

Programme of IGES 2023

(International Symposium on Innovations in Geotechnical Engineering towards Sustainability)

November 30 – December 4, 2023 | Hong Kong

(VERSION 1, UPDATED AT 20 NOV. 23, MAY SUBJECT TO CHANGE)

Thursday, 30/11/2023		
13:00-21:00	Registration	
Friday, 01/12/2023 Jockey Club Auditorium (JCA), PolyU		
08:30-08:50 (5 mins per talk) JCA	Opening Ceremony VP: Christopher CHAO; Dean: Xiangdong LI; Head: C.S. POON	Chair: Zhen-Yu YIN
08:50-09:00	Photo Session	
09:00-10:40 (25 mins per talk) JCA	Keynote: Sustainable development through smart geotechnical solutions – Hong Kong’s experience Wai Man Raymond CHEUNG, <i>Geotechnical Engineering Office</i>	Chair: TBD
	Keynote: Accurate prediction of geohazards Manchao HE, <i>China University of Mining and Technology - Beijing</i>	
	Keynote: Innovative approaches to sustainable coastal development Johnny CHEUK & Anthony WONG, <i>AECOM</i>	
	Keynote: The present situation and future trends of infrastructure construction in mainland China Xiangsheng CHEN, <i>Shenzhen University</i>	
10:40-11:00	Coffee break	
11:00-12:40 (25 mins per talk) JCA	Keynote: Gravity driven mass transportation and transition: Hypergravity experiments Yunmin CHEN, <i>Zhejiang University</i>	Chair: TBD
	Keynote: Particle migration under dynamic loads and associated problems Daichao SHENG, <i>University of Technology Sydney</i>	
	Keynote: New soil improvement methods for land reclamation using dredged clay or waste Jian CHU, <i>Nanyang Technological University</i>	
	Keynote: Damage and cracking modeling in saturated and partially saturated media with material heterogeneity Jianfu SHAO, <i>University of Lille</i>	

12:40-14:00	Lunch	
14:00-15:15 (25 mins per talk) JCA	Keynote: The mechanics of tailings in static and cyclic loading Matthew Richard COOP, <i>University College London</i>	Chair: TBD
	Keynote: TBD James SZE, <i>ARUP</i>	
	Keynote: TBD Ali ZAOUI, <i>University of Lille</i>	
15:15-15:35	Coffee break	
15:35-16:55 (20 mins per talk) JCA	Invited Lecture: Unified hardening model for clays and sands Yangping YAO, <i>Beihang University</i>	Chair: TBD
	Invited Lecture: Anisotropic rock mechanics and engineering application Weiya XU, <i>Hohai University</i>	
	Invited Lecture: Deformation of shield tunnels induced by adjacent construction Renpeng CHEN, <i>Hunan University</i>	
	Invited Lecture: TBD Hongwei HUANG, <i>Tongji University</i>	
16:55-17:00	Break	
17:00-18:20 (20 mins per talk)	Invited Lecture: Research progress and application of green retaining technology for excavation engineering Changjie XU, <i>East China Jiaotong University</i>	Chair: TBD
	Invited Lecture: On innovative thinking with applications in geotechnical engineering Shuilong SHEN, <i>Shantou University</i>	
	Invited Lecture: Discrete element analysis of geogrid–aggregate interface shear behaviour under dynamic loading conditions Shijin FENG, <i>Tongji University</i>	
	Invited Lecture: Associative approximation of Galerkin and FVM for HMC fully coupled model under NMM framework Hong ZHENG, <i>Beijing University of Technology</i>	
18:30-21:30	Banquet Chair: Jianhua YIN	
Saturday, 02/12/2023 Chiang Chen Studio Theatre (CCST) & V Block, PolyU		
08:30-10:10 (10 mins per talk) V Block & CCST	Parallel Session	
10:10-10:40	Coffee break	

10:40-12:20 (10 mins per talk) V Block & CCST	Parallel Session	
12:20-14:00	Lunch	
14:00-15:40 (10 mins per talk) V Block	Parallel Session	
14:00-15:20 (20 mins per talk) CCST	Invited Lecture: From rigid-soft particles to particle crushing: a leap into the void Erdin IBRAIM, <i>University of Bristol</i>	Chair: TBD
	Invited Lecture: Clarifying key misconceptions about creep and consolidation of clays Samson Abate DEGAGO, <i>Norwegian University of Science and Technology</i>	
	Invited Lecture: Drying-induced soil shrinkage: Mechanism and modeling Changfu WEI, <i>Institute of Rock and Soil Mechanics, Chinese Academy of Sciences</i>	
	Invited Lecture: TBD Weilie ZOU, <i>Wuhan University</i>	
15:20-15:40	Coffee break	
15:40-17:20 (25 mins per talk) CCST	Keynote: Phase field for compaction band formation: Capture of grain crushing and permeability evolution in heterogeneous media Ronaldo I. BORJA, <i>Stanford University</i>	Chair: TBD
	Keynote: TBD Hehua ZHU, <i>Tongji University</i>	
	Keynote: On bleeding of fresh concrete in deep foundations Wei WU, <i>University of Natural Resources and Life Sciences</i>	
	Keynote: TBD Steve WaiChing SUN, <i>Columbia University</i>	
17:20-17:50	Closing remark Zhen-Yu YIN; Chao ZHOU; Qi ZHAO; Andy Leung	
Sunday, 03/12/2023; Monday, 04/12/2023		
Self-planned field trips Hong Kong UNESCO Global Geopark and Tung Ping Chau, Easternmost Flat Island are recommended.		

