourne and Suzhou (hybrid mode), 17-21 Nov 2021

2021 2021 Westlake International Symposium in Engineering (WISE 2021), Hangzhou, 26-27 Oct 2021

2021 VII International Conference on Particle-based Methods (PARTICLES 2021), Hamburg, Germany, 4-6 Oct 2021

2021 9th Machine-Ground Interaction Consortium Meeting (MaGIC 2021), Grainger Institute for Engineering, University of Wisconsin-Madison, 21-23 Sep 2021.

2021 Second International Workshop on Numerical Simulation Methods for Large Deformation Problems in Geotechnical Engineering **(**2nd INLGEO), Shanghai, China, 18-19 September 2021

2021 Special invited "Water Science Lecture" by State Key Laboratory of Water Resources and Hydropower Engineering Science (Wuhan University), Wuhan, 28 Aug 2021

2021 Powders and Grains 2021, Buenos Aires, Argentina, 5-9 July 2021

2021 Int'l Research Network GeoMech Online Symposium, Twente, 18-19 Jan 2021

2020 IAS Workshop on Emerging Scales in Granular Media, Hong Kong, 14-16 Jan 2020

2019 DEM 8, Twente, Enschede, Netherland, 21-26 July 2019 (held every 3 or 4 years)

2019 Chinesisch-Deutschen Zentrum für Wissenschaftsförderung Workshop "Granular phase transitions: from fundamentals to applications", Kloster Banz, Germany, 14-17 Apr 2019

2019 2019 Lorentz Center Workshop on "Granular Matter Across Scales", Leiden, Netherlands, 18-22 March 2019

2018 First International Symposium on Debris Flow Mechanisms and Mitigation for Sustainable Development, Hong Kong, 2 December 2018,

2018 4th National Conference on Computational Mechanics of Granular Materials (CMGM-2018), Xiamen, China, 6-8 July 2018

2018 2nd Yet Another Discrete Element (YADE) Workshop, Aix-en-Provence, 26-27 April 2018

2017 15th International Conference of International Association for Computer Methods and Advances in Geomechanics (15IACMAG), Wuhan, China, 19-23 October 2017

2017 11th International Workshop on Bifurcation and Degradation in Geomaterials (IWBDG), Limassol, Cyprus, 21-25 May 2017

2016 IAS Program on Computational & Mathematical Problems, Hong Kong, 25-29 January 2016

2016 International Symposium of Plasticity 2016, Big Island, Hawaii, 3-9 January 2016,

RESEARCH

Research Grants Awarded

(PI: Principal Investigator; Co-PI: Co-Principal Investigator; Co-I: Co-Investigator)

External Grants

2023 Research Grants Council of Hong Kong (RGC-HK), General Research Fund (GRF) #16203123: *Hybrid resolved-unresolved CFD-DEM coupling for multiscale modeling of complex fluid and granular flows*. HK$1,193,846. (**PI**)

2023 Research Grants Council of Hong Kong (RGC-HK), Collaborative Research Fund (CRF) #C7082-22G: *The Poshan drainage tunnel system as an intensively instrumented hillslope critical zone observatory to explore groundwater dynamics and its engineering and ecological implications*. HK$2,785,200. (**Co-PI**)

2022 Research Grants Council of Hong Kong (RGC-HK), General Research Fund (GRF) #16206322: *A combined physics-informed deep learning and multiscale modelling framework for simulation of thaw-induced landslide in permafrost*. HK$802,220. (Co-I)

2021 Research Grants Council of Hong Kong (RGC-HK), General Research Fund (GRF) #16211221: *Multiscale modeling of thermo-hydro-mechanical (THM) behavior in granular sediments for gas hydrate recovery*. HK$911,317. (**PI**)

2020 Research Grants Council of Hong Kong (RGC-HK), General Research Fund (GRF) #16208720: *Multiscale modeling of dynamic crushing of saturated granular materials*. HK$873,995. (**PI**)

2020 National Natural Science Foundation of China (NSFC), General Program Project #11972030: *A multi-scale multi-physics modeling framework accounting for fluid-particle-structure interactions for debris flow mitigation*, CNY 640,000. (**PI**)

2020 China National Postdoctoral Council under the Ministry of Human Resources and Social Security, Hong Kong Scholars Program by (HKSP) #HKSP20EG01: *Modeling of sandy marine deposits*, HK$360,000. (**PI**)

2020 PROCORE-France/Hong Kong Joint Research Travel Grant, #F-HKUST601/19: Multiscale Modeling of Granular soils in consideration of Realistic Grain Shapes (MuMoG). HK$45,000. (**PI**)

2019 Research Grants Council of Hong Kong (RGC-HK), General Research Fund (GRF) #16207319: Multiscale modeling of large deformation in offshore geotechnics, HK$748,300. (**PI**)

2019 K.C. Wong Education Foundation Conference Sponsorship Project KCWF20EG01: International Workshop on Emerging Scales in Granular Media, HK$153,600. (**PI**)

2019 Research Grants Council of Hong Kong (RGC-HK), General Research Fund (GRF) #16201419: Theoretical and experimental study of consolidation settlement of sandy marine deposits based on homogenization theory, HK$534,500. (**PI**)

2019 Croucher Foundation Conference/Seminar Sponsorship Project CF19EG02: International Workshop on Multiscale Modeling of Granular Matter, HK$100,000. (**PI**)

2018 Research Grants Council of Hong Kong (RGC-HK), General Research Fund (GRF) #16205418: Modelling entrainment, inter-phase mass exchange and surge dynamics of debris flows and their interaction with flexible barriers, HK$632,421. (**PI**)

2018 China National Postdoctoral Council under the Ministry of Human Resources and Social Security, Hong Kong Scholars Program by (HKSP) #HKSP18EG02: Multiscale modeling of granular media, HK$362,070. (**PI**)

2018 Research Grants Council of Hong Kong (RGC-HK), General Research Fund (GRF) #11214218: Micromechanical investigation of bonded granular geo-materials, HK$632,421. (Co-I)

2017 Research Grants Council of Hong Kong (RGC-HK), General Research Fund (GRF) #16210017: Hierarchical multiscale modelling of compaction localization in high-porosity sandstone, HK$582,000. (**PI**)

2016 Research Grants Council of Hong Kong (RGC-HK), General Research Fund Collaborative Research Fund (CRF) #C6012-15G: Coping with landslide risks in Hong Kong under extreme storms: storm scenarios, cascading landslide hazards and multi-hazard risk assessment, HK$6,236,628. (**Co-PI**)

2016 National Natural Science Foundation of China (NSFC), General Program Project #51679207: Multiscale modeling of granular sands considering particle morphology and pore water pressure, (PI) CNY 630,000.

2015 Research Grants Council of Hong Kong (RGC-HK), Theme-based Project #T22-603/15N: Understanding and mitigating debris flow risks for a sustainable Hong Kong, HK$33,200,000. (Co-I)

2014 Research Grants Council of Hong Kong (RGC-HK), General Research Fund (GRF) #17200114: An experimental approach to map changes in soil particle morphology, HK$500,000. (Co-I)

2012 Research Grants Council of Hong Kong (RGC-HK), General Research Fund (GRF) #623211: Characterization of Thermal Failure in Natural Soils, HK$783,374. (**PI**)

2011 Research Grants Council of Hong Kong (RGC-HK), General Research Fund (GRF) #622910: Towards a Statistical Mechanics Based Theory for Granular Plasticity, HK$772,800. (**PI**)

2010 Research Grants Council of Hong Kong (RGC-HK), General Research Fund (GRF) #623609: Micro–macro computational modeling of collapse problems in geomaterials, HK$1,108,600. (**PI**)

Internal Grants

2023 HKUST Distinguished Civil & Environmental Engineering Workshop Fund, HK$100,000. (**PI**)

2023 UGC Research Infrastructure Innovative Exploratory Grant (IEG22EG01): Digital Twin for Laser Melt Jetting in Metal Additive Manufacturing. HK$532,720. (**PI**)

2021 HKUST Development Grant for New Group Research Project. HK$200,000. (**PI**)

2021 UGC Research Matching Grants (RMGS20EG11/12). HK$51,947. (**PI**)

2021 HKUST Research Infrastructure Match Grant for RGC GRF. HK$30,000. (**PI**)

2020 HKUST Research Infrastructure Match Grant for RGC GRF. HK$30,000. (**PI**)

2019 HKUST Distinguished Civil & Environmental Engineering Workshop Fund, HK$100,000. (**PI**)

2019 HKUST Research Infrastructure Match Grant for RGC GRF #16201419. HK$30,000. (**PI**)

2019 HKUST Research Infrastructure Match Grant for RGC GRF #16205418. HK$30,000. (**PI**)

2019 HKUST Sponsorship Scheme for Targeted Strategic Partnership Waterloo Project FB907, HK$90,000. (**PI**)

2018 HKUST Research Infrastructure Match Grant for RGC GRF #16210017. HK$30,000. (**PI**)

2017 UROP Research Grant: Computer Visualization of Sand Grains, HK$5,000. (**PI**)

2014 Research Equipment Competition #REC09/10.EG01: A heterogeneous, high-performance CPU-GPU cluster for big data and computational sciences research, HK$1,408,000 (**Co-I**)

2013 RGC DAG #DAG13EG04S: The mechanics and failure mechanisms of fiber-reinforced sand. 2013-2014. HK$50,700. (**PI**)

2013 HKUST Research Infrastructure Grant – match of near-miss GRF grant #FSGRF14EG22: An advanced theoretical and experimental investigation of the anisotropic strength and deformation characteristics of fiber-reinforced sand, HK$50,000. (**PI**)

2012 HKUST Research Infrastructure Grant – match of near-miss GRF grant #FSGRF13EG13: The mechanics and failure mechanism of fibre-reinforced sand, HK$105,000. (**PI**)

2012 HKUST Postdoc Fellowship Matching Fund: Thermal Failure in Natural Soils and Geostructures Impacted by Climate Change, HK$162,000. (**PI**)

