

The 26th Annual Conference of HKSTAM 2023 in Conjunction with
The 18th Shanghai – Hong Kong Forum on Mechanics and Its Application
第 26 屆香港力學學會年會暨第 18 屆滬港力學論壇

April 15, 2023 Hong Kong

Conference Program

April 15, Saturday, Morning (GH201)

Plenary	<p>https://polyu.zoom.us/j/98669697237?pwd=aVF6UUtVbmV4dmgrbEZTYWNNSjdmQT09 Zoom Meeting ID: 986 6969 7237 Passcode: HKSTAM2023</p> <p>KouShare Live Broadcast: https://www.koushare.com/lives/room/177709</p>		
9:00 – 9:15am	<p style="text-align: center;">Opening addresses</p> <p style="text-align: center;">MC: Prof. Hui Tang, Secretary of HKSTAM</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center; vertical-align: top;"> <p>Prof. Gang Wang (王剛) President of HKSTAM 香港力學學會理事長</p> </td> <td style="width: 50%; text-align: center; vertical-align: top;"> <p>Prof. Shijun Liao (廖世俊) Vice President of SSTAM 上海市力學學會副理事長</p> </td> </tr> </table>	<p>Prof. Gang Wang (王剛) President of HKSTAM 香港力學學會理事長</p>	<p>Prof. Shijun Liao (廖世俊) Vice President of SSTAM 上海市力學學會副理事長</p>
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9:15 – 9:45am	<p style="text-align: center;">Distinguished Lecture I</p> <p style="text-align: center;">Chair: Prof. Shijun Liao (廖世俊), 上海市力學學會副理事長</p> <p style="text-align: center;">Prof. Yi-Kuen Lee (李貽昆)</p> <p style="text-align: center;">Department of Mechanical & Aerospace Engineering, Department of Chemical Engineering and Bioengineering, Hong Kong Center for Construction Robotics, Hong Kong University of Science and Technology</p> <p style="text-align: center;">“Advancements in MEMS Thermal Sensors for Smart Buildings and Smart Construction in the era of AIoT”</p>		

9:45 – 10:15am	<p style="text-align: center;">Distinguished Lecture II Chair: Prof. Gang Wang (王剛), President of HKSTAM Prof. Shijun Liao (廖世俊) School of Naval Architecture, Ocean and Civil Engineering, Shanghai Jiao Tong University “Ultra-chaos, Statistics Instability and Non-Reproducibility”</p>
10:15 – 10:45am	Photo Taking and Tea Break
10:45 – 11:15am	<p style="text-align: center;">Distinguished Lecture III Chair: Prof. Hui Tang (唐輝), Secretary of HKSTAM Dr. Qipeng Chen (陳其朋) Deep Learning Technology Platform, Baidu Inc. “Application of Physics-Informed Neural Network on Partial Differential Equation Solving”</p>
11:15 – 11:45am	<p style="text-align: center;">Distinguished Lecture IV Chair: Prof. Dongqiang Lu (盧東強), 上海市力學學會秘書長 Prof. Wei Hong (洪偉) Department of Mechanics and Aerospace Engineering, Southern University of Science and Technology “Chemically Identical Gels”</p>
11:45am – 12:15pm	<p style="text-align: center;">Distinguished Lecture V Chair: Prof. Jun Yang (楊峻), Vice-President of HKSTAM Prof. Kai Leong Chong (莊啟亮) Shanghai Institute of Applied Mathematics and Mechanics, School of Mechanics and Engineering Science, and Shanghai Key Laboratory of Mechanics in Energy Engineering, Shanghai University “Respiratory Disease Transmission from Fluid Mechanics Perspective”</p>
12:15 – 2:00pm	Lunch

April 15, Saturday, Afternoon (Parallel Sessions A1 to C1)

