

**The 25th Annual Conference of HKSTAM 2022 in Conjunction with  
The 17th Jiangsu – Hong Kong Forum on Mechanics and Its Application  
第 25 屆香港力學學會年會暨第 17 屆蘇港力學論壇  
April 23, 2022**

**Conference Program**

**April 23, 2022 Saturday, Morning**

Plenary	<a href="https://hkust.zoom.us/j/93465497313?pwd=YmlvSko0V3ZoenBydEIXNHdEMehxQT09">https://hkust.zoom.us/j/93465497313?pwd=YmlvSko0V3ZoenBydEIXNHdEMehxQT09</a> Zoom Meeting ID: 934 6549 7313      Passcode: HKSTAM2022
9:00 – 9:15am	<p style="text-align: center;"><b>Opening address</b> <b>MC: Prof. Hui Tang, Secretary of HKSTAM</b></p> <p style="text-align: center;"><b>Prof. Gang WANG (王剛)</b> President of HKSTAM 香港力學學會理事長</p> <p style="text-align: center;"><b>Prof. Qinsheng BI (畢勤勝)</b> Vice President of JSSTAM 江蘇省力學學會副理事長</p>
9:15 – 9:45am	<p style="text-align: center;"><b>Distinguished Lecture I</b> <b>Chair: Prof. Qinsheng Bi, Vice President of JSTAM</b></p> <p style="text-align: center;"><b>Prof. Jidong Zhao (趙吉東)</b> Department of Civil and Environmental Engineering, The Hong Kong University of Science and Technology (HKUST) “Multiscale, Multiphysics Modeling of Granular Materials”</p>
9:45 – 10:15am	<p style="text-align: center;"><b>Distinguished Lecture II</b> <b>Chair: Gang Wang, President of HKSTAM</b></p> <p style="text-align: center;"><b>Prof. Maosen Cao (曹茂森)</b> Department of Engineering Mechanics, Hohai University “Mechanics-activated Data Processing for Structural Health Monitoring”</p>

10:15 – 10:30am	<b>Online photo taking and break</b>
10:30 – 11:00am	<b>Distinguished Lecture III</b> <b>Chair: Prof. Jun Yang, Vice President of HKSTAM</b> <b>Prof. Yuan Lin (林原)</b> Department of Mechanical Engineering, The University of Hong Kong “Plastic Response of Cells: From Embryo Development to Disease Detection”
11:00 – 11:30am	<b>Distinguished Lecture IV</b> <b>Chair: Prof. Gang Wang, President of HKSTAM</b> <b>Prof. Yulong Han (韓玉龍)</b> State Key Laboratory of Mechanics and Control of Mechanical Structures, Nanjing University of Aeronautics and Astronautics “Biomechanical Imaging of Cells, Extracellular Matrix, and Cancer Invasion in 3D”
11:30am – 12:00pm	<b>Distinguished Lecture V</b> <b>Chair: Prof. Jun Yang, Vice President of HKSTAM</b> <b>Prof. Hui Tang (唐輝)</b> Department of Mechanical Engineering, The Hong Kong Polytechnic University “Machine Learning Guided Active Flow Control”
12:00 – 1:30pm	<b>Break</b>