2009 HKUST Postdoc Fellowship Matching Fund: Anisotropy and Critical State in Granular Materials, HK$162,000. (**PI**)

2009 Research Equipment Competition #REC09/10.EG01: *An Integrated Multi-Axial Testing System for Critical Study of Failures in Soils and Geo-structures*, HK$765,000. (**PI**)

2009 Research Equipment Competition #REC09/10.EG06: *A Cloud-computing Center for Supporting Large-scale Computation in Multidisciplinary Research*, HK$730,000. (Co-I)

2008 RGC/DAG #DAG08/09.EG04: *Experimental and Numerical Shakedown Analysis of Asphalt Pavements in Hong Kong*, HK$253,400. (**PI**)

2008 School of Engineering #SBI08/09.EG02: *Micromechanics-based Modeling of Collapse in Soils and Earth Structures*, HK$300,000. (**PI**)

Past Grants

2008 Australian Research Council Discovery Project (ARC-DP) #DP0879178: *Multi-scale modeling of collapse problems in geo-materials by strain gradient plasticity*, AU$120,000. (**PI**)

2007 Research Grant Committee of University of Newcastle, University Research Fellowship #P018115: *Theoretical and numerical analyses of instabilities in geomaterials and geotechnical engineering*, (five-year project) AU$521,270. (**PI**)

2006 Travel grants by Research Grant Committee of University of Newcastle, AU$15,000. (**PI**)

Scholarly Publications

(# Research student; † Postdoc fellow)

Citation Metrics (as of 17 Sep 2023)

	Google Scholar	Scopus	Web of Science
Citations	**7,178**	**5,714**	**5,023**
H-index	**44**	**41**	**39**

Edited Book

1 Chau K.T., Zhao J.D. (2015). Bifurcation and Degradation of Geomaterials in the New Millennium (Proceedings of the 10th International Workshop on Bifurcation and Degradation in Geomaterials). Springer Series in Geomechanics and Geoengineering. Springer Heidelberg, Berlin, Germany. Print ISBN: 978-3-319-13505-2; Online ISBN: 978-3-319-13506-9.
doi: https://doi.org/10.1007/978-3-319-13506-9.

Book Chapters

1 Liang W.J.[#], Zhao J.D., Soga K. (2021). Multiscale modeling of anchor pull-out in sand. In Barla M., Di Donna A. and Sterpi D. (eds.) *Challenges and Innovations in Geomechanics: Proceedings of the 16th International conference of IACMAG* – Volume 1. Springer Nature Switzerland AG, Gewerbestrasse, Switzerland. pp. 787-793.
doi: https://doi.org/10.1007/978-3-030-64514-4_84.

2 Zhao J.D., Liang W.J.[#] (2018). Multiscale modeling of large deformation in geomechanics: a coupled MPM-DEM approach. In Wu, W. & Yu, H.S. (eds.) *Proceedings of China-Europe Conference on Geotechnical Engineering*. Springer Series in Geomechanics and Geoengineering. Springer Nature Switzerland AG, Gewerbestrasse, Switzerland. pp. 449-452.
doi: https://doi.org/10.1007/978-3-319-97112-4_101 .

3 Zhu F.[#], Zhao J.D. (2018). Simulation of one-dimensional compression of sand considering irregular grain shapes and grain breakage. Wu, W. and Yu, H.S. (eds.) *Proceedings of China-Europe Conference on Geotechnical Engineering*. Springer Series in Geomechanics and Geoengineering. Springer Nature Switzerland AG, Gewerbestrasse, Switzerland. pp 279-282.
doi: https://doi.org/10.1007/978-3-319-97112-4_63 .

4 Zhao J.D. (2017). Hierarchical Multiscale Modeling of Strain Localization in Granular Materials: A Condensed Overview and Perspectives. Papamichos E, Papanastasiou P, Pasternak E. and Dyskin A. (eds.) *Bifurcation and Degradation of Geomaterials with Engineering Applications*. Springer Series in Geomechanics and Geoengineering. Springer Heidelberg, Berlin, Germany. pp 349-359. Chapter doi: https://doi.org/10.1007/978-3-319-56397-8_44.

5 Wu H.R.[#], Guo N.[†], Zhao J.D. (2017). Borehole instabilities in granular rocks revisited: A multiscale perspective In: Papamichos E, Papanastasiou P, Pasternak E. and Dyskin A. (eds.) *Bifurcation and Degradation of Geomaterials with Engineering Applications. Springer Series in Geomechanics and Geoengineering*. Springer Heidelberg, Berlin, Germany. pp 433-439.
Chapter doi: https://doi.org/10.1007/978-3-319-56397-8_54 .

6 Guo N.[#], Zhao J.D. (2015). A multiscale investigation of strain localization in cohesionless sand. In: Chau K.T. & Zhao J.D. (eds.) *Bifurcation and Degradation of Geomaterials in the New*

Millennium. Springer Series in Geomechanics and Geoengineering. Springer Heidelberg, Berlin, Germany. pp 121-126.

Chapter doi: https://doi.org/10.1007/978-3-319-13506-9_18 .

7 Gao Z.W.[#], Zhao J.D. (2015). Fabric Evolution and its affects on strain localization in sand? In: Chau K.T. & Zhao J.D. (eds.) *Bifurcation and Degradation of Geomaterials in the New Millennium*. Springer Series in Geomechanics and Geoengineering. Springer Heidelberg, Berlin, Germany. pp 21-26. Chapter doi: https://doi.org/10.1007/978-3-319-13506-9_4.

8 Zhao J.D., Guo N.[#] (2015). Bridging micro and macro in granular media: A computational multiscale paradigm. In K. Soga, K. Kumar, G. Biscontin and M. Kuo (Eds.) *Geomechanics from Micro to Macro*, CRC Press, Taylor & Francis, London. Vol. 1, pp. 747-752.

Chapter doi: https://doi.org/10.1201/b17395-134 .

9 Liu Z.C.[#], Zhao J.D., Mollon G.[†](2015). The influence of particle shape for granular media: A Fourier-shape-descriptor-based micromechanical study. K. Soga, K. Kumar, G. Biscontin and M. Kuo (Eds.) *Geomechanics from Micro to Macro*, CRC Press, Taylor & Francis, London. Vol. 1, pp. 237-242.

Chapter doi: https://doi.org/10.1201/b17395-41 .

10 Gao Z.W.[#], Zhao J.D., Li X.S., Dafalias Y.F. (2015). Constitutive modeling of fabric anisotropy in sand. K. Soga, K. Kumar, G. Biscontin and M. Kuo (Eds.) *Geomechanics from Micro to Macro*. CRC Press, Taylor & Francis, London. Vol. 1, pp. 621-626.

Chapter doi: https://doi.org/10.1201/b17395-111 .

11 Zhao J.D., Gao Z.W.[#] (2014). Modelling non-coaxiality and strain localisation in sand the role of fabric and its evolution. In F. Oka, A. Murakami, R. Uzuoka and S. Kimoto (Eds.) *Computer Methods and Recent Advances in Geomechanics*. CRC Press, Taylor & Francis, London. pp. 1367-1372.

Chapter doi: https://doi.org/10.1201/b17435-241 .

12 Zhao J.D., Guo N.[#], Li X.S. (2013). Unique quantification of critical state in granular media considering fabric anisotropy. In: Yang, Q., Zhang, J.M., Zheng, H. and Yao Y. (eds.) *Constitutive Modeling of Geomaterials: Advances and New Applications*. Springer Series in Geomechanics and Geoengineering. Springer Heidelberg, Berlin, Germany. pp.247-252.

Chapter doi: https://doi.org/10.1007/978-3-642-32814-5_31 .

13 Zhao J.D., Shan T.[#] (2013). Discrete modeling of fluid-particle interaction in soils. In: Yang, Q., Zhang, J.-M., Zheng, H. and Yao Y. (eds.) *Constitutive Modeling of Geomaterials: Advances and New Applications*. Springer Series in Geomechanics and Geoengineering. Springer Heidelberg, Berlin, Germany. pp. 297-301.

Chapter doi: https://doi.org/10.1007/978-3-642-32814-5_40 .

14 Gao Z.W.[#], Zhao J.D. (2013). Modeling the dilatancy of overconsolidated clay. In: Yang, Q., Zhang, J.M., Zheng, H. and Yao Y. (eds.) *Constitutive Modeling of Geomaterials: Advances and New Applications*. Springer Series in Geomechanics and Geoengineering. Springer Heidelberg, Berlin, Germany. pp. 541-545.

Chapter doi: https://doi.org/10.1007/978-3-642-32814-5_73 .

15 Zhao J.D., Guo N.[#] (2011). Signature of anisotropy in liquefiable sand under undrained shear. In Boneli, S., Dascalu, C. and Nicot, F. (eds.) *Advances in Bifurcation and Degradation in Geomaterials*. Springer Series in Geomechanics and Geoengineering. Springer Dordrecht, Netherlands. pp.45-51.

Chapter doi: https://doi.org/10.1007/978-94-007-1421-2_6 .

16 Guo N.[#], Zhao J.D. (2011). Bimodal Character of Induced Anisotropy in Granular Materials under Undrained Shear. In M.J. Jiang, F. Liu and M. Bolton (Eds.) *Geomechanics and Geotechnics: From Micro to Macro*. CRC Press, Taylor & Francis, London. pp. 513-517.
Chapter doi: https://doi.org/10.1201/b10528-83 .

17 Zhao J.D., Sheng, D.C., Sloan, S.W. (2007). Microstructural Effects on Cavity Expansion of Soil Cylinder. In S. Pietruszczak and G.N. Pande (Eds.) *Numerical Models in Geomechanics*. Taylor & Francis, London. pp. 715-720.
Chapter doi: https://doi.org/10.1201/NOE0415440271.ch103 .

International Journal Articles

2023

1 Yu J.D., Zhao J.D., Liang W.J., Zhao S.W. (2023). A semi-implicit material point method for coupled thermos-hydro-mechanical simulation of saturated porous media in large deformation. *Computer Methods in Applied Mechanics and Engineering*. Accepted.
doi: tbc.

2 Zhao J.D., Zhao S.W., Luding S. (2023). The role of particle shape in computational modelling of granular matter. *Nature Reviews Physics*. 5: 505-525.
doi: 10.1038/s42254-023-00617-9 .