MS-01 Properties of sustainable construction materials

Chairs: Yonggui CHEN, Sérgio D.N. LOURENÇO

Venue: V302, V Block, PolyU

Time: 08:30-11:40, 2 December

Index	Title	Author
1.	(Invited) On progressive failure of sand considering fabric evolution with micropole hypoplastic model	Xuefeng LI , Weinan LU, Yuqi HE
2.	Complete particle size distribution of CDG soil with extended wet sieving method	Shengnan MA, Yi SONG, Jiawei LIU, Xingyu KANG, Zhongqi Quentin YUE
3.	Laboratory investigation of CDG sand for fine aggregates in portland cement concrete	Yi SONG , Shengnan MA, Jiawei LIU, Xingyu KANG, Zhongqi Quentin YUE
4.	Effect factors and mechanisms of carbonating magnesium oxide for recycle concrete aggregate cementation	Zhexun LIU , Man LI, Huan HE
5.	Dynamics and micromechanics of recycled concrete aggregate	Huan HE
6.	Exploring the use of polymeric binders for soil stabilisation in the construction of sports infrastructures to replace concrete	Mariam DARESTANI, Bijan P. MARKHALI
7.	Anomalous dielectric behavior in Na-montmorillonite interlayer: a molecular dynamics study	Wen-jie DAI , Yonggui CHEN
8.	The volume change behavior of compacted bentonite under the combined effect of suction cycle and temperature	Dongyue PAN , Qiong WANG, Wei SU, Weimin YE, Yonggui CHEN
9.	A study on the water-rock coupling characteristics in deep in-situ environment of JINPING marble	Chendi LOU , Ru ZHANG, Zetian ZHANG, Li REN, Jing XIE, Hai REN, Kun XIAO, Anlin ZHANG
10.	Characteristics of soil internal erosion under the coupling effect of anisotropic stress and cyclic hydraulic loadings	Chen CHEN
11.	Deformation characteristics and gas permeability of low-permeability sandstone and anisotropic phyllite under triaxial cyclic loading stress path	Xuele DUAN , Wei WANG, Yajun CAO, Chao CHEN, Rubin WANG, Qizhi ZHU
12.	Evolution law of particle breakage during one-dimensional compression of calcareous sand	Yongqiang CUI , Teng WANG, Hengyu SU, Ning JIA
13.	Dissolution characteristics of coral reef limestone under different saturated CO ₂ conditions	Shanshan ZHANG, Dongsheng XU, Yue QIN, Weiqiang FENG
14.	Desiccation cracking of expansive soil subjected to different temperature conditions	Nan WANG , Qiong WANG, Long XU, Wei SU
15.	Deep insight into mechanical behavior and microstructure mechanism of serpentine-magnesium oxide carbon sequestration foamed lightweight soil	Xiang ZHANG , Songyu LIU, Zhenyang YUAN
16.	Identification of representative elementary volume in inhomogeneous geotechnical material based on microstructure parameters	Qing KANG , Manman LIU, Yong LIU

MS-02 Constitutive modelling of geomaterials

Chair: Zhongxuan YANG, Fiona C.Y. KWOK

Venue: CCST, PolyU

Time: 08:30-12:20, 2 December

Index	Title	Author
1.	(Invited) Water-retention and shear-strength behaviors of unsaturated soils with dual-porosity	Gaoyun ZHOU, Zhenhao SHI, Jiangu QIAN
2.	(Invited) Constitutive modeling of solid- and fluid-like transitional behavior of sand	Zhenhao SHI , Senjie TONG, Maosong HUANG
3.	(Invited) A stiffness degradation method for modelling long-term ratcheting response of wind turbine foundations in sand	Zhiwei GAO , Scott WHYTE
4.	Influence of particle shape on the mechanical properties of sand under true triaxial shearing	Yang WU , Haojun RONG, Neng LI, Jie CUI
5.	Micromechanics-based constitutive modelling of granular materials accounting for fabric evolution	Chaofa ZHAO
6.	Risk analysis of Dahua landslide based on reliability theory	Yongcheng GUO , Jia KONG, JianLin LI, Xingxia WANG, Yong LEI
7.	A hydrodynamic model of chemical dissolution of poroelastic materials	Yanni CHEN , François GUILLARD, Itai EINAV
8.	Elastoplastic constitutive model for overconsolidated clays with an advanced dilatancy relation	Kehao CHEN , Rui PANG, Bin XU, Xingliang WANG
9.	A laboratory scaled integrated analysis of shear strength parameters of dump materials	Shubham SHRIVASTAVA , Debasis DEB
10.	Development of the time-dependent constitutive model of soils and the new simplified B method	Weiqiang FENG
11.	Stress-induced anisotropic super-subloading surface model for structural clay based on uniform yield criterion	Zhichao WANG, Yanghao LIN , Yun QIN, Yinghui TIAN
12.	Description of non-coaxiality of sand incorporating material property-dependent potential theory	Xuefeng LI , Kuangfei LI, Liang KONG, Maosong HUANG
13.	Long-term mechanical characteristics and creep damage model of JINPING marble at different depths considering excavation disturbance	Kun XIAO , Ru ZHANG, Ze-Tian ZHANG, Er-Sheng ZHA, Li REN
14.	Undrained cyclic resistance and stiffness of anisotropically consolidated calcareous sand	Baojian LI , Kun PAN, Zhongxuan YANG
15.	Modeling the temperature-dependent behavior of Hong Kong marine deposits	Zejian CHEN , Jian-hua YIN
16.	A CWFS bounding surface model for rocks considering a modified Rowe's stress-dilatancy and finite strain concept	Jiguan LIANG , Linchong HUANG, Jianjun MA
17.	Modeling of monotonic and cyclic behaviors of sand under small and normal confining stresses	Wenxuan ZHU , Guanlin YE, Linlin GU, Feng ZHANG

18.	Anisotropic elasto-plastic coupling model considering fabric evolution	Yang YU , Zhongxuan YANG
19.	Methane hydrate-bearing sediments: from DEM simulation to constitutive modelling	An ZHANG , Mingjing JIANG, Dong WANG
20.	Compression behavior of clayey soils with initial high water contents	Penglin LI , Zhenyu YIN, Dingbao SONG, Jianhua YIN