**April 23, 2022, Saturday, Afternoon (Parallel Sessions A1 to C1)**

	<b>Session A1</b> <b>Chair: Prof. Yuan LIN</b> Meeting ID: 969 9970 7874 Passcode: HKSTAM2022	<b>Session B1</b> <b>Chair: Prof. Yang LU</b> Meeting ID: 935 9690 3128 Passcode: HKSTAM2022	<b>Session C1</b> <b>Chair: Prof. Kostas SENETAKIS</b> Meeting ID: 919 4647 3894 Passcode: HKSTAM2022
1:30 – 2:45pm			
1:30 – 1:45pm	L.J. Yu#, Z.Y. Yin, Y.F. Jin, J. Chen A nodal fractional step method for incompressible free-surface flow modelling in PFEM	N.S.C. Reddy#, K. Senetakis, Y. Wang Probabilistic-based contact modeling of sand particles	L. Zhang#, J. Yang Behaviour of granular soils under constant shear drained loading from a critical state perspective
1:45 – 2:00pm	L.W. Zeng#, F.W. Zhao, H. Tang, Y. Liu Flow induced vibration of a circular cylinder with an attached splitter plate	J.C. Teng#, Z.Y. Yin, J.G. Dai Experimental study on mechanical behaviors of FRP-confined sand and cemented sand	D. Yang, X. Wang, H. Zhang#, Z.Y. Yin, D. Su, J. Xu A Mask R-CNN based particle identification for quantitative shape evaluation of granular materials
2:00 – 2:15pm	J. Cui, D. Zhang# Influence on oil characteristic of hydro-viscous drive with consideration of inlet velocity	Z. Yuan#, D. Huang, G. Wang, F. Jin A new stacked ring torsional shear apparatus for multiple liquefaction tests of sands	Q. Ku#, J.D. Zhao Numerical simulation of compaction of elasto-plastic adhesive granular
2:15 – 2:30pm	C. He#, A. Stocchino, Z.Y. Yin, W.H. Wai Numerical investigation of the coastal macro-vortices dynamics in Hong Kong waters	S. Qin#, W.H. Zhou, T. Xu Sealing behaviour and morphological features of filter cake from sand-modified bentonite slurry	Z. Shen#, D. Huang, G. Wang, Y. Zhao, F. Jin Mesoscale discrete element modelling of cemented granular materials
2:30 – 2:45pm	C. Li#, J. Hao Three-dimensionality of supersonic laminar flow over a hollow cylinder-flare	M. Zhang#, Z.Y. Yin, Y. Fu Numerical investigation of inclined pull-out capacity of suction anchors in sand	S. Song#, P. Wang, Z.Y. Yin Micromechanical modelling of hollow cylinder tests on granular material
2:45 – 3:00pm	<b>Break</b>		

**April 23, Saturday, Afternoon (Parallel Sessions D1 to E1)**

1:30 – 2:45pm	<p align="center"><b>Session D1</b> <b>Chair: Prof. Wenjing YE</b> Meeting ID: 986 7441 9401 Passcode: HKSTAM2022</p>	<p align="center"><b>Session E1</b> <b>Chair: Prof. Henry C.W. CHU</b> Meeting ID: 935 2085 3974 Passcode: HKSTAM2022</p>	
1:30 – 1:45pm	<p>J. Ren#, S. Li, H. He, K. Senetakis Examination of the micromechanical contact behavior of iron tailing particles in various submersion states</p>	<p>H.C.W. Chu# Macrotransport theory for chemotactic microorganisms and diffusiophoretic colloids in hydrodynamic flows</p>	
1:45 – 2:00pm	<p>Y. Pan#, Z.Y. Yin, J.H. Yin Experimental study of the grid type prefabricated horizontal drains with vacuum preloading in Hong Kong marine deposit</p>	<p>D. Wu#, Y. Lin Modeling the adhesion and spreading of cells regulated by ligand diffusivity</p>	
2:00 – 2:15pm	<p>J.T. He#, D. Lei, Z.Q. Gao Experimental characterization of ITZ in concrete by SEM-DIC method</p>	<p>W. Li#, S. Keynia, J.A. Turner Characterization of the living plant cell wall modulus and turgor pressure using nanoindentation and mechanical modeling</p>	
2:15 – 2:30pm	<p>Y. Cheng#, W.H. Zhou, T. Xu Modelling and stability assessment of slurry shield tunnel excavation surface</p>	<p>B. Tang#, Y. Lin Defect size controlled rupture of biopolymer networks</p>	
2:30 – 2:45pm	<p>W. Xu#, Z.Y. Yin, H. Wang, X. Wang Experimental study on the monotonic mechanical behavior of completely decomposed granite soil reinforced by disposable face-mask chips</p>	<p>Q. Jiang#, H. Tang Simulation of tumor ablation in hyperthermia based cancer treatment</p>	
2:45 – 3:00pm	<b>Break</b>		