2:00 – 3:15pm	Session A1 [DE301] Chair: Prof. Xiaolong Tang	Session B1 [DE302] Chair: Prof. Chenglei Wang	Session C1 [DE304] Chair: Prof. Lin Fu
2:00 – 2:15pm	M. Hu, F. Wang, B.R. Xu, D.S. Deng# Dancing bubble and filamentation instability	D.Q. Lu#, Y.D. Liu Green functions for the hydroacoustic waves in a compressible inviscid fluid covered by an elastic thin plate	Z.M. Lu#, J.Z. Wu, Y.X. Zhou Interscale transfer mechanism of turbulent kinetic energy and Reynolds shear stresses in homogeneous shear turbulence
2:15 – 2:30pm	S.H. Yang#, X.W. Deng Application of machine-learning based optimization framework to offshore wind farm: layout and yaw control optimization	H.H. Huang#, L. Fu A high-order shock-capturing DG method based on the TENO scheme	X.L. Chen#, L. Fu Linear response analysis of compressible turbulent channel flows
2:30 – 2:45pm	L.W. Zeng#, W. Wang, Y. Liu, H. Tang Flow induced vibration of a cactus-shaped cylinder with three/four ribs	X.C. Feng#, H. Xu Forecasting of ocean wave height using a multi-recurrent neural network structure	F.W. Zhao#, W.K. Yeung, Z.K. Wang, L. Li, H. Tang Deep reinforcement learning guided transverse force reduction for a bluff body in wake flow
2:45 – 3:00pm	M. Zubair#, Y.Z. Liu, X. Wen Heat transfer application of dual sweeping impinging jets at narrow spacing	C.Y. Yang#, J.D. Zhao, F. Zhu Numerical simulation of fluid-solid interactions by Peridynamics	S.J. Lin#, Z.G. Li, L.Q. Chen Impinging core-shell compound droplets on superamphiphobic surfaces
3:00 – 3:15pm	A.J. Ying#, T. Liang, Z.G. Li, L. Fu Prediction of incompressible turbulent channel flow using limited measurements based on the resolvent analysis	Q.C. Li#, L. Fu A high-order diffuse interface method with TENO-THINC scheme for compressible multiphase flows	W.K. Zhu#, L. Fu Resolvent analysis of turbulent pipe, channel and boundary layer flows
3:15 – 3:30pm	Tea Break		

presenter

April 15, Saturday, Afternoon (Parallel Sessions D1 to F1)

2:00 – 3:15pm	Session D1 [DE306] Chair: Prof. Rong Fan	Session E1 [DE307] Chair: Prof. Daolin Ma	Session F1 [DE308] Chair: Prof. Yanguang Zhou
2:00 – 2:15pm	H.J. Jiang#, Y.L. Huang Numerical simulation of discontinuous suspended ceiling systems under earthquakes	C. Zhao, J.J. Ren, D.L. Ma# In-situ mechanical calibration for vision-based tactile sensors	T. Wang#, Y. Qiao, Y.X. Guo, W.H. Zhou Application of high formwork support system safety monitoring based on fiber Bragg grating sensors
2:15 – 2:30pm	Z.H. Shen#, G. Wang, D.R. Huang, F. Jin Numerical study of the stability of the rock armor layer under extreme wave erosion using the resolved CFD-DEM method	Z.Q. Yue# Method, approach, treatment and solution for classical elasticity in layered solids	X. Wang#, R. Zhang Shape selection of pre-shaped liquid crystal elastomer strips
2:30 – 2:45pm	L. Zhang#, J. Yang Some new insights into rainfall-induced flowslides of granular soils	J. Yu#, M.I. Katsnelson, T. Zhang, S. Yuan Distribution of ripples in graphene membranes	孟莉# 一种基于损伤机制及热力学基本原理推导的蠕变寿命预测模型
2:45 – 3:00pm	H. Huang#, W.H. Zhou Study on penetration behaviors of foam into saturated sand in EPB tunneling	J.J. Guo1, Y. Zhang, D.K. Chen# Hydrogen-enhanced separation distance of two partials of edge dislocation in nickel	徐咏川#, 郑百林, 张镡, 宋珂, 方若 PEM 燃料电池快速冷启动中结冰双极板的广义热弹耦合问题研究
3:00 – 3:15pm	J.D. Yu#, J.D. Zhao, S.W. Zhao, W.J. Liang An explicit-implicit THM-Coupled MPM for saturated porous media	Z.Y. Ma#, Q.D. Yang, X.M. Guo A local to global (L2G) finite element method for efficient and robust analysis of arbitrary cracking in 2D solids	陈无凡# 一种热力学自洽的新型蠕变-循环塑性耦合本构模型
3:15 – 3:30pm	Tea Break		

presenter

April 15, Saturday, Afternoon (Parallel Session G1)