MS-03 Advanced numerical approaches

Chairs: Pengzhi PAN, Jidong ZHAO

Venue: V304, V Block, PolyU

Time: 08:30-12:20, 14:00-15:40, 2 December

Index	Title	Author
1.	(Invited) A set of hysteretic nonlinear contact models for DEM: Theory, formulation, and application for deformable granular particle flow	Qiushi CHEN
2.	(Invited) Investigation on the propagation of complex multiple fractures in rocks	Peng-Zhi PAN , Zhaofeng WANG, Wenbo HOU
3.	A flexible and generalizable method for predicting subsea immersed tunnel settlement	Shuyu HE, Wanhuan ZHOU , Cong TANG
4.	Numerical study for strain localization and crack propagation of geomaterials based on IGA	Hongxiang TANG , Feng ZHU
5.	Ray tracing discrete element method	Shiwei ZHAO , Jidong ZHAO
6.	Multiple-GPU parallelization of three-dimensional material point method based on single-root complex	Youkou DONG
7.	The development of JC-JHB-DLSM model and its application in high-velocity penetration of geomaterials	Jianjun MA , Jinxin ZHAO, Jianying CHEN, Yuexiang LIN, Wanxiang CHEN, Linchong HUANG
8.	Lagrangian continuum mechanics-based simulation for particle size segregation in granular flow	Chengwei ZHU , Chong PENG, Wei WU, Xiao WANG
9.	From sedimentation to consolidation of kaolinite: a molecular dynamic study	Ming LU, Yuan-Yuan ZHENG , Zhen-Yu YIN
10.	Development of Johnson-Holmquist-Beissel model in discontinuous deformation analysis and its application in projectile penetration	Chenghao LI , Rui LI, Junjie CHEN, Jianjun MA, Linchong HUANG
11.	A computational fluid dynamics-based investigation of synchronous grouting performance in shield tunneling	Zhengshou LAI , Linchong HUANG, Yu LIANG
12.	A novel hydro-mechanical coupled multiphysics approach for seepage flow induced internal erosion and failure of loose granular deposits	Jie YANG , Zhen-Yu YIN
13.	Coupled peridynamic modeling of hydraulic fracturing in solids	Fan ZHU , Changyi YANG, Jidong ZHAO
14.	Analysis of soil spatial variation based on coupled Markov chain and general regression neural network	Linshuang ZHAO , Shuilong SHEN
15.	A semi-implicit MPM for modeling the thermal effect in saturated porous media	Jidu YU , Weijian LIANG, Shiwei ZHAO, Jidong ZHAO
16.	Suffusion characteristics of gap-graded granular materials: effects of particle size ratio and fines content	Yi ZHAO , Qixin WU, Yewei ZHENG

17.	The continuous to discontinuous simulation of rock failure by the 2D adaptive RDFA approach	Bin GONG , Tao ZHAO
18.	Three-dimensional face stability analysis of circular tunnels	Yi-Dan ZHAO , Xiao-Wei YE, Can WANG, Yun-Min CHEN
19.	A novel approach for stochastic reconstruction of calcareous sand particles based on particle shape and internal porosity	Yong HE , Huan HE, Guojun CAI
20.	An efficient material point method framework based on the affine matrix	Kaiyuan HE , Yinfu JIN
21.	A 2D unified distance potential field based contact interaction algorithm for combined finite-discrete element method (FDEM)	Weibing CAI, Ke GAO
22.	Two-fluid modeling of high-water slurry's sedimentation and consolidation under vacuum preloading	Shanlin XU , Zhaohui YE, Honglei SUN, and Jingling LU
23.	Study on initiation process of moraine soil with different particle morphology using CFD-DEM	Zuyan WANG, Chuang ZHOU , Jiangu QIAN
24.	A modified hydro-thermal coupling method considering unfrozen water content in artificial ground freezing	Qimin CHEN , Bibek GHIMIRE, Yong LIU

MS-04 Smart geotechnical monitoring

Chairs: Honghu ZHU, Wanhuan ZHOU, Behzad FATAHI

Venue: V303, V Block, PolyU

Time: 08:30-11:20, 2 December

Index	Title	Author
1.	Time series method for profiling of London clay with MWD data	Siyuan WU , Zhongqi Quentin YUE
2.	Granular soil modulus extraction for intelligent compaction using machine learning with soil-structure interaction considerations	Zhengheng XU, Hadi Khabbaz, Wu DI, Behzad Fatahi
3.	Development of landslide deep deformation monitoring system based on fiber optical sensing technology	Na You, Huafu PEI , Feng ZHANG
4.	Risk assessment model for large diameter slurry balance shield tunnel construction	Yulin Chen , Shuilong Shen
5.	Optimal sensor placement for wireless sensing of shield tunnel deformation in the longitudinal direction	Jingkang SHI , Hongwei HUANG, Dongming ZHANG
6.	Detecting ground thermal conductivity via a novel thermal response test	Kai Gu , Bo ZHANG, Bin SHI
7.	Hyperspectral imaging features for concrete classification and early-age compressive strength assessment	Changsong WANG , Hongwei HUANG, Mingliang ZHOU
8.	Advanced marine pressure sensor design with elastic diaphragm and femtosecond fiber grating for high-precision pressure monitoring	Junhao JING , Wanhuan ZHOU
9.	Association rule mining and deformation prediction of reservoir landslide	Honghu ZHU, Jia WANG
10.	Smart monitoring and forecasting of confining pressure on shield tunnel segments during the construction period	Yujun WEI , Xiaowei YE, Yumin CHEN
11.	Vibration monitoring and reinforcement effect evaluation of vibro-replacement stone columns on the deep dam foundation: a case study	Pengfei YAO , Duanyang ZHUANG, Yanguo ZHOU, Yunmin CHEN, Dongchao ZHANG, Chun WANG
12.	A feasibility study of cross-borehole passive-seismic waveform tomography	Yao WANG , Hai LIU, Liu LIU
13.	Feasibility of bare FBG sensing technology in the measurement of inner wall axial stress along open-ended pipe pile in sand	Hailei KOU , Hao JING, Nan ZHOU, Qi CHEN, Wang LI
14.	Study on mechanical performance monitoring of prefabricated subway stations using distributed fiber optic sensors	Chengyu HONG, Wei RAO , Weibin CHEN