**April 23, Saturday, Afternoon (Parallel Sessions A2 to C2) [The best student presentation competition]**

3:00-4:30 pm	<p align="center"><b>Session A2</b> <b>Chair: Prof. Rui. ZHANG</b> Meeting ID: 969 9970 7874 Passcode: HKSTAM2022</p>	<p align="center"><b>Session B2</b> <b>Chair: Prof. Yanguang ZHOU</b> Meeting ID: 935 9690 3128 Passcode: HKSTAM2022</p>	<p align="center"><b>Session C2</b> <b>Chair: Prof. Zhenyu YIN</b> Meeting ID: 919 4647 3894 Passcode: HKSTAM2022</p>
3:00-3:15 pm	R. Zhang# Hydrodynamic flows in driven and active, nematic liquid crystals	Y. Zhou# Thermal transport spectroscopy in atomistic simulations	C. Tang#, W.H. Zhou, S.Y. He Settlement prediction of immersed tunnels by a Bayesian framework
3:15-3:30 pm	F. Deng#, H. Tang, C.L. Wang Intermittent locomotion of two self-propelled flexible plates in a side-by-side configuration	X. Wu#, Z.Y. Yin The finite element simulation of heat transfer in continuum	H. Wang#, Y. Lu Orientation dependent large plasticity of single crystalline gallium selenide
3:30 – 3:45pm	Z.Y. Wang#, Z.Y. Yin, Y.F. Jin, Y.Z. Wang Hydro-mechanical coupled NS-PFEM with nodal integration stabilization and polynomial pressure projection	Y. Wang#, Y. Guo, X. Wang, L. Li, D. Zhang Large deformations of hyperelastic curved beams based on the absolute nodal coordinate formulation	Y.X. Zhang#, Y.L. Wang, C.F. Yang, Y. Wang, L. Li, X. Guo, D.G. Zhang Simulation on vibration suppression of flexible manipulator with segmented constrained layer damping treatment
3:45 – 4:00pm	K. Lou#, Z.Y. Yin, J.H. Yin Effects by prefabricated drains and vacuum preloading on consolidation of Hong Kong marine deposits	W. Yan#, W.H. Zhou, P. Shen Novel modelling method for 3D stratigraphic uncertainty	Y. Li#, W.H. Zhou, P. Shen Flood risk assessment for vehicles on artificial islands during extreme weather
4:00 – 4:15pm	C. Zhou#, J.G. Jian, Z.Y. Yin Effect of fabric anisotropy on suffusion for gap-graded soils by coupled CFD-DEM method	H.L. Wang#, J. Yang, Z.Y. Yin, X.Q. Gu Modelling of monotonic and cyclic behaviors of soil-structure interface using nonlinear incremental model	J. Han#, Q. Ma Experimental and numerical investigation on the ballistic resistance of 2024+7075 double layers plates impacted by blunt projectiles
4:15-4:30 pm			F.W. Zhao#, Q. Jiang, Z.K. Wang, M. N. Mumtaz Qadri, H. Tang Energy harvesting using two fully passive flapping foils in tandem