3 Zhao S.W., Zhao J.D. (2023). Revolutionizing granular matter simulations by high-performance ray tracing discrete element method for arbitrarily-shaped particles. *Computer Methods in Applied Mechanics and Engineering*. 416: 116370.
doi: 10.1016/j.cma.2023.116370.

4 Li Y.T., Guo N., Yang Z.X., Zhao J.D. (2023). A fully resolved smoothed particle hydrodynamics-discrete element method study of the rheology of suspensions: the role of inertia and grain shape. *Physics of Fluids*. 35(8): 083325. (Editor's Pick)
doi: 10.1063/5.0161344.

5 Lai Z.S., Zhao J.D., Zhao S.W., Huang L.C. (2023). Signed distance field enhanced fully resolved CFD-DEM for simulation of granular flows involving multiphase fluids and irregular-shaped particles. *Computer Methods in Applied Mechanics and Engineering*. 414: 116195.
doi: 10.1016/j.cma.2023.116195.

6 Ku Q., Zhao J.D., Mollon G., Zhao S.W. (2023). Compaction of highly deformable cohesive granular powders. *Powder Technology*. 421: 118455.
doi: 10.1016/j.powtec.2023.118455 .

7 Qu T.M., Guan S.H., Feng Y.T., Ma G., Zhou W., Zhao J.D. (2023). Deep active learning for constitutive modelling of granular materials: From representative volume elements to implicit finite element modelling. *International Journal of Plasticity*. 164: 103576.
doi: 10.1016/j.ijplas.2023.103576.

8 Huang S., Huang L.C., Lai Z.S., Zhao J.D. (2023). Morphology characterization and discrete element modelling of coral sand with intraparticle voids. *Engineering Geology*. 315: 107023.
doi: 10.1016/j.enggeo.2023.107023.

9 Zhao S.W., Lai Z.S., Zhao J.D. (2023). Leveraging ray tracing cores for particle-based simulations on GPUs. *International Journal for Numerical Methods in Engineering*. 124(3): 696-713.

doi: https://doi.org/10.1002/nme.7139.

10 Liang W.J., Zhao J.D., Wu H.R., Soga K. (2023). Multiscale, multiphysics modeling of saturated granular materials in large deformation. *Computer Methods in Applied Mechanics and Engineering*. 405: 115871.

doi: https://doi.org/10.1016/j.cma.2022.115871 .

11 Chen H., Zhao S.W., Zhao J.D., Zhou X.W. (2023). DEM-enriched contact approach for material point method. *Computer Methods in Applied Mechanics and Engineering*. 404: 115814.

doi: https://doi.org/10.1016/j.cma.2022.115814 .

12 Zhao S.W., Chen H., Zhao J.D. (2023). Multiscale modeling of freeze-thaw behavior in granular media. *Acta Mechanica Sinica*. 39: 722195.

doi: https://doi.org/10.1007/s10409-022-22195-x .

2022

13 Kong Y., Li X.Y., Zhao J.D., Guan M.F. (2022). Load deflection of flexible ring net barrier in resisting debris flows. *Géotechnique*. Published online.

doi: https://doi.org/10.1680/jgeot.22.00135 .

14 Kong Y., Guan M.F., Li X.Y., Zhao J.D., Yan H.C. (2022). Bi-linear Laws Govern the Impacts of Debris Flows, Debris Avalanches and Rock Avalanches on Flexible Barrier. *Journal of Geophysical Research: Earth Surface*. 127(11): e2022JF006870.

doi: https://doi.org/10.1029/2022JF006870 .

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85 Zhao J.D., Shan T. (2013). A coupled CFD-DEM investigation of granular flow impacting on water reservoir. In Wang G.L. (ed.) Frontier on Structure Analysis and Earthquake Engineering for High Dams (Workshop celebrating the 80th Birthday of Prof Chuhan Zhang of Tsinghua University. Tsinghua, Beijing, China, 9-10 Oct 2013), pp.127-133.

86 Zhao J.D., Shan T. (2013). The impact of granular flow on a water reservoir - a coupled CFD-DEM study. In Mustoe, G. (ed.) DEM 6: Proceedings of the 6th International Conference on Discrete Element Methods and Related Techniques (Colorado School of Mines, USA, August 5-6, 2013), pp.505-510.

87 Zhao J.D., Mollon G. (2013). A statistically-based approach to reproduce sand particles for discrete modeling. Experimental Micromechanics for Geomaterials, Hong Kong, 23-24 May 2013.

88 Liu Z.C., Zhao J.D. (2013). Correlation of inter-particle friction with global friction and dilation in dense granular media. The 17th Annual Conference of HKSTAM in conjunction with the 9th Jiangsu – Hong Kong Forum on Mechanics and Its Application and the 3rd Symposium on the Development of Mechanics in Macau. Hong Kong and Macau, 22-23 March 2013.

89 Zhao J.D., Guo N. (2013). A new definition on critical state of granular media accounting for fabric anisotropy. Powders and Grains 2013: AIP Conference Proceedings 1542, 229-232.
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doi: https://doi.org/10.1063/1.4812158 .

2012

92 Zhao J.D., Shan T. (2012). Discrete modeling of fluid-particle interaction in granular media. In X.K. Li et al. (Eds.) Advances in Computational Mechanics of Granular Materials – Proceedings of 2012 National Conference on Computational Mechanics of Granular Materials (CMGM-2012), Hunan, China, 16-18 Sept 2012. (Keynote speech). Published by Dalian University of Technology Press, pp. 35-40.

93 Mollon G., Zhao J.D. (2012). Realistic generation and packing of DEM sand samples. The 2012 International conference on Geomechanics and Engineering (ICGE'12). Seoul, Korea, 26-29 August 2012.

94 Zhao J.D., Guo N. (2012). A micromechanical study on the shear strength in granular materials: the role of particle shape. The 23rd International Congress of Theoretical and Applied Mechanics (ICTAM2012). Beijing, China, 19-24 August 2012.

95 Shan T., Zhao J.D. (2012). The role of water on the pressure dip in sand piles. The 23rd International Congress of Theoretical and Applied Mechanics (ICTAM2012). Beijing, China, 19-24 August 2012.

96 Zhao J.D., Shan T. (2012). Characteristics of sandpile formed in water. 8th European Solid Mechanics Conference. Graz, Austria, 9-13 July 2012.

97 Gao Z.W., Zhao J.D. (2012). Characterization of strength anisotropy of fiber-reinforced sand. In Lu W.Z and Wang J.F (eds) Proceedings of the 16th Annual Conference of Hong Kong Society of Theoretical and Applied Mechanics (HKSTAM). Hong Kong, 17 March 2012, pp. 15.

98 Kong Y.X., Yao Y.P., Zhao J.D. (2012). Modeling the anisotropic effects with extended UH model for soils. In Lu W.Z and Wang J.F (eds) Proceedings of the 16th Annual Conference of Hong Kong Society of Theoretical and Applied Mechanics (HKSTAM). Hong Kong, 17 March 2012, pp. 33.

99 Liu F.T., Zhao J.D. (2012). RFEM-based limit analysis of slope stability by linear programming. In Lu W.Z and Wang J.F (eds) Proceedings of the 16th Annual Conference of Hong Kong Society of Theoretical and Applied Mechanics (HKSTAM). Hong Kong, 17 March 2012, pp. 62.

100 Shan T., Zhao J.D. (2012). Pressure dip of conical sand pile formed in water. In Lu W.Z and Wang J.F (Eds.) Proceedings of the 16th Annual Conference of Hong Kong Society of Theoretical and Applied Mechanics (HKSTAM)., Hong Kong, 17 March 2012, pp. 63.

2011

101 Zhao J.D., Shan T. (2011). A coupled CFD/DEM study on sandpile formation in water. Third International Symposium on Computational Mechanics (ISCM III) in conjunction with Second Symposium on Computational Structural Engineering (CSE II). Taipei, Taiwan, 5-7 Dec 2011.

102 Zhao J.D. (2011). A revisit to the shakedown of pavements under moving surface loads. 14th Pan-American Conference on Soil Mechanics and Geotechnical Engineering in conjunction with 64th Canadian Geotechnical Conference. Toronto, Ontario, Canada, 2-6 Oct 2011.

103 Zhao J.D., Guo N. (2011). Characteristics of shear-induced anisotropy in granular media. 11th U.S. National Congress on Computational Mechanics (USNCCM-11). Minneapolis, Minnesota, USA, 25-28 July 2011.

104 Liu F.T., Zhao J.D., Fan Y.H., Yin J.H. (2011). Upper-bound limit analysis of soil slope stability based on RPIM meshless method. In Y.Q. Ni, J.H. Yin and X.W. Ye (Eds.) Proceeding of the 5th Cross-strait Conference on Structural and Geotechnical Engineering. Hong Kong, China, 13-15 July 2011, pp.337-346.

105 Gao Z.W., Zhao J.D. (2011). Constitutive characterization of strength and deformation for natural clay and cemented sand. 14th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering: Soil Mechanics and Geotechnical Engineering – Challenges and Solutions. Hong Kong, 23-27 May 2011.

106 Zhao J.D., Gao Z.W., Yao Y.P. (2011). A general failure criterion for geomaterials with cross anisotropy. 2nd International Symposium on Computational Geomechanics (ComGeoII). Cavtat-Dubrovnik, Croatia, 27-29 April 2011.

107 Gao Z.W., Zhao J.D. (2011). The strength and constitutive behavior of geomaterials with cross anisotropy. The 15th Annual Conference of Hong Kong Society of Theoretical and Applied Mechanics (HKSTAM). Hong Kong and Macau, 11-12 March 2011.

108 Zhao J.D., Guo N. (2011). The role of anisotropy in characterizing the states of liquefaction, phase transformation and critical state in granular media. The 15th Annual Conference of Hong Kong Society of Theoretical and Applied Mechanics (HKSTAM). Hong Kong and Macau, 11-12 March 2011.