MS-05 Big data and artificial intelligence in geotechnics

Chairs: Pin ZHANG, Brian SHEIL

Venue: V316, V Block, PolyU

Time: 08:30-12:20, 14:00-15:40, 2 December

Index	Title	Author
1.	Efficient machine learning method for evaluating compressive strength of cement stabilized soft soil	Chen ZHANG , Zhiduo ZHU, Yun WAN, Wangwen HUO, Liu YANG
2.	Digital risk assessment of rock tunnel face: combining computer vision and data-driven	Mingliang ZHOU , Jiayao CHEN
3.	Static state analysis of earth-rockfill dams considering spatial variability based on random forest filter	Yichuan LI , Bin XU, Rui PANG
4.	Evaluation of the collapse susceptibility of loess using machine learning	Qingyi MU , Tian-qi SONG, Hong-jian LIAO
5.	Novel model for risk assessment of shield tunnelling in soil-rock mixed strata	Xinhui ZHOU , Shuilong SHEN
6.	A quality index for construction big data in EPB shield tunnelling	Yuhao REN , Chao ZHANG
7.	Data-driven and physics-informed bayesian learning of sparse site investigation and settlement monitoring data	Huaming TIAN , Yu WANG
8.	Physics-guided neural network for detecting the nature of concrete materials	Khalid Elbaz , Wafaa Shaban, Shuilong SHEN
9.	Operation optimization for aquifer thermal energy storage system based on a surrogate model-assisted method	Yang WAN , Fengshou ZHANG
10.	Data-driven constitutive modelling of granular soils considering multiscale particle morphology	Wei XIONG , Jianfeng WANG, Mengmeng WU
11.	Real-time prediction of slurry balanced shield machine attitude based on LSTM neural network	Jiayou TANG , Shuilong SHEN
12.	Data-driven multiscale modelling of granular materials via transfer learning	Tongming QU , Jidong ZHAO, YT FENG
13.	Intelligent identification of stratum characteristics during shield tunnelling based on PCA-GMM model	Weiwei ZHAO , Shuilong SHEN
14.	Mapping urban subsurface for sustainable growth: a machine learning approach	Zezhou WANG, Yue HU, Xiangfeng GUO
15.	Using the acoustic emission system to predict the severe failure of rock based on empirical statistics and machine learning methods	Shuaida ZHU , Changsong WANG, Hongwei HUANG, Dongming ZHANG
16.	Data assimilation methods for high-dimensional creep parameter related to heterogeneous rock mass in LCGX hydropower project	Changhao LYU , Yaolai LIU, Hongjie CHEN, Long YAN, Haijiang WANG, Weiya XU
17.	Reliability of data-centric approach in ground improvement design: evidence from jet grouted columns diameter estimation	Pierre Guy Atangana Njock , Zhenyu YIN, Shuilong SHEN

18.	Machine learning algorithms in rock strength prediction: a novel method for dynamic compressive strength of rock under freeze-thaw cycles	You LV , Ru ZHANG, Anlin ZHANG, Li REN, Jing XIE, Zetian ZHANG, Zhilong ZHANG, Junlong SUN, Kun XIAO, Zhiwei YAN, Ou MI
19.	Automatic classification of soil internal cracks based on high frequency GPR B-scan and deep convolutional neural network	Shi-Jin FENG, Jia-He ZHANG, Qi-Teng ZHENG , Hong-Xin CHEN
20.	Intelligent identification and classification of granite residual soil based on CNN	Yuhao TIAN , Bo ZHOU, Zhuoxun FENG, Huabing WANG
21.	TCN and LSTM neural network for predicting path-dependent constitutive behaviours of idealized granular soils	Xintong LI , Mengmeng WU, Jianfeng WANG

MS-06 Soil-structure interaction

Chairs: Fuping GAO, Dong-sheng JENG

Venue: V313, V Block, PolyU

Time: 08:30-11:20, 2 December

Index	Title	Author
1.	Research on the density of underwater sand and gravel fillings based on geotechnical centrifugal tests	Bo LI , Lei CHEN, Liqun SHEN
2.	Analysis of the impact of quasi-rectangular jacking pipe successively side crossing viaduct piles	Mengxi ZHANG , Yichen YAN, Weiqiang PAN, Kangming LU, Mengjia CAO
3.	Stress-displacement-microstructure characteristics and fem modelling of sand-structure interface	Yifei SUN , Zhitao YE, Xingbo HUANG
4.	Shear behaviour of sand-steel interface under steady heat flow	Pei TAI , Qing CAO, Zhaofeng LI, Rui CHEN, Chao ZHOU
5.	An analytical model for the changeable TBM disc cutter force induced by cutting the soil-rock interface	Mengbo LIU , Shaoming LIAO, Junhua XIAO, Jiacheng SUN
6.	Experimental study on the role of interfacial suction in uplifting a buried pipe from clayey soils	Yumin SHI , Fuping GAO, Ning WANG
7.	Slip-line field solution for the bearing capacity of a pipeline on clayey soils: from hill to Prandtl mechanism	Ning WANG , Fuping GAO, Yumin SHI, Wengang QI
8.	Vibration impact assessment of shield tunnelling in soil-rock strata	Xinhao MIN , Han CHEN, Shuilong SHEN, Yanning WANG
9.	Experimental study on temperature effect on the consolidation of seabed and penetration resistance of subsea pipeline into seabed clay	Yuxiao LI , Mingjun HU, Weiqiang FENG
10.	Identification of soil-rock interfaces based on deep learning with vibration data for shield tunnelling	Tao YAN , Shuilong SHEN, Annan ZHOU
11.	Dynamic analysis of anchor mooring systems for deepwater seaweed farms	Yushun LIAN, Man QIN, Jinhai ZHENG, Zhenghu PAN
12.	Experimental study on bearing capacity of the consolidated under-reamed pile	Shuyang LUAN, Junwei LIU, Xiaofeng PEI, Bo ZHU
13.	Cyclic response characteristics of rigid piles in dense sand under oblique loads	Ting HUANG , Yinghui TIAN
14.	Evaluation of soldier pile tieback wall based on p-y curve method	Ruipeng LI