2:00 – 3:15pm	Session G1 [CD304] Chair: Prof. Zhenhai Li		
2:00 – 2:15pm	Y. Lu, G.H. Hu# Linear polymer chain diffusion in semi-flexible polymer network: A dissipative particle dynamics study		
2:15 – 2:30pm	W. Hu, Y. Zhang, P. Fei, T. Zhang, J. Lou, W. Chen, Z. Li# Mechanical force facilitates the SARS-CoV-2 viral entry		
2:30 – 2:45pm	G. Wang#, Y.G. Zhou High-performance and wide relative humidity passive evaporative cooling utilizing atmospheric water		
2:45 – 3:00pm	J.W. Qian#, X.T. Sun, J. Xu A data-driven reconstruction method for dynamic systems with multistable property		
3:00 – 3:15pm	H.Z. Fan#, Y.G. Zhou Ultralong mean free path phonons in HKUST-1 and their scattering by water adsorbates		
3:15 – 3:30pm	Tea Break		

presenter

April 15, Saturday, Afternoon (Parallel Sessions A2 to C2)

3:30 – 4:45pm	Session A2 [DE301] Chair: Prof. Rui Zhang	Session B2 [DE302] Chair: Dr. Shiji Lin	Session C2 [DE304] Chair: Dr. Xue Li
3:30 – 3:45pm	X. Tang#, X. Yang, E. Avital, F. Motallebi Investigation of the over-tip shock waves in tip leakage flows	Q.M. Zheng#, L. Fu Enstrophy production in compressible isotropic turbulence with vibrational non-equilibrium	X. Li#, W.H. Zhou Experimental study on dynamic shear modulus and liquefaction resistance of coral sand under cyclic loading
3:45 – 4:00pm	C. Cheng#, L. Fu Linear-model-based study of the coupling between velocity and temperature fields in compressible turbulent channel flows	T.R. Gao#, L. Fu A new SPH method based on high-order moving-least-square TENO scheme for compressible flows	Y.T. Zhao#, G. Wang Centrifuge and numerical modelling of the structurally cemented stone column-seawall system
4:00 – 4:15pm	C. Wang#, L.Y. Wang, G. Sun, J. Tao A novel flow control method incorporating the riblet technique on cascade profile and experimental validation	J. Yan#, X.Q. Yang, J. Ding, J.A. Hu, Y.L. Liu A robust compact Least-Squares reconstruction method for compressible turbulent flow simulations of complex configurations	Y.B. Ma#, J. Yang Earth pressure distribution of offshore monopiles with different slenderness
4:15 – 4:30pm	T. Liang#, L. Fu A new low-dissipation finite-volume method based on the TENO scheme for unstructured meshes	T.Y. Bai#, C. Cheng, L. Fu Kinematic properties of vortical structures in compressible wall-bounded turbulence	Q. He, J. Wu, W. Yan, W.H. Zhou Study on settlement of immersed tunnel segment based on 3D numerical manifold method considering uneven back silting and complex strata
4:30 – 4:45pm	J.W. Sheng#, X.Q. Yang, J. Ding, X.L. Tang, G.H. Hu High-precision aerodynamic and noise simulation of helicopter rotor hovering and forward flight	Y. Li#, P. Shen, W.H. Zhou Risk assessment of life loss in floods in a coastal city based on the hydrodynamic model	R.A.O. Vizmanos#, Z.S. Lai, J.D. Zhao Numerical simulation of coastal breakwater using signed distance field-based fully resolved coupled CFD-DEM
4:45 – 5:00pm			

presenter

April 15, Saturday, Afternoon (Parallel Sessions D2 to F2)