2010

109 Zhao J.D. (2010). Cavity expansion in gradient dependent media. In (A.K. Soh and C.O. Ng Eds.) Proceedings of the 13th Annual Conference of Hong Kong Society of Theoretical and Applied Mechanics in Conjunction with the 5th Jiangsu-Hong Kong Forum on Mechanics and Its Application. Hong Kong & Macau, 13-14 March 2010.

2009

110 Zhao J.D. (2009). Shakedown of pavements under moving surface loads: revisited. 7th Shanghai-HK Forum on Mechanics & Its Application. Shanghai, China, 4 July 2009.

2008

111 Zhao J.D., Sloan S.W., Sheng D.C. (2008). Finite element modeling the behavior of an embankment on soft clay using a structured soil model. In Yao Y.P. (ed.) The first National Conference on Constitutive Theory for Geomaterials. Beijing, China5-7, Nov 2008.

112 Zhao J.D., Sloan S.W., Carter J.P. (2008). Evaluation of Elastic Properties of Micro-cracked Rocks Based on Micromechanical Considerations. First Southern Hemisphere International Rock Mechanics Symposium (SHIRMS). Perth, Australia, 16-19 Sept 2008.

113 Zhao J.D., Lyamin A.V., Sloan S.W. (2008). Shakedown analysis of cohesive-frictional non-homogeneous soils under moving surface loads. The 12th International Conference of International Association of Computer Methods and Advances in Geomechanics (IACMAG). Goa, India, 1-6 October 2008.

114 Zhao J.D., Lyamin A.V., Krabbenhoft K., Sloan S.W. (2008). Bounds for shakedown of cohesive-frictional materials under moving surface loads. The 14th International Symposium on Plasticity and its Current Applications. Kona Hawaii, USA, January 3-8, 2008.

2007

115 Zhao J.D., Sheng D.C., Sloan S.W. (2007). Gradient dependent limit theorems for elastoplastic geomaterials, International Workshop on Constitutive Modeling-Development, Implementation, Evaluation, and Application. Hong Kong, China, 12-13 January 2007.

1999 - 2006

116 Zhao J.D., Sheng D.C., Abbo A.J., Sloan S.W. (2006). Effect of clay structure degradation on settlement of embankment. Australian Geomechanics Society Sydney Chapter Mini-Symposium: Soft Ground Engineering. 11 October 2006, Sydney, Australia.

117 Sheng D.C., Zhao J.D., Rouainia M. (2005). Use of a structure model in analysis of trial embankments on soft clay. The 11th International Conference of the International Association of Computer Methods and Advances in Geomechanics. Torino, Italy, 19-24 June 2005.

118 Rouainia M., Sheng D.C., Zhao J.D. (2005). Influence of structure degradation on the behaviour of embankments on soft soil. 13th ACME Conference. University of Sheffield, UK, 21-22 March 2005.

119 Zhao J.D., Sheng D.C., Rouainia M. (2004). Finite element implementation for complex soil models. Computational Mechanics, WCCM VI in conjunction with APCOM'04. Beijing, China, 5-10 Sept 2004.

120 Chau K.T., Zhao J.D. (2004). Fluttering instability in geomaterials: really or fantasy? Computational Mechanics, WCCM VI in conjunction with APCOM'04. Beijing, China, 5-10 Sept 2004.

121 Chau K.T., Zhao J.D. (2003). Fluttering instability in pressure-sensitive dilatant solids. 2003 ASME Mechanics and Materials Summer meeting. Scottsdale, Arizona, USA, 17-21 June 2003.

122 Zhou W.Y., Zhao J.D., Yang Q., Chang S. (2003). Forward numerical model for microseismicity induced by hydraulic fracturing in rock. The 6th SEGJ (Society of Exploration Geophysicists of Japan) International Symposium-Imaging Technology. Tokyo, Japan, 22-24 January 2003.

123 Zhou W.Y., Liu Y.G., Zhao J.D. (2001). Rheological damage fracture model for slope stability analysis, in (S. Valliappan and N. Khalili eds.) Computational Mechanics-New Frontiers for New Millennium (APCOM'01). Sydney, Australia, Nov. 2001.

124 Zhou W.Y., Zhang J.S., Zhao J.D. (2000). Case history of the Three Gorges Dam in China. The 9th Conference of International Society for Rock Mechanics (ISRM). Paris, France, 10 Sept 2000.

125 Zhou W.Y., Zhao J.D., Yang R.Q. (2000). Stability analysis of Ertan Arch Dam and its prototype observation. GeoEng2000, Melbourne, Australia, 19-24 Nov 2000.

126 Zhou W.Y., Zhao J.D., Yang R.Q., Yang Q. (1999). Grouting effects at Ertan arch dam site. International conference on anchoring and grouting towards the new century. Guangzhou, China, 6-9 Oct 1999.

Publications – Others (thesis)

1 Zhao J.D. (2002). A strain-gradient enhanced damage model for geomaterials and its application to stability analysis for geotechnical engineering. Ph.D. thesis, Tsinghua University, Beijing, China.

2 Zhao J.D. (1999). A study on the percolation of fractured rock mass subjected to hydraulic fracturing. Master thesis, Tsinghua University, Beijing, China.

Keynote Lectures & Invited Talks

2023

1 Zhao J.D. (2023). Challenges to multiscale, multiphysics modelling of granular media. Frontier Forum on Computational Mechanics of Granular Materials. Taiyuan, China, 19-23 July 2023 (Invited lecture).

2 Zhao J.D. (2023). Challenges and Opportunities for Computational Granular Mechanics. Wuhan University, China, 8 July 2023 (invited lecture).

3 Zhao J.D. (2023). Pathways of granular mechanics: from continuum, discrete to multiscale approaches. Huazhong University of Science and Technology, China, 7 July 2023 (invited lecture).

4 Zhao J.D. (2023). Modeling anisotropy of geomaterials: from constitutive modelling, micromechanics, to multiscale modelling. 2023 Workshop on "Fundamental Theories for Resilience of Deep Underground Space of Mega Cities"(超大城市深层地下空间韧性基础理论"研讨会), Tsinghua University, 2 July 2023 (Invited online lecture).

5 Zhao J.D. (2023). The present and future of computational granular mechanics. Department of Civil and Environmental Engineering, Imperial College London. 27 June 2023 (Invited lecture).

6 Zhao J.D., Yu T., Lai Z.S., Zhao S.W. (2023). Resolved/unresolved coupled CFD-DEM for simulation of particle-fluid-structure interaction problems. X International Conference of Computational Methods for Coupled Problems in Science and Engineering, Chania, Crete, Greece, 5-7 June 2023. (**theme keynote**)

7 Zhao J.D., Liang W.J., Soga K. (2023). Multiscale modeling of large deformation in saturated granular media. MPM Spring Workshop 2023. Aix-En-Provence. 2 June 2023. (Invited lecture)

8 Zhao J.D. (2023). Computational modelling of multiphase fluids interacting with irregularly-shaped granular particles. International Symposium on Numerical Analysis of Geomaterials. Assisi, Italy, 10-12 May 2023. (**Invited theme lecture**)

9 Zhao J.D. (2023). Challenges in computational multiscale modeling of granular media. 6th National Symposium on Continuum-Discontiuum Numerical Methods. Jinan, Shandong, 15-16 April 2023. (**Invited keynote**)

10 Zhao J.D. (2023). Coupled CFD-DEM approaches for geomechanics problems. 14th National Conference on Numerical and Analytical Methods in Geomechanics, Wuhan, China, 7-9 April 2023 (**Invited keynote**)

11 Zhao J.D. (2023). Challenges of climate change and energy crisis to computational geomechanics. Beijing Jiaotong University, 5 April 2023 (Invited lecture)

12 Zhao J.D. (2023). Computational modeling of the multiscale and multiphysics nature of granular materials. Institute of Mechanics, Chinese Academy of Science, 5 April 2023 (Invited lecture)

13 Zhao J.D. (2023). Multiphase, multiscale modeling of debris flow and its mitigation. Dept of Hydraulic and Hydropower Engineering, Tsinghua University, 4 April 2023 (Invited lecture)

2022

14 Zhao J.D. (2022). Multiscale modeling of the dynamic hydromechanical coupling behaviour in saturated granular media.17th Symposium of Earthquake Engineering (17SEE), IIT Roorkee, India, 14-17 Nov 2022 (**Invited keynote lecture**)

15 Zhao J.D. (2022). Multiscale mechanics of granular media. Beijing Jiaotong University "Frontier of Geotechnical Engineering Open Lecture" (3-hour Online Lecture), Beijing, 13 Nov 2022. (**Special invited lecture**)

16 Zhao J.D. (2022). Computational multiscale modelling of granular media for integrated civil engineering analysis and design. 3rd International Conference on Civil Engineering: Fundamentals and Applications (ICCEFA'22, online conference). 24-26 Oct 2022 . (**Invited keynote lecture**)

17 Zhao J.D. (2022). Computational multiscale granular mechanics: progresses and challenges. Hohai University International Inivited Lecture Series on "Dike and Dam Safety and Hazard Mitigation (河海大学堤坝工程安全与减灾学科创新引智基地系列报告会). 22 July 2022. (**Special invited lecture**)

18 Zhao J.D., Liang W.J., Zhao S.W., Soga K. (2022). Multiscale insights into dynamic behavior of saturated granular sand at large deformation. 4th International Conference on Performance-based Design in Earthquake Geotechnical Engineering. Beijing, China, 15-17 July 2022. (**Invited theme lecture**)

19 Zhao J.D., Zhao S.W. (2022). Multiscale modelling of thermos-mechanical coupling problems in granular media. International Symposium of Intelligent Geotechnics (online). Hong Kong, 10-11 June 2022. (**Invited keynote lecture**)

20 Zhao J.D. (2022). Multiscale, multiphysics modelling of granular materials. The 25th Annual Conference of HKSTAM 2022 in conjunction with the 17th Jiangsu-Hong Kong Forum on Mechanics and Its Application, Hong Kong, 23 April 2022. (**Distinguished keynote lecture**)

21 Zhao J.D. (2022). Multiscale, modelling of debris flows and their mitigation. Tianjin University (天津大学地震工程综合模拟创新基地智汇讲坛云讲座), 25 April 2022. (**Special invited lecture**)

22 Zhao J.D. (2022). **State of the Art Lecture** on "Micro Mechanics and Advances in DEM". Geo-Congress 2022, Charlotte, North Carolina, USA, 20-23 Mar 2022. (**Special keynote lecture invited once every 10 years**)

2021

23 Zhao J.D. (2021). Multiscale modelling of transition of deformation bands in high-porosity sandstone. 2021 Annual Workshop on "Marine Geology and Carbon Sequestration". Key Laboratory of Zhejiang Province on Marine Geology and Resources, Hangzhou, China 25 Dec 2021. (Invited lecture)

24 Zhao J.D. (2021). Numerical modeling of interwined evolution of grain size and shape in crushable granular media. International Workshop on Computational Mechanics of Granular Materials. Dalian, China, 23 Dec 2021 (online). (**Keynote lecture**)

25 Zhao J.D. (2021). Continuum-discrete coupling for multiscale modeling of granular media. The 3rd International Symposium on Computational Particle Technology. 17-21 November 2021, Suzhou (China) and Melbourne (Australia) (**Keynote lecture**).