MS-07 Geo-environmental engineering

Chairs: Yanjun DU, Kuo TIAN, Manman HU

Venue: V311, V Block, PolyU

Time: 08:30-12:20, 14:00-15:40, 2 December

Index	Title	Author
1.	Evaluation of rainfall water retention in vegetation plate slots for vegetation restoration on rocky desertification slope	Cheng ZHOU , Qi-ming ZHONG, Li-juan FAN, Qi LUO, Ning HE
2.	Tension-healing mechanism of desiccation cracks in a clayey soil	Qing CHENG , Chao-Sheng TANG
3.	Investigating leachate migration and efficacy of compressed air drainage in no food waste content landfills through electrical resistivity test	Hong-Xin CHEN , Dong-Jiang LV, Shi-Jin FENG, Qi-Teng ZHENG, Xiao-Lei ZHANG
4.	Preparation of geopolymer brick with copper mine tailings under low-temperature conditions	Quanbin JIN , Zhibin LIU
5.	Influence of organic matters content on the specific gravity of Shanghai soils	Jiawei LIU , Zhongqi Quentin YUE
6.	Spatial and temporal transport laws of light nonaqueous phase liquids in low-permeability soils	Yin-He GUO , Ding-wen ZHANG, Yan-min QI, Wen-li LIN
7.	Gas permeability of polyacrylamide amended geosynthetic clay liner in the cover barriers with calcium solution action	Ying-Zhen LI , Jia-lei WAN, Yan-jun DU
8.	Emission of volatile organic compounds from the intermediate cover at a large-scale municipal solid waste landfill in Hangzhou, China	Xiting GU , Haijian XIE, Huaxiang YAN, Xinru ZUO
9.	Influence of extraction and injection conditions on performance of thermal enhanced soil vapour extraction	Chun-Bai-Xue YANG , Shi-Jin FENG, Qi-Teng ZHENG
10.	Stability-preserving and conservation-preserving algorithm for HMC fully coupled problems	Shu-Qing WANG, Hong ZHENG, Zhi-Hong ZHANG
11.	An indirect method of carbonating magnesite for soil stabilization and CO ₂ capture	Wentao LI , Jiawei WU, Jinghao WANG, Henglin XIAO, Lihua LI
12.	Phenol containment by novel vertical cutoff wall backfill: coupled hydraulic conductivity, diffusion behavior and microstructure characteristics	Hao NI , Ri-Dong FAN, Yan-Jun DU
13.	Silica fume and gypsum coupled action in the cement-stabilized contaminated clay under saline and alkaline environments	Tingting DENG , Yongfeng DENG, Hang LIU
14.	Reactive chemo-hydro-mechanics for modelling aggressive fluid pressurization	Xiaojie TANG , Manman HU
15.	Fate and transport of PFAS through landfill liner system	Aamir AHMAD , Kuo TIAN
16.	Modelling of removal of copper and lead metals in loess under the effects of solid-phase adsorption and desorption	Lin WANG , Wen-Chieh CHENG, Zhong-Fei XUE
17.	Generalized effective stress of dual-porosity geomaterials considering the thermochemical effect and its verification	Gailei TIAN , Zhihong ZHANG, Zhaoyang SONG

18.	Chemical compatibility and hydraulic conductivity of polyanionic cellulose-micro zero-valent iron amended bentonite for vertical cutoff wall applications	Heng ZHUANG , Yan-Jun DU
19.	Effects of chemical solutions and leachates on the swelling behavior of hydrophilic seals used in geomembrane cutoff walls	Min WANG , Yanjun DU
20.	Experimental study of alkali activated slag enhanced compacted clay covering barrier layer	Chi CHE, Min WANG, Ying-zhen LI, Zhe-yuan JIANG, Yan-Jun DU

MS-08 Geo-hazard assessment and mitigation

Charis: Daoyuan TAN, Clarence E. CHOI

Venue: V315, V Block, PolyU

Time: 08:30-11:30, 2 December

Index	Title	Author
1.	Waves and their transitions in snow avalanches on real terrain	Xingyue LI
2.	Analysis of landslide-induced wave by a novel hybrid MPM+SPH method	Hao WU , Qiming ZHONG
3.	Dynamic process of Baige landslide blocking river event based on the FDEM-SPH coupling method	Yiding BAO, Lijun SU
4.	Coupled thermal-hydraulic-mechanical-chemical model in natural gas hydrate reservoirs	Hao-Ze WU , Chung-Fai CHIU, Shui-Long SHEN
5.	A hybrid deep learning network for landslide susceptibility assessment	Shaoqiang MENG , Zhenming SHI, Ming PENG
6.	Mitigation measure of tire-derived aggregate for jointed rigid pipes under differential ground movements	Qiwu XIE, Pengpeng NI, Xiaogang QIN
7.	Modeling of pumping-induced tensile earth fissures by coupled quasi-static material point method	Yun ZHANG , Zhengyang SHENG
8.	Research on rock dynamic characteristic of landslide dam and evolution of deposit movement	Huanling WANG, Shiqi LIU, Yu CHEN, Wenxiu WANG, Yuxuan LIU
9.	Experimental study of landslides in stable gentle soil slopes triggered by pressurized pore-gas	Xingyu KANG , Zhongqi Quentin YUE
10.	Transitions in impact and response modes for geophysical flow mitigations	Yong KONG , Daoyuan TAN, Jianghua YIN
11.	Risk assessment model of adjacent buildings in slurry shield construction	Ya-Jie WANG , Shui-Long SHEN
12.	Research on indoor experimental study of three-dimensional cracks development in stepped soil sites	Qingqing XIANG, Xiaowu TANG , Guoping SUN, Keyi LI, Tianqi WANG
13.	Effects of the burn temperature and combustion of organics on post-wildfire debris flow mobility	Feihong GAO , Clarence E. CHOI
14.	Mesosopic interpretation of fines clogging-induced permeability changes of completely decomposed granite	Zhiyuan LUO , Rui CHENG, Anthony Kwan LEUNG, Liang-liang ZHANG
15.	Effects of geometry configuration and material properties on entrainment rate and deposit morphology: an experimental study	Teng WANG , Lu JING, Shuocheng YANG, Gengchao YANG, Yuri Dumaresq SOBRAL, Fiona KWOK