3:30 – 4:45pm	Session D2 [DE306] Chair: Prof. Yrjo Jun Huang	Session E2 [DE307] Chair: Prof. Dengke Chen	Session F2 [DE308] Chair: Prof. Yuan Ma
3:30 – 3:45pm	F. Wang, Y.J. Huang# Numerical simulation of granular system under cyclic excitation using discrete element method	L. Sun#, Z. Zhang, K. Zhang The study of foreign object damage law at different positions of aero-engine blade	J.W. Zhou#, K. Zhang, Y.W. Zhang, B.L. Zheng A mechanical stress control method in silicon-based anodes for enhancing cycling performance of lithium-ion batteries
3:45 – 4:00pm	X.P. Ye#, X.Y. Li, W.H. Zhou Verification of unsaturated shear strength theory of expansive soil using conventional direct shear test	X. Xiao#, J.H. Chen, M.J. Chen 3D printing of nanopillar-structured CH ₃ NH ₃ PbI ₃ perovskite with high stability and flexibility	X.L. Zhang#, Y.F. Yang, F. Xu Modeling of elasto-capillary phenomena based on the combined finite-discrete element method
4:00 – 4:15pm	Z.Y. Fu#, H.F. Lam A new time-domain dynamic response reconstruction method based on model condensation	Y.J. Xiang#, K.K. Tang, J. Tian, X.Q. Wang Machine learning-based prediction of morphological configuration and mechanical behavior of kirigami-inspired programmable active composites	Y.D. Zhao#, K.K. Tang Coupling Effect of Lamellar Grain Orientation and Micro-Defects on Fatigue Deformation of bimodal Ti-6Al-4V
4:15 – 4:30pm	Z. Lyu#, G. Wang Dynamic boundaries in material point method for seismic analysis	B.Y. Liu#, L. Zhou, S. Luo, Y.G. Zhou, J.L. Yang, Z.G. Li Molecular dynamics simulation of the diffusion coefficient of Ions through graphene nanopores	Y.X. Xu#, Y.G. Zhou Collaborative mechanisms boost the nanoscale boiling heat transfer at functionalized gold surfaces
4:30 – 4:45pm	Z.X. Wang#, W.H. Zhou, W. Yan Prediction of spatial behaviour of immersed tunnel joint using machine learning method	Z. Zhang#, K. Zhang, B.L. Zheng An efficient search algorithm of fracture angle of IFF criterion and the progressive damage model considering strain-rate effect	Y.F. Yang#, F. Xu A 3D hard-magnetic soft rod model
4:45 – 5:00pm			

presenter

April 15, Saturday, Afternoon (Parallel Sessions G2)

3:30 – 5:00pm	Session G2 [CD304] Chair: Prof Zhongmin Gu		
3:30 – 3:45pm	S.B. Huang#, Z.M. Gu, Y. Li, J. Zhu Acoustic Purcell effect from quasibound state in the continuum		
3:45 – 4:00pm	B.N. Chen#, X.Q. Yang, X.L. Tang, Y.L. Liu, J.A. Hu Noise control for nose landing gear by longitudinal wavy strut		
4:00 – 4:15pm	J.H. Jing#, Q. Jing, W. Yan, Y. Cheng, Y.X. Guo, W.H. Zhou Application of FBG sensor in deformation monitoring of island-tunnel section of Hong Kong-Zhuhai-Macao Bridge		
4:15 – 4:30pm	X. Xiang#, Y.G. Zhou Quasilocalized vibrational modes as efficient heat carriers in glasses		
4:30 – 4:45pm	S.L. Wei#, W.H. Zhou Development of two customized displacement measurement systems		
4:45 – 5:00pm	X. Wang, Q. Tong# Simulation of fracture-pattern formation in electrodes during lithiation/delithiation cycles		

presenter

April 15, Saturday, Evening

5:15 – 5:30pm	Closing Ceremony and Award Presentation [GH201]
5:30 – 6:15pm	HKSTAM Annual General Meeting [GH201] Attendees: Representatives of all Institution Members and all Full HKSTAM members
6:30pm	Banquet [Ju Yin House Seafood Restaurant (聚賢樓), 4/F, Communal Building, PolyU]

~ Closure of the conference ~

Conference Venues:

The conference will be in The Hong Kong Polytechnic University, Hung Hom, Hong Kong SAR. PolyU campus is well served by MTR. Please exit from MTR Hung Hom Station and follow the sign to access PolyU campus.

The venues for the conference are arranged as follows:

Time	Event	Location
9am – 12.15pm	Opening Addresses and 5 Distinguished Lectures	GH201
12.15pm – 2pm	Lunch buffet	Area right outside GH201
2pm – 5.15pm	14 parallel sessions	DE301~DE308 & CD304
5.30pm – 5.45pm	Closing Ceremony and Award Presentation	GH201
5.45pm – 6.30pm	HKSTAM Annual General Meeting	GH201
6.30pm	Banquet	Ju Yin House Seafood Restaurant (聚賢樓), 4/F, Communal Building