26 Zhao J.D., Zhu F. (2021). Peridynamic simulation of continuous grain crushing in granular media. International Workshop of Smart Infrastructure Development towards Smart City. 20 Nov 2021, Shantou & Hong Kong (online) (invited talk).

27 Zhao J.D. (2021). Paradigm shift in computational modeling of granular media for geomechanics. 2021 Westlake International Symposium in Engineering (WISE 2021), Westlake University, Hangzhou, China, 26-27 Oct 2021 (**Keynote lecture**).

28 Zhao J.D. (2021). Multiscale modeling of granular media: from geomechanics to 3D printing. VII International Conference on Particle-Based Methods. Fundamentals and Application (PARTICLES 2021), Hamburg, Germany, 4-6 Oct 2021 (**Plenary keynote**).

29 Zhao J.D. (2021). Multiscale modeling of soil-structure interaction in geomechanics. 9th Machine-Ground Interaction Consortium (MaGIC) Meeting, Grainger Institute for Engineering, University of Wisconsin-Madison, USA, 21-23 September 2021. (Invited talk)

30 Zhao J.D., Liang W.J., Zhao S.W. (2021). Multiscale modeling of large deformation in geomechanics. 2nd International Workshop on Numerical Simulation Methods for Large Deformation Problems in Geotechnical Engineering. Shanghai, China, 18-19 Sept 2021. (**Keynote lecture**)

31 Zhao J.D. (2021). Computational multiscale modeling for geotechnical engineering: future and challenges. 9th Invited 'Water Science Lecture' of State Key Laboratory of Water Resources and Hydropower Engineering Science (Wuhan University). 28 August 2021. (Invited online lecture)

32 Zhao J.D. (2021). Multiscale modeling of granular media for geomechanics and beyond. Powders and Grains 2021 (P&G 2021). Buenos Aires, Argentina, 5–9 July 2021. (**Plenary keynote lecture**)

33 Zhao J.D. (2021). Challenges in computational multiscale modeling of granular media. International Research Network (IRN) GeoMech Online Symposium on "Micromechanics of granular materials: relationships between microstructure and macroscopic behavior, from experiments to modeling", University of Twente, Netherlands, 18-19 January 2021. (**Online keynote lecture**)

2020

34 Wu H.R., Zhao J.D. (2020). Complete Spectrum of Deformation Band: A Multiscale Perspective. China Rock 2020, Beijing, China, 25–26 Oct 2020. (Invited online lecture)

35 Zhao J.D. (2020). Multiscale modeling of Granular Media. University of Liverpool Invited Webinar, 14 July 2020. (Invited online lecture)

36 Zhao J.D. (2020). Messengers for granular media to cross scales. *IAS Workshop on Emerging Scales in Granular Media*. Hong Kong, 14–16 January 2020. (**Keynote lecture**)

2019

37 Zhao J.D. (2019). Multiscale Modeling of Granular Media: Trends and Challenges. Institute of Applied Physics and Materials Engineering (IAPME), University of Macau, 30 December 2019. (Invited seminar)

38 Zhao J.D. (2019). Multiscale Modeling of Large Deformation in Coastal/offshore Geomechanics. Geotechnical Engineering Office (GEO), CEDD, Hong Kong, 20 November 2019. (Invited seminar)

39 Zhao J.D. (2019). Peridynamics for multiscale modeling of continuous grain crushing. Inauguration and Forum for International Research Center of Peridynamics and Nonlocal Theory. Nanjing, China, 1–3 Nov 2019. (**Keynote lecture**)

40 Zhao J.D. (2019). Multiscale modeling of large deformation in offshore geotechnics. 13th China National Conference of Numerical and Analytical Methods in Geomechanics. Beijing China, 20-22 September 2019. (**Semi-plenary keynote**)

41 Zhao J.D. (2019). Computational Multiscale Modeling of Large Deformation in Geomechanics by Coupled MPM/DEM. International Symposium on SPH and other particle-based continuum methods and their applications in geomechanics. Vienna, Austria, 11–13 September 2019. (Invited lecture)

42 Zhao J.D. (2019). A hybrid method on modeling of grain crushing. The 10th International Conference on Computational Methods (ICCM2019). Singapore, 9-13 July 2019. (**Invited keynote lecture**)

43 Zhao J.D. (2019). Multiscale Modeling of Granular Media. International Symposium on Cutting-edge Technological Progress on Concrete Materials, Shenzhen, China, 2-3 July 2019. (**Invited keynote lecture**)

44 Zhao J.D. (2019). Multiscale Modeling Large Deformation in Offshore Geotechnics. Shenzhen University, Shenzhen, 2 July 2019. (Invited lecture)

45 Zhao J.D. (2019). Multiscale Modeling Large Deformation in Offshore Geotechnics. Geotechnical Seminar Series(岩土论道), Research Center of Coastal and Urban Geotechnical Engineering, Zhejiang University, Hangzhou, China, 21 June 2019. (Invited lecture)

46 Zhao J.D. (2019). Multiscale Modeling Large Deformation in Offshore Geotechnics. Beijing Jiaotong University, Beijing, China, 20 June 2019. (Invited lecture)

47 Zhao J.D. (2019). Multiscale modeling of particle crushing in granular media. 8th International Conference on Discrete Element Method (DEM8), Enschede, Netherlands, 21-26 July 2019 (**Plenary keynote lecture**)

48 Zhao J.D. (2019). Signature of fabric anisotropy in sheared granular media Chinesisch-Deutschen Zentrum für Wissenschaftsförderungworkshop on "Granular phase transitions: from fundamentals to applications", Kloster Banz, Germany, 14-17 April 2019 (**Keynote lecture**)

49 Zhao J.D. (2019) Computational Multiscale modeling of granular media. 2019 Lorentz Center Workshop on "Granular Matter Across Scales", Lorentz Center, Leiden, Netherlands, 18-22 March 2019) (**Keynote lecture**)

2018

50 Zhao J.D., Hierarchical multiscale modeling of granular media: the good, the bad and the ugly. Second Yet Another Discrete Element Workshop. Aix-Provence, France, 26-27 April 2018 (**Plenary keynote lecture**)

51 Zhao J.D., Multiscale modeling of granular media. 2018 Lecture Series by Outstanding Experts in Civil Engineering and 9th National Graduate Student Summer School, co-organized by Southeast University and Chinese Society of Civil Engineering. Nanjing, China, 1-y July 2018 (**Invited keynote lecture**)

52 Zhao J.D., Computational modeling of multi-phase, multi-physics interactions in debris flows. Zhejiang University, Hangzhou, China, 12-13 May 2018 (Invited lecture)

53 Zhao J.D., Multi-scale, multi-phase modeling of debris flow and interactions with flexible barrier. The 1st International Symposium on Debris Flow Mechanisms and Mitigation for Sustainable Development, Hong Kong, 2 Dec 2018 (**Keynote lecture**)

54 Zhao J.D., Crushing criterion of granular particles under multiple contacts. Fourth National Conference of Computational Mechanics of Granular Materials (CMGM-2018), Xiamen, China, 7-8 June 2018 (**Keynote lecture**)

2017

55 Zhao J.D., Multiscale Modeling of Strain Localization in Sand. 11th International Workshop on Bifurcation and Degradation in Geomaterials (IWBDG 2017). Limassol, Cyprus, 21-25 May 2017 (**Keynote lecture**)

56 Zhao J.D., Computational Multiscale Modeling of Granular Media. 15th International Conference of the International Association for Computer Methods and Advances in Geomechanics (IACMAG 2017). Wuhan, China, 19-23 Oct 2017 (**Semi-plenary keynote lecture**)

57 Zhao J.D., Li X.Y., Mitigating debris flow impacts by flexible barriers, a unified predictive framework based on coupled CFD-DEM approach. Second Bilateral French-Italian Workshop Open issues and emerging approaches in geo-environmental mechanics, Arpino, Italy, 2-4 May 2017 (Invited lecture)

58 Zhao J.D., Multiscale, multiphysics modeling of granular media. Workshop on Strategic Research Areas in Geotechnical and Transportation Engineering, Hong Kong, 12 Aug 2017 (Invited lecture)

2016

59 Zhao J.D., Multiscale Modeling of Granular Materials. Third National Conference on Computational Mechanics of Granular Materials (CMGM-2016). Dalian, China, 30 July–1 Aug 2016 (Invited keynote lecture)

60 Zhao J.D., Multiscale and multiphysics modeling in geomechanics. 4 July 2016, Tsinghua University; 7 July, Beihang University, Beijing; 10 July 2016, Tongji University, 12 July 2016, Shanghai Jiao Tong University, Shanghai, China (**Lecture Tour** under sponsorship by K.C. Wong Education Foundation)

61 Zhao J.D., Multiscale Modeling of Granular Matter: Theory and Applications. IAS Focused Program on Computational and Mathematical Problems in Materials Science. Institute for Advanced Study, HKUST, 25-29 January 2016 (Invited lecture)

62 Zhao J.D., Alternative pathway to granular plasticity via computational multiscale modeling. Plasticity 2016. Sheraton Kona Resort & Spa at Keauhou Bay, Big Island, Hawaii, USA, 3-9 Jan 2016. (**Keynote lecture**)

2015

63 Zhao J.D., Multiscale Modeling of Granular Matter. Seminar on Scientific Computing, School of Science, Hong Kong University of Science and Technology. 15 April 2015 (Invited lecture).