MS-09 Sustainability and resilience of infrastructures

Chairs: Dongming ZHANG, Yu WANG

Venue: V313, V Block, PolyU

Time: 11:30-12:20, 14:00-15:40, 2 December

Index	Title	Author
1.	Quantifying the impact of climate change on risks of rainfall-induced landslides	Xin LIU , Yu WANG
2.	Optimization study of chimney parameters for coal mine dump gravity heat pipe	Bailin ZHANG , Shuhua FANG
3.	Enhancing metro network flood resilience through genetic algorithm optimization: a case study on flood barrier height design for metro network	Hao BAI , Yanan DONG, Dongming ZHANG, Huichao SUN
4.	A full scale model with Cauchy-type boundary conditions for simulating near surface effects on energy piles	Kewei GUO , Linfeng ZHANG
5.	Sustainability and performance-based seismic risk assessment of pile foundation using stone columns for liquefaction mitigation	Zhijian QIU , Yewei ZHENG
6.	Flood risk assessment based on an improved MCDM method and its application in flood disaster in Zhengzhou	Qian ZHENG , Shui-long SHEN, Annan ZHOU
7.	Field test on the low-carbon construction and the response improvement of bored piles based on combined grouting	Tao HU , Guoliang DAI, Bowen FANG, Cheng ZHANG, Zhihui WAN
8.	Research on risk assessment of offshore wind turbine foundations during life-cycle	Yang YANG , Fayun LIANG
9.	A comprehensive resilience evaluation method of shield tunnel structures under disaster disturbance	Bin-Lin GAN , Dong-Mei ZHANG, Zhong-Kai HUANG
10.	Experimental test for repairing rough cracks using the microbially induced carbonate precipitation (MICP)	Zihui SHANG , Enhui XI, Simiao ZHANG, Shuhong WANG
11.	Seismic fragility curve development for segmental tunnels via optimal IM and EDP pair	Jiaxing ZHOU , Chao ZHANG, Zhixiong LANG
12.	Seismic response analysis and resilience study of composite strata tunnel based on finite element method	Qingyu ZHANG , Wei ZHANG, Yadong XUE

MS-10 Unsaturated soil mechanics

Chairs: Annan ZHOU, Xiong ZHANG

Venue: V302, V Block, PolyU

Time: 11:50-12:20, 14:00-15:40, 2 December

Index	Title	Author
1.	Study on the structural parameter of loess: mapping energy	Longlong LV, Hongjian LIAO
2.	Water-gas flow in unsaturated vegetated soils	Junjun NI , Haowen GUO, Qi ZHANG
3.	Numerical implementation of elastic viscoplastic constitutive model based on overstress theory	Jian LI , Zhicun HAN, Guoqing CAI, Chenggang ZHAO, Xinzhe LI
4.	Pore-based modelling of relative hydraulic conductivity function of unsaturated rooted soils	Hao WANG , Rui CHEN, Anthony Kwan LEUNG, Ankit GARG, Zhen-liang JIANG
5.	Modelling time-dependent behaviour of unsaturated soils	Runkang ZHAO , Annan ZHOU, Yang-Ping YAO
6.	Hydro-mechanical behaviour of compacted expansive stiff clay subjected to wetting and drying cycles	Yihe XU , Qiong WANG, Wei SU
7.	A thermodynamic formulation of water potential in soil	Lingyun GUO, Shaojie HU, Chao ZHANG, Ning LU
8.	The competing effects of wetting and volume change on G_0 in compacted Loess	Miaomiao GE , Jubert PINEDA, Daichao SHENG
9.	Reducing lateral earth pressure on retaining walls in expansive soils using eps geofoam	Zhong HAN , Wei-Lie ZOU, Xie-Qun WANG
10.	A hydro-mechanical coupled model for wetting collapse of unsaturated soils: formulation, implementation, and application	Hao WU , Xiaohan LUAN, Yewei ZHENG
11.	Basic theoretical research and application of seepage evolution of low permeability medium	Jiangfeng LIU , Hongyang NI, Zhipeng WANG
12.	Study of structural characteristics and deformation patterns of compacted Gaomiaozi bentonite during dry-wet cycles at micro-CT scale	Wei WANG , Wei-Zhong CHEN, Dian-Sen YANG, Xian-Jun TAN, Xing WANG

MS-11 Tunnelling and underground space technology

Chairs: Louis N.Y. WONG, Qianbing ZHANG

Venue: V303, V Block, PolyU

Time: 11:30-12:20, 14:00-15:40, 2 December

Index	Title	Author
1.	Real-time settlement field reconstruction using deep operator networks	Chen XU, Ba-Trung CAO , Günther MESCHKE
2.	Numerical investigation of end reinforcement technology for super-large diameter shield tunnels and online prediction using machine learning	Chenyang ZHAO , Haoshen HE, Le CHEN, Jianrui LI, Beibing DAI
3.	Intelligent model to predict disc cutter wear in real-time	Nan ZHANG , Shui-Long SHEN, Annan ZHOU
4.	Sustainability of deep engineering surrounding rock stability affected by engineering disturbances: a case study of CJPL	Zeqian YANG, Ting AI, Ru ZHANG
5.	Study on coupled temperature and pressure conduction mechanism and sensor validation in in-situ deep environment simulation experiments of rock	Yihang LI , Heping XIE, Ru ZHANG, Zetian ZHANG
6.	Confined aquifer dewatering optimization with a modified simulation-optimization method considering the length and depth of well screen	Yanxiao SUN , Songyu LIU, Liyuan TONG
7.	Multiple coupling effect of soil spatial variability and adjacent loading and unloading on existing tunnel	Jinzhang ZHANG , Hongwei HUANG, Dongming ZHANG
8.	Experimental study on mechanical response of deep rock and constitutive model based on large size rock samples	Heng GAO , Hepin XIE, Ru ZHANG, Zetian ZHANG, Hongxin XIE, Yihang LI
9.	Cross-scale characterization of mudstone deterioration after water immersion based on nanoindentation technology and simulation	Qingsong ZHANG , Zhibin LIU
10.	Mechanical response and strength criterion constructing of granite subjected to thermal-hydraulic-mechanical coupling	Qijun HAO, Ru ZHANG, Mingzhong GAO, Jing XIE, Li REN, Anlin ZHANG, Zetian ZHANG
11.	A new viscoelastic-plastic solution of soft rock deformation in deep-buried tunnel considering	Yu PAN , Peng-Fei CHEN, Zhen-Yu YIN
12.	A numerical study on the tunnelling-induced ground deformation considering the compressed properties of tail grouting materials	Jiaxin LIANG , Wei LIU, Xiaowu TANG
13.	Large deformation modelling on tunnel face instability during EPB shield tunnelling considering dynamic excavation process	Xuejian CHEN , Tianqi MENG, Yong LIU
14.	Comparison of high-frequency components in acoustic emissions from rock fracture under mode I and mode II dominated loading	Hua LI , Jianhui DENG, Fei WANG