64 Zhao J.D. Computational Multiscale Modeling: A paradigm shift for Geotechnical Analysis and Design. Wuhan University, Wuhan, China. 10 April 2015 (Invited lecture).

65 Zhao J.D. Computational multiscale modeling for Geotechnical Engineering. Huazhong University of Science and Technology, Wuhan, China. 9 April 2015 (Invited lecture).

66 Zhao J.D. A novel multiscale modeling solution for geotechnical engineering. Chang'an University, Xi'an, China. 8 Apr 2015 (Invited lecture).

2013

67 Zhao J.D., Coupled CFD-DEM modeling of debris flow. Geotechnical Engineering Office, Civil Engineering and Development Department, Hong Kong SAR, China. 18 Nov 2013 (Invited lecture).

68 Zhao J.D., Mollon G. A Statistical Approach on Reproducing Real Particle Shapes for Discrete Modelling of Granular Sand. The University of Newcastle, Australia. 5 July 2013 (Invited lecture).

69 Zhao J.D. Coupled CFD-DEM modeling of particle-fluid interactions in granular media. The University of Queensland, Australia. 3 July 2013 (Invited lecture).

70 Zhao J.D. Discrete modeling of particle-fluid interactions in granular media. HKUST-SJTU Joint Workshop in Applied Math and Scientific Computing. 12-13 Apr 2013, HKUST, Hong Kong (Invited lecture).

2012

71 Zhao J.D., Shan T. Discrete modeling of fluid-particle interactions in granular media and relevant geomechanics problems. 2012 National Conference on Computational Mechanics of Granular Materials (CMGM-2012). Hunan, China, 16-18 Sept 2012 (**Keynote lecture**).

2011

72 Zhao J.D. Advanced characterization of complex soil behavior. Sino-tech Forum, Taipei, Taiwan, 12 Dec. 2011 (Invited lecture).

73 Zhao J.D. The role of fabric anisotropy in the behavior of granular media under confined shear. Department of Mechanical Engineering, Hong Kong University of Science and Technology, Hong Kong, 18 Nov 2011 (Invited lecture).

74 Zhao J.D. A general anisotropic failure criterion and its application to constitutive modeling of structured sand. Tongji University, Shanghai, China, 28 June 2011 (Invited lecture).

75 Zhao J.D., Guo N. Evolution of shear-induced anisotropy in granular materials. The 7th National Youth Conference on Geotechnical Engineering. Beijing, China, 15-18 April 2011 (**Keynote lecture**).

2010

76 Zhao J.D. The bimodal behavior of strength anisotropy in granular materials. The 4th Japan-China Geotechnical Symposium. Okinawa, Japan, 12-14 April 2010.

2009

77 Zhao J.D. Shakedown of cohesive-frictional soils under moving surface loads. 6th Shanghai-Hong Kong Forum on Mechanics and Its Application, Shanghai, China, 4 July 2009.

78 Zhao J.D. Shear banding localization in geomaterials. Department of Civil Engineering, Shanghai University, Shanghai, China, 9 July 2009 (Invited lecture).

TEACHING AND SUPERVISION

Teaching

2018-Present	CIEM 5740 Computer Methods for Slope Engineering, MSc program, HKUST
2012-Present	CIVL 4750 Numerical Solutions to Geotechnical Engineering, UG, HKUST
2015-2017	CIEM 5730 (or 6000F) Fundamentals of Geomechanics, MSc program, HKUST
2012	CIVL 1100 Discovering Civil and Environmental Engineering, UG first year, HKUST
2012	CIVL 1110 History and Practice of Engineering, UG first year, HKUST
2008-10, 14-15	CIVL 4720 Geotechnical Analysis and Design, UG required core course, HKUST
2008-Present	CIVL 5730 Theoretical and Computational Soil Mechanics, PG, HKUST
2008-Present	CIVL 4710 Soil Slope Engineering, UG final year elective, HKUST
2007	GENG 1002 Introduction to Engineering Computations, UG, Uni. of Newcastle

Research Supervision (as sole supervisor, * HKPF: Hong Kong PhD Fellowship)

Ph.D.

2023-Present	Zhang Cheng	Thesis topic: multiscale, multiphysics modeling of soils
2022-Present	Changyi Yang	Thesis topic: Grain crushing **(HKPF*)**
2021-Present	Renee Vizmanos	Thesis topic: Coastal geotechnics under storm surges **(HKPF)**
2021-Present	Jidu Yu	Thesis topic: Thermo-hydro-mechanical coupling of methane hydrate bearing soil
2020-Present	Quan Ku	Thesis topic: Continuous manufacturing of pharmaceutical tablets
2018-2023	Ke SHI	Thesis: Multiscale modeling of crushable granular media **(HKPF)**
2019-2023	Tao Yu	Thesis: Multiscale modeling of powder-based laser additive manufacturing **(HKPF)**
2016-2022	Amiya Prakash Das	Thesis: Micromechanical modeling of tri-phasic granular system
2016-2020	Weijian Liang	Thesis: Multiscale modeling of large deformation in granular media (Now RAP at Hong Kong Polytechnic University)
2016-2020	Yong Kong	Thesis: Computational modeling and analysis of multiphase geophysical flows interacting with resisting structures (Now RAP at Hong Kong Polytechnic University)
2015-2019	Fan Zhu	Thesis: Multiscale Modeling of Grain Crushing in Granular Media **(HKPF**, now tenured Associate Professor at Kyoto University of Japan**)**
2014-2018	Huanran Wu	Thesis: Multiscale modeling of localized deformation in high-porosity granular rocks (Now associate professor at Chongqing University)
2014-2018	Xingyue Li	Thesis: Computational modeling of debris flows and their interaction with resisting barriers based on a coupled CFD-DEM approach **(HKPF,** now professor at Tongji University**)**

2010-2015	Tong Shan	Thesis: Discrete modeling of fluid-particle interaction in geomechanics
2009-2014	Ning Guo	Thesis: Multiscale modeling of granular media (First position held as Assistant Professor at Carleton University, Canada, and now Professor and "National Thousand Talents Program – Youth scheme" at Zhejiang University, China)
2009-2012	Zhiwei Gao	Thesis: Constitutive modeling the anisotropic behavior of geomaterials: the role of fabric (Now Senior Lecturer at University of Glasgow, UK)

M.Phil.

2023-Present	Wentao Wang	Thesis topic: THMC modeling
2023-present	Anjan Rajapakse	Thesis topic: DED for additive manufacturing
2020-2022	Terry Leung	Thesis topic: Multiphase fluid and particle flow
2017-2019	Zhijie Yu	Thesis topic: Machine Learning for Geomechanics
2012-2015	Zhaochen Liu	Thesis topic: Micromechanics of granular sand considering realistic particle shape
2011-2013	Jingfeng Wei	Thesis topic: An experimental study on the behavior of fiber-reinforced sand

Postdoc Fellows

2023-present	Xi Wang	Postdoc fellow (Ph.D.: Tongji University)
2022-2023	Tongming QU	Postdoc fellow (Now Research Assistant Professor at HKUST. Ph.D.: University of Swansea)
2021-2023	Zhengshou Lai	Hong Kong Scholar Program postdoc fellow (Now associate professor at Sun Yat-Sen University. Ph.D.: Clemson University)
2020-2021	Yiqiu Zhao	Postdoc fellow (Ph.D.: Duke University)
2020-2022	Weijian Liang	Postdoc fellow (Now Research Associate Professor at Hong Kong Polytechnic University. Ph.D.: HKUST)
2020-2021	Yong Kong	Postdoc fellow (Now Research Associate Professor at Hong Kong Polytechnic University. Ph.D.: HKUST)
2019-2022	Fan Zhu	Postdoc fellow (Now Associate Professor at Kyoto University. Ph.D.: HKUST)
2018-2020	Shiwei Zhao	Hong Kong Scholar Program postdoc fellow (Ph.D.: SCUT and Oregon State University. Now Research Assistant Professor at HKUST)
2018-2020	Xiusong Shi	Research Assistant Professor at HKUST (2019-20) (now Professor and "National Thousand Talents Program – Youth scheme" at of Hohai University, China. Ph.D.: Technische Universität Dresden)
2018-2020	Huanran Wu	Postdoc fellow (now associate professor at Chongqing University. Ph.D.: HKUST)
2018-2019	Xingyue Li	Postdoc fellow (Postdoc at EPFL and Professor at Tongji. Ph.D.: HKUST)
2018-2019	Huo Fan	Postdoc fellow (now research scientist at CAS, Ph.D.: CAS)

2014-2016	Ning Guo	Postdoc fellow (now Professor and "National Thousand Talents Program – Youth scheme" at Zhejiang University, China. Ph.D.: HKUST)
2012-2013	Hua Jiang	Postdoc fellow (now faculty at Chang'an University, China)
2012-2013	Zhiwei Gao	Postdoc fellow (Now *Senior Lecturer at University of Glasgow, UK*. Ph.D.: HKUST)
2011-2012	Yuxia Kong	Postdoc fellow (Now associate professor at Nanjing Institute of Technology. Ph.D.: BUAA)
2011-2012	Guilhem Mollon	Postdoc fellow (Now *Associate Professor at INSA-Lyon*. Ph.D.: Grenoble)
2011-2012	Fengtao Liu	Postdoc fellow (Now faculty at Guilin University of Technology)

Visiting Research Students

2023	Qingzheng Guan	From Zhejiang University, China
2023	Yanzhen Zhu	From Zhejiang University of Technology, China
2022-2023	Yipeng Xie	From Central South University, China
2018-2019	Xiang Wang	From Central South University, China
2018-2019	Jiayan Nie	From Wuhan University, China
2019	Jichao Lou	From Southeast University, China
2016-2017	Ajinka Kulkami	From IIT Madras, India
2014	Julien Molina	From Ecole Nationale Superieure des Mines, France

UROP Students

2018	Ho Yin Leung	UROP Project: *Computer Visualization of sand grains*
2018	Tsz Yin Chow	UROP Project: *Modeling debris flows*
2018	Chung Yin Choi	UROP Project: Modeling *debris flows*
2017	Shun Wai Chau	UROP Project: Computer *visualization of sand grains*
2016	Meibai Li	UROP Project: Determination *of Permeability in Porous Media*
2013	Wai Chung Wong	UROP Project: Triaxial *testing on fiber-reinforced sands*
2009	Meng Yu	UROP Project: *Urban* Tunneling

MSc Project Students

2023-2024	**5**
2022-2023	**4**
2021-2022	**5**
2020-2021	**5**
2020-2021	**8**
2019-2020	**10**
2018-2019	**10**
2017-2018	**5**
2016-2017	**1**

Undergraduate Final Year Project Students

2022-2023	**5**	2021-2022	**7**
2020-2021	**7**	2019-2020	**6**
2018-2019	**7**	2017-2018	**7**
2016-2017	**7**	2015-2016	**7**
2014-2015	**5**	2013-2014	**5**
2012-2013	**6**	2011-2012	**6**
2010-2011	**5**	2009-2010	**9**

SERVICE

Editorship

2024-	Co-Editor-In-Chief, *Computers and Geotechnics* (Elsevier)
2022-	Advisory board, *Meccanica* (Springer Nature)
2020-	Co-Editor, *Computers and Geotechnics* (Elsevier)
2019-	Associate editor, *Journal of Engineering Mechanics* (ASCE)
2018-	Editor, *Granular Matter* (Springer Nature)
2019-	Editorial board member, *Acta Geotechnica* (Springer Nature)
2019-	Editorial board member, *International Journal for Numerical and Analytical Methods in Geomechanics* (Wiley)
2019-	Editorial board member, *Science Progress* (SAGE)
2015-2017	Guest editor, *Granular Matter* (Springer Nature)
2012-2019	Editorial board member, *Computers and Geotechnics* (Elsevier)

Professional Membership

2022-	Member, American Society of Civil Engineers (ASCE)
2020-	Vice Chair, Chinese Society for Theoretical & Applied Mechanics Computational Granular Mechanics Committee
2012-2020	Member, Chinese Society for Theoretical and Applied Mechanics Computational Granular Mechanics Committee
2018-	Core member, ISSMGE TC105 Geomechanics from Micro to Macro
2009-2018	Member, ISSMGE TC105 Geomechanics from Micro to Macro
2017-	Core member, ISSMGE TC103 Numerical Methods in Geomechanics
2009-2017	Secretary, ISSMGE TC103 Numerical Methods in Geomechanics
2017-	Board member, International Association for Computer Methods and Advances in Geomechanics
2014-	International Association of Computational Mechanics (IACM)
2013-	Member, Engineering Mechanics Institute (EMI) Granular Material Committee
2009-	Member, International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE)
2009-	Member, Hong Kong Geotechnical Society
2008	Member, Hong Kong Society of Theoretical and Applied Mechanics
2008-	Member, Chinese Society for Soil Mechanics and Geotechnical Engineering
2003-	Member, Australian Association for Computational Mechanics
2003-2008	Member, Australian Geomechanics Society

Recognitions as Reviewer

2019	Publons Peer Review Award in Cross Field (Top 1%)
2018	Publons Peer Reviewer Awards 2018 (top 1% in Geosciences)

2018	2017 Excellent Reviewers Award for Computers & Geotechnics (Elsevier)
2017	2016 Excellent Reviewers Award for Computers & Geotechnics (Elsevier)
2017	Publons Peer Review Awards 2017 (top 1% in Earth and Planetary Sciences)
2016	Publons Certified Sentinel of Science Award 2016 (top 1% in Earth and Planetary Sciences)

Grant Assessor

2018-	European Research Council (ERC) - Advanced Grant (European Union)
2018-	Poland National Science Centre (Narodowe Centrum Nauki – NCN, Poland)
2014-	Natural Sciences and Engineering Research Council of Canada (NSERC, Canada)
2014-	Chilean National Science and Technology Commission (Chile)
2007-	Australian Research Council (ARC, Australia)
2006-2008	Research Grants Council of Hong Kong (RGC-HK, Hong Kong)

Book Reviewer

2011	Spon Press (an imprint of Taylor & Francis)
2021	CRC Press & Routledge (imprints of Taylor & Francis)

Conference Reviewer

2022	IWBDG 2022, Perth, Australia, Dec 2022
2020-2021	Powders and Grains 2021, Argentina, July 2021
2018-2020	EMI Conference, MIT (18), Caltech (19), New York (21)
2019	16th IACMAG, Turin, Italy, July 2021
2018	Geo-Shanghai International Conference 2018, Shanghai, China, 27-30 May 2018
2017	15th IACMAG, Wuhan, China, 19-23 Oct 2017
2014	14th IACMAG, Kyoto, Japan, 22-25 Sept 2014
2014	10th IWBDG, Hong Kong, 28-30 May 2014
2013	4th International Symposium on Geotechnical Risk and Safety, Hong Kong, 4-6 Dec 2013
2013	Experimental Micromechanics for Geomaterials, Hong Kong, 23-24 May 2013
2012	Geo-Congress 2012, Oakland, CA, USA, 25-29 March 2012
2008	1st Southern Hemisphere International Rock Mechanics Symposium, Perth, Western Australia, Australia, 16–19 September 2008
2008	12th IACMAG, Goa, India, 1-6 October 2008

Editor & Reviewer Records (via Clarivate Web of Science)

Editor & Reviewer https://www.webofscience.com/wos/author/record/464074

Journal Reviewer for:

Acta Geotechnica, Acta Mechanica, Acta Mechanica Sinica, Additive Manufacturing, Advances in Engineering Software, AICHE Journal, Arabian Journal for Science and Engineering, Canadian Geotechnical Journal, Chemical Engineering Science, Computational Mechanics, Computational Particle Mechanics, Computers and Geotechnics, Computer

Methods in Applied Mechanics and Engineering, Engineering Computations, Engineering Fracture Mechanics, Engineering Geology, Environmental Geotechnics, European Journal of Environmental and Civil Engineering, Extreme Mechanics Letters, Geochemistry, Frontiers in Materials, Geomechanics and Engineering, Geomechanics and Geoengineering, Geophysics, Geosystems (3G), Geotechnique, Geotechnique Letters, Geotextiles and Geomembrances, Granular Matter, International Journal for Numerical and Analytical Methods in Geomechanics, International Journal for Numerical Methods in Engineering, International Journal of Computational Fluid Dyanmics, International Journal of Geomechanics, International Journal of Heat and Mass Transfer, International Journal of Pavement Research and Technology, International Journal of Rock Mechanics and Mining Sciences, International Journal of Solids and Structures, Journal of Computational Physics, Journal of Engineering Mechanics, Journal of Geotechnical Geoenvironmental Engineering, Journal of Hydraulic Engineering, Journal of Hydraulic Research, Journal of Mountain Science, Journal of Petroleum Science and Engineering, Journal of Rock Mechanics and Geotechnical Engineering, Journal of the Mechanics and Physics of Solids, Landslides, Journal of Zhejiang University Science A, Marine Georesources and Geotechnology, Mechanics of Materials, , Open Journal of Modelling and Simulation, PLOS One, Powder technology, Proceedings of the National Academy of Sciences (PNAS), Proceedings of the Royal Society A Mathematical, Physical and Engineering Sciences, Molecules, Rock Mechanics and Rock Engineering, Science China Technological Sciences, Scientific Reports, Soils and Foundations, SPE Journal, Transportation Geotechnics, Tunnelling and Underground Space Technology, Water Science and Engineering.

Editor/Associate Editor for:

Computers and Geotechnics (Co-Editor)
Granular Matter (Section Editor)
Journal of Engineering Mechanics (Associate Editor)

Conference/Mini-Symposium Organizing

2023	International Scientific Committee, 9th International Conference on Discrete Element Method (DEM9). Erlangen, Germany, 17-21 September 2023.
2023	Scientific committtee, Numerical Analysis of Geomaterials (Symposium dedicated to the memory of Prof. G.N. Pande). Assisi, Italy, 10-12 May 2023
2023	Invited Session Organiser, X International Conference of Computational Methods for Coupled Problems in Science and Engineering (COUPLED 2023). Chania, Crete, Greece, 5-7 June 2023
2022	International Scientific Committee, 12th International Workshop on Bifurcation and Degradation in Geomaterials (IWBDG 2020). Perth, Australia, 28 Nov-1 Dec 2022
2022	International Scientific Committee, International Symposium of Intelligent Geotechnics (online). Hong Kong, 10-11 June 2022
2020	**Conference Chairman**, IAS International Workshop on Emerging Scales in Granular Media, HKUST, Hong Kong, 14-16 Jan 2020
2019	International Scientific Committee, Session organizer and chair: The 8th International Conference on Discrete Element Methods (DEM 8), Twente, Enschede, Netherland, 21-26 July 2019
2018	International Advisory Committee, IS-Atlanta 2018 Geo-Mechanics from Micro to Macro in Research and Practice, ISSMGE TC105 International Symposium, Georgia Institute of Technology, Atlanta, Georgia, USA, Sept 9-12, 2018

2018 Organizing Committee, UNSAT2018, 7th International Conference on Unsaturated Soils, Hong Kong, 3-5 August 2018

2018 First China – Europe Conference on Geotechnical Engineering, Vienna, Austria, Aug 13–16, 2018 (Technical Committee, Mini-symposium organizer and Session Chair for ISSMGE TC103 Special Session on Numerical Methods)

2018 EMI 2018, MIT, Boston, USA, May 29–June 1, 2018 (Mini-symposium organizer for MS40 – Mechanics and Physics of Granular Materials)

2018 9th International Conference on Computational Methods, Rome, Italy, Aug 6–10, 2018 (Mini-symposium organizer on Multiscale/mesoscale modeling of granular materials based on discrete or coupled-continuum methods)