MS-12 Bio-geotechnical engineering

Chairs: Ningjun JIANG, Anthony Kwan LEUNG

Venue: V314, V Block, PolyU

Time: 08:30-12:20, 14:00-15:40, 2 December

Index	Title	Author
1.	Bio-mediated geotechnology and its application in geoengineering	Chao-Sheng TANG , Zhi-Hao DONG, Xiao-Hua PAN, Cheng ZHU, Chao LV, Dian-Long WANG
2.	Assessing the risk of land subsidence hazard on gas and oil pipelines in Iran	Ali Golaghaei DARZI, Hamed SADEGHI
3.	Effect of cross-linking of biopolymers on hydraulic properties of granitic residual soil	Rui CHEN
4.	An investigation of microscopic interaction between tall festuca root growth and sand by using X-ray microtomography	Ji-Peng WANG , Jun-Feng SHA, Xu-Guang GAO
5.	High fidelity simulation of failure and post-failure behavior of root-soil composite using coupled MPM-FEM method	Wei ZHANG
6.	Study on mechanical response of large-scale prefabricated structures during assebmlying process in underground subway stations	Chengyu HONG
7.	Roles of grass roots in crack mitigation and strength improvement of lateritic soil	Qian-Feng GAO , Han YU, Ling ZENG, Hui-Cong YU
8.	Remediation of naphthalene-contaminated sites using PAHs-degrading bacteria	Yi-Xin XIE , Wen-Chieh CHENG, Zhong-Fei XUE
9.	Natural symbiotic fungi strengthen plant roots	Xun-Wen Chen , Viroon KAMCHOOM, Jia-Qi WU, Guo-Dong SUN, Qiang ZHANG, Hui-Shan LI, Ming-Hung WONG, Hui LI, Jun-Jian WANG
10.	Investigation on canopy interception performance of typical slope protection grasses	Xu-Guang GAO , Ji-Peng WANG
11.	Multiscale experiments and DEM modeling of biotreated sand	Huanran WU , Jiang YAN, Yang XIAO, Hanlong LIU
12.	Role of biochar in improving biostimulated MICP: shear strength enhancement and ammonium removal	Yijie WANG , Wenbo CHEN, Ningjun JIANG
13.	Developing a reactive-transport model of microbially induced carbonate precipitation (MICP) applied to heavy metal-contaminated site remediation	Zhong-Fei XUE , Wen-Chieh CHENG, Lin WANG
14.	Anisotropic behaviour of overconsolidated rooted soils	Ali Akbar KARIMZADEH , Anthony Kwan LEUNG
15.	The effect of bentonite content and urea concentration on the stimulation effect of indigenous ureolytic bacteria in sandy soil	Yu ZHANG , Xiangrui XU, Yijie WANG, Ningjun JIANG
16.	Preliminary observations of fine root effects on soil hydraulic properties	Zhenliang JIANG , Anthony Kwan LEUNG, Jianbin LIU

17.	Herbaceous species and mycorrhizal fungi interaction on soil aggregate stabilization and disintegration in compacted soil	Minghui Li , Anthony Kwan Leung
18.	Experimental study on enhancement of thermal conductivity of EICP-treated calcareous sand	Shuang LI , Ming HUANG, Mingjuan CUI, Guixiao JIN, Kai XU
19.	Numerical modelling of rainfall-induced internal erosion process within vegetated deposited slopes	Xiaoqin LEI , Weiyu ZHANG, Xiaoqing CHEN
20.	The role of bio-geotechnics to reach net zero commitment in slope engineering	Hamed SADEGHI , Farshad YAZDANI, Pouya ALIPANAHI
21.	A simple model for predicting hydraulic conductivity of MICP-treated sand to prevent pollution dispersion	Yan-Ning WANG, Long-Jian HUANG , Chandra BOGIREDDY, Ankit GARG
22.	Research on erosion mitigation for sand foreshore slopes based on microbiota and enzyme mix-induced carbonate precipitation	Xiaohao SUN , Linchang MIAO, Hengxing WANG, Junjie WANG, Wenbo SHI, Linyu WU
23.	Small strain stiffness of lightly biocemented sands: the roles of particle morphology, gradation, and particle size	Jinquan SHI, Haoyu LI, Yang XIAO, Hanlong LIU
24.	Effects of diatom microfossils inclusion on compression behaviors of soft clay	Shenghua XU, Yongfeng DENG, Qi FENG