2017 Scientific Committee, The 3rd Chinese National Conference on Constitutive Models of Geomaterials, Beijing, China, Sept 1-3, 2017

2017 19th International Conference on Soil Mechanics and Geotechnical Engineering (ICSMGE 2017), Seoul, Korea, 17-21 September 2017 (TC103 Special Workshop Organiser)

2016 The 3rd International Symposium on Multi-scale Geomechanics and Geo-engineering (MSGG-Tongji 2016), Shanghai, China, November 9-12, 2016 (International Scientific Committee)

2016 7th International Conference on Discrete Element Methods (DEM 7), Dalian, China, August 1-4, 2016, International Advisory Committee

2015 EMI 2015 Stanford: Engineering Mechanics Institute Conference 2015, Stanford University, CA, USA, 16-19 June 2015, Mini-symposium Organiser and Session Chair

2015 EMI 2015 International: Engineering Mechanics Institute International Conference, Hong Kong, 7-9 January 2015, Conference International Scientific Committee and Session Chair

2014 Conference Co-Chairman, The 10th International Workshop on Bifurcation and Degradation in Geomaterials (IWBDG 2014), Hong Kong, 28-30 May 2014,

2014 The 2nd International Symposium on Geomechanics from Micro to Macro (IS-Cambridge), Cambridge, UK, 1-3 Sept 2014, International Advisory Committee

2013 Powders and Grains 2013, Sydney, Australia, 8-12 July 2013, Oral Session Chair

2013 2013 Experimental Micromechanics for Geomaterials – Joint workshop of the ISSMGE TC101-TC105, Hong Kong, 23-24 May 2013, Technical committee

2012 2012 National Conference on Computational Mechanics of Granular Materials, Hunan, China, 16-18 Sept 2012, Session chair, Conference Technical Committee

2011 9th International Workshop on Bifurcation and Degradation in Geomaterials (IWBDG 2011) Porquerolles Island, Provence, France, 23-26 May 2011, Session chair

2011 7th National Youth Conference on Geotechnical Engineering. Beijing, China, 15-18 April 2011, Plenary session chair, technical committee

2009- 13th-24th Annual Conference of Hong Kong Society of Theoretical and Applied Mechanics (HKSTAM), Session chair, organizing committee

Thesis Examination Committee

Ph.D. Thesis Committee (70)

2023 (**3**) Lars BLATNY (**CIVL/EPFL**)

Tao YU (CIVL/HKUST)

	Ke SHI	(CIVL/HKUST)
	Zheyue Fang	(MATH/HKUST)
	Liyang Guan	(PHYS/HKUST)
	Hon Piu LAM	(ECD/HKUST)
	Songtao REN	(CIVL/Westlake University)
	Zhenhao LI	(CIVL/HKUST)
	Jianbin LIU	(CIVL/HKUST)
	Karim KOOTAHI	(CIVL/HKUST)
	Ping Siang TAN	(CIVL/HKUST)
2022 (**7**)	Sounik Kumar Banerjee	(CIVL/**UBC)**
	Xin CUI	(**EarthSci/HKU**)
	Amiya Prakash Das	(CIVL/HKUST)
	Zheng Zhou	(CIVL/HKUST)
	Huangshi Tian	(CSE/HKUST)
	Zhichao Shen	(CIVL/HKUST)
	Soheil MOHAJERANI	(CIVL/HKUST)
2021 (**6**)	Jing Sun	(MAE/HKUST)
	Yixiang Wang	(CIVL/HKUST)
	Quoc Thien Phan	(CIVL/**Monash**)
	Xin Mao	(CIVL/HKUST)
	Zhaoyu Su	(CIVL/HKUST)
	Kewei Feng	(CIVL/HKUST)
2020 (**12**)	Yahui Zhang	(EarthSci/**HKU**)
	Deheng Wei	(CIVL/**Sydney**)
	Linhai Huang	(PHYS/HKUST)
	Hongyu Luo	(CIVL/HKUST)
	Ran Tao	(MAE/HKUST)
	Haojie Wang	(CIVL/HKUST)
	Weijian Liang	(CIVL/HKUST)
	Yong Kong	(CIVL/HKUST)
	Md Delowar Hossain	(CBE/HKUST)
	Shengyang Zhou	(CIVL/HKUST)
	Yiyi Huang	(MATH/HKUST)
	Xin Liu	(CIVL/**CityU**)
	Mengmeng Wu	(CIVL/**CityU**)
2019 (**6**)	Fedi Zouari	(PHYS/HKUST)
	Jun Kang Chow	(CIVL/HKUST)
	Fan Zhu	(CIVL/HKUST)
	Salman TARIQ	(CIVL/HKUST)
	Jingwen Guo	(MAE/HKUST)
	Ping Shen	(CIVL/HKUST)
2018 (**7**)	Jannatul Azmir	(CHE/**Monash**)

	Yujie Zhang	(MAE/HKUST)
	Xingyue Li	(CIVL/HKUST)
	Huanran Wu	(CIVL/HKUST)
	Chunyang Du	(CIVL/HKUST)
	Jiaqi Wang	(MAE/HKUST)
	Yueyang Zou	(PHYS/HKUST)
2017 (**17**)	Chongpu Zhai	(CIVL/**Sydney**)
	Adnan Sufian	(CIVL/**UNSW**)
	Wei Xiao	(CIVL/HKU)
	Raejee Kaewsong	(CIVL/HKUST)
	Tsz Fung Wong	(CIVL/HKUST)
	Xiaohua Nie	(MATH/HKUST)
	Tianyuan Fan	(CIVL/HKUST)
	Hongwei Liu	(CIVL/HKUST)
	Hongbo Zhao	(MATH/HKUST)
	Minghao He	(MAE/HKUST)
	Tiansheng Shi	(CIVL/HKUST)
	Xin Dai	(CHEM/HKUST)
	Zhaofeng Li	(CIVL/HKUST)
	Yuchen Fu	(CIVL/HKUST)
	Ge Chen	(CSE/HKUST)
	Chi Hung Koo	(CIVL/HKUST)
	Jiangtao Wei	(CIVL/HKUST)
2016 (**7**)	Wenchao Wu	(CSE/HKUST)
	Song Feng	(CIVL/HKUST)
	Weiwei Wu	(LIFE/HKUST)
	Quan Yuan	(CIVL/HKUST)
	Yani Deng	(MAE/HKUST)
	Liang Gao	(CIVL/HKUST)
	Shairfe Salahuddin	(ECE/HKUST)
2015 (**5**)	E Chen	(CIVL/HKUST)
	Tong Shan	(CIVL/HKUST)
	Zitao Zhang	(CIVL/HKUST)
	Jianwei Shi	(CIVL/HKUST)
	Yuanming Shi	(ECE/HKUST)
2014 (**7**)	Ning Guo	(CIVL/HKUST)
	Chao Zhou	(CIVL/HKUST)
	Chuanlin Hu	(CIVL/HKUST)
	Pak Hei Law	(CIVL/HKUST)
	Yongning Xie	(CIVL/HKUST)
	Dongshuai Hou	(CIVL/HKUST)
	Lina Zhang	(CIVL/HKUST)

	Xin Huang	(CIVL/**HKU**)
2013 (**4**)	Zhen Zhang	(MATH/HKUST)
	Hongyan Ma	(CIVL/HKUST)
	Jun Zhang	(MAE/HKUST)
	Shengwen Tan	(CIVL/HKUST)
2012 (**3**)	Chunshun Zhang	(CIVL/**Sydney**)
	Yan Gao	(CIVL/HKUST)
	Zhiwei Gao	(CIVL/HKUST)

M.Phil. Thesis Committee (13)

2021 (**1**)	Zhendong Xia	(CIVL/HKUST)
2019 (**3**)	Zhijie Yu	(CIVL/HKUST)
	Wing Hang Yiu	(CIVL/HKUST)
	Vivek BOKKISA	(CIVL/HKUST)
2016 (**1**)	Shuhua Wang	(CIVL/HKUST)
2015 (**2**)	Ruiwang Yu	(CIVL/HKUST)
	Zhaochen Liu	(CIVL/HKUST)
2014 (**3**)	Chun Hang Leung	(CIVL/HKUST)
	Chaoyi Wang	(CIVL/HKUST)
	Weiwei Wu	(LIFE/HKUST)
2013 (**1**)	Jinfeng Wei	(CIVL/HKUST)
2011 (**2**)	Shaopeng Fan	(CIVL/**HKU**)
	Yun Man Lau	(CIVL/HKUST)
2009 (**1**)	Yi Liu	(CIVL/HKUST)

Administrative Service (at HKUST)

HKUST	Member of Management Committee, Scientific Computing Concentration, HKUST (2015– Present)
	Member of Search Committee for the Center for Computational Science of HKUST(GZ), HKUST (2022 – Present)
SENG	Director for MSc Civil and Infrastructure Engineering and Management (CIEM) (2017 – 2021)
	School of Engineering Faculty Advisor (SFA) (2013 – Present)
	CIEM MSc Program Committee (2011– Present)
	Engineering Exploration Day interview (five times, 2011 - 2013)
	One-day interview session for early admission of local incoming students
DEPT	Departmental Substantiation and Promotion Committee (2021 - Present)
	Chair, Department Resource Committee (2022 – Present)
	Departmental Merit Review Committee (2021 - 2022)
	Coordinator for Postgraduate Studies Committee (2015 - 2021)
	Executive Committee (2015 - 2017)

Undergraduate Studies Committee (2009 - 2015)
Mainland Recruitment and Exchange Coordinator, 334 Subcommittee
Search and Appointment Committee (2008 - 2015)
Postgraduate Studies Committee (2008 - 2009, 2015 - present)
Mainland JEE Cohort interview and admission
Interview panel in Beijing (2010) and Shanghai (2011)
JUPAS Engineering Exploration Day interviews (2009 - present)
Interview panel for local incoming students.
Mainland-Taiwan-Macau (MTM) Open Day (2009 - 2015)
Reception for potential UG students and family from Mainland, Taiwan and Macau