MS-13 Offshore geotechnical engineering

Chairs: Yinghui TIAN, Ashley P. DYSON

Venue: V321, V Block, PolyU

Time: 08:30-11:40, 2 December

Index	Title	Author
1.	Seabed liquefaction under diversiform waves: from regular, random, to breaking wave	Fuping GAO
2.	Developing an integrated mooring system modelling program	Wenlong LIU, Yinghui TIAN , Mark J. Cassidy
3.	Reliability analysis of offshore monopile foundations considering multidirectional loading and soil spatial variability	Xueyou LI
4.	Horizontal-torsional sliding resistance of subsea foldable mudmats	Xiaowei FENG , Xiaolong LI
5.	Artificial preparation of natural structured soft clay producing high liquid limit and macroporous characteristic	Zhichao WANG
6.	Fin configuration effect on the penetration and pullout behaviors of deep-sea dynamically installed anchor	Yong FU , Biao ZHANG
7.	Experimental investigation of keying flap motion and embedment loss of sepla during keying in transparent soil	Chunhui ZHANG , Xiaoming ZHENG, Yinghui TIAN, Le WANG
8.	Experimental investigation on the performance of tolerably mobile subsea foundations with varied interface conditions	Congcong HAN , Xiaohan ZHANG, Xiaowei FENG, Jun LIU
9.	Installation disturbance of helical anchor in dense sand and the effect on uplift capacity based on discrete element method	Rong CHEN, Hu LIU, Dongxue HAO , Zhaoguo LIU
10.	An extended hill solution for the undrained bearing capacity of strip foundations on soil modeled by non-stationary random field	Hongzhen CHEN, Zhichao SHEN , Xuanxuan CHU, Le WANG, Yinghui TIAN
11.	Numerical analysis on the embedment loss of plate anchors in double-layer clay	Yanbing ZHAO
12.	Behavior of frp confined seawater sea-sand concrete piles	Numan Malik , Jian-hua YIN, Wenbo CHEN, Pei-chen WU, Zejian CHEN
13.	Numerical modelling of a pile-leg mat foundation on clay seabed under combined loading	Qi ZHANG , Tianhao WANG, Wenxuan ZHU, Guanlin YE
14.	A novel gravity installed anchor with ring fins and soft shanks and its dynamic performance in water and clay	Jing SUN, Haixiao LIU
15.	The behaviour of FRP-confined sand and cemented sand under four-point flexural tests	Jing-cheng TENG
16.	Forecasting model for recommissioning performance of offshore wind power based on physics-informed neural networks	Chen WANG , Xi CHENG, Fayun LIANG, Lin LI

MS-14 Transportation geotechnical engineering

Chairs: Xianfeng LIU, Jeff Jianfeng WANG

Venue: V321, V Block, PolyU

Time: 11:50-12:20, 14:00-15:40, 2 December

Index	Title	Author
1.	(Invited) Investigating particle breakage in sand under triaxial shearing: a novel approach combining x-ray tomography and particle tracking	Mengmeng WU , Jianfeng WANG
2.	(Invited) Investigation on strength, stiffness and microstructure of a lime-treated red mudstone	Kang CHEN, Xianfeng LIU , Shengyang YUAN
3.	(Invited) Experimental study on tunneling-induced deformation characteristics of pile-raft foundation of high-speed railway based on particle image velocimetry	Botao HU , Binglong WANG
4.	Investigation on the resilient modulus of soil mixture at various water contents and coarse grain contents under the train moving loads	Yu SU
5.	Tracking unfragmented and slightly fragmented particles in a mini-triaxial sample using the neural networks	Zhiren ZHU , Haolan YU, Jianfeng WANG, Zhuang CHENG
6.	Quantifying Geogrid-Aggregate Interface Shear Resistance Components Using 3-D Discrete Element Method	Yafei JIA , Yewei ZHENG
7.	Recycled utilization of dredged sludge as a subgrade material and field application study	Ke-xin GUO , Ning-jun JIANG
8.	In-situ x-ray CT investigation of internal erosion using a mini-triaxial apparatus	Zhangqi XIA , Jianfeng WANG
9.	The reactivation mechanism of ancient landslides under the coupled effects of rainfall and train vibration	Kai Han
10.	A multi-scale study on the strength characteristics of the lime stabilised red mudstone fill material	Jie MA , Xianfeng LIU, Jiahang XU, Shengyang YUAN
11.	A novel ballast roughness index and its assignment method based on roughness random field	Junhua XIAO, Kaichao WANG, Lihua XUE , Zhiyong LIU
12.	Performance evaluation of light-weighted cement-stabilized-clay columns for soft ground improvement using the centrifuge model test	Zhenping ZHAO, Zi YING, Wei YUAN, Yongfeng DENG, Xiaoqiang LIU, Chengfu CHU, Xingwen GU

MS-15 Earthquake engineering

Chairs: Rui WANG, Xiaoqiang GU, Gang WANG

Venue: V315, V Block, PolyU

Time: 11:40-12:20, 14:00-15:40, 2 December

Index	Title	Author
1.	Numerical modeling of drag anchor penetration and capacity	Jürgen GRABE , Duy Anh DAO
2.	Insights from numerical simulations of liquefaction behaviour within leap using the CycLiq model	Rui WANG , Jian-Min ZHANG
3.	Evaluating liquefaction resistance of nearly saturated soils by compressional wave velocity	Kangle ZUO, Xiaoqiang GU
4.	The liquefaction and reliquefaction behavior of sand considering reconsolidation effect under undrained cyclic simple shear by DEM	Wentian XIA, Yewei ZHENG, Qixin WU
5.	Automatic detection of tunnel defects based on point cloud data	Hao-Yuan LIANG , Shui-Long SHEN
6.	Study of the topographic effects of circular arc valley: 1-g shaking table tests	Zhikun WANG , Haitao YU
7.	Monotonic and cyclic behavior of silty sand with a constant state parameter: a DEM investigation	Kun PAN , Peipei LI, Chen ZHU, Zhongxuan YANG
8.	Seismic damage observation and investigation of Daliang tunnel under the 2022 Menyuan earthquake	Yibo Wei , Haitao Yu
9.	The liquefaction potential of silty sands evaluated using an energy-based perspective	Xiao WEI , Jun YANG
10.	Experimental analysis of static and dynamic characteristics of sand-clay mixtures for offshore floating wind turbines	Liheng TANG , Chencong LIAO, Yuanxi LI, Diyang ZHU
11.	Dynamic characteristics and damage mechanisms of expansive soil – rubber mixture under coupling effect of freeze-thaw cycles and external load	Zhaochi LU , Huan HE
12.	A study of the 2022 menyuan 6.9 magnitude earthquake's dynamic rupture characteristics and the causes of significant surface faulting	Jing LI , Haitao YU
13.	The dynamic response of a lined tunnel embedded in an inhomogeneous half-space subjected to SH waves	Shuhong WANG, Furui DONG, Zihui SHANG