**April 23, Saturday, Afternoon (Parallel Sessions D2 to E2) [The best student presentation competition]**

	<b>Session D2</b> <b>Chair: Prof. Hannah W. H. ZHOU</b> Zoom Meeting ID: 986 7441 9401 Passcode: HKSTAM2022	<b>Session E2</b> <b>Chair: Prof. Hui Tang</b> Meeting ID: 935 2085 3974 Passcode: HKSTAM2022	
3:00-3:15 pm	L.Q. Wang#, J.U. Surjadi, Y. Lu 3D printing of hierarchically strengthened medium-entropy alloy microlattices via structure-material-process integration	H. Huang#, Z.Y. Yin, X. Wang Application of deep learning techniques in type classification, geometry evaluation, 3D reconstruction and strength prediction of rock particles	
3:15-3:30 pm	X.Y. An#, C.L. Lai, H.L. Fan Three-dimensional meta lattice structures for broad band vibration suppression and sound absorption	S.Y. He#, W.H. Zhou Research on the settlement prediction of immersed tunnel based on the physics-informed machine learning	
3:30 – 3:45pm	C.M. Li#, S. Zhang, H. Chen, W. Ye On the generalized Snell’s law for the design of elastic metasurfaces	K.Y. Zhou#, D. Lei, J.T. He, P.X. Bai, F.P. Zhu A novel method for automatic identification of concrete micro-damage: artificial intelligence-improved DIC	
3:45 – 4:00pm	Z.Y. Fu#, H.F. Lam A time-domain structural response reconstruction method based on mode synthesis	F.G. He#, P. Zhang, Z.Y. Yin Data-driven modelling of rate-dependent behaviour of soft clays	
4:00 – 4:15pm	P.L. Li#, Z.Y. Yin, J.H. Yin A finite strain consolidation model considering creep and non-Darcy’s flow for vertical drains-improved clay under surcharge and vacuum preloading	H. Yu#, X.D. Miao, Z. Wu, F. Ping 基于 Wavelet-Gramian 的故障特征数据重构方法	

**April 13, Saturday, Evening**

4:35 – 4:50pm	<b>Closing Ceremony and Award Presentation</b> Meeting ID: 915 7745 8847 Passcode: HKSTAM2022		
5:00 – 5:30pm	<b>HKSTAM Annual General Meeting</b>	Attendees: Representatives of all Institution Members and all Full HKSTAM members	

~ Closure of the conference ~

### Summary of ZOOM Meeting Links

#### Morning Plenary Sessions (9:00-12:00 nn)

<b>Opening and Distinguished Lectures</b> <a href="https://hkust.zoom.us/j/93465497313?pwd=YmlvSko0V3ZoenBydEIXNHdEMehxQT09">https://hkust.zoom.us/j/93465497313?pwd=YmlvSko0V3ZoenBydEIXNHdEMehxQT09</a>	Meeting ID: 934 6549 7313 Passcode: HKSTAM2022
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#### Afternoon Parallel Sessions (1:30-4:30 pm)

<b>Session A1, A2</b> <a href="https://polyu.zoom.us/j/96999707874?pwd=Q2pJTTFxM2pRbHQ4WFRGMk9RVGh1Zz09">https://polyu.zoom.us/j/96999707874?pwd=Q2pJTTFxM2pRbHQ4WFRGMk9RVGh1Zz09</a>	Meeting ID: 969 9970 7874 Passcode: HKSTAM2022
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<b>Session B1, B2</b> <a href="https://hkust.zoom.us/j/93596903128?pwd=UGtOR1FyRHBqazBPaEQrN2RQNnNudz09">https://hkust.zoom.us/j/93596903128?pwd=UGtOR1FyRHBqazBPaEQrN2RQNnNudz09</a>	Meeting ID: 935 9690 3128 Passcode: HKSTAM2022
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<b>Session C1, C2</b> <a href="https://polyu.zoom.us/j/91946473894?pwd=eVp4aHYrekE4OWlja0srSIJONDJ0Zz09">https://polyu.zoom.us/j/91946473894?pwd=eVp4aHYrekE4OWlja0srSIJONDJ0Zz09</a>	Meeting ID: 919 4647 3894 Passcode: HKSTAM2022
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<b>Session D1, D2</b> <a href="https://hkust.zoom.us/j/98674419401?pwd=RDINQ1BHc3RIQVVOHhhaVIPRkNpUT09">https://hkust.zoom.us/j/98674419401?pwd=RDINQ1BHc3RIQVVOHhhaVIPRkNpUT09</a>	Meeting ID: 986 7441 9401 Passcode: HKSTAM2022
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<b>Session E1, E2</b> <a href="https://polyu.zoom.us/j/93520853974?pwd=MnlDZURQYkF5NUhoNEVBSVIOTThoQT09">https://polyu.zoom.us/j/93520853974?pwd=MnlDZURQYkF5NUhoNEVBSVIOTThoQT09</a>	Meeting ID: 935 2085 3974 Passcode: HKSTAM2022
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#### Closing Ceremony and AGM (4:35-5:30)

<a href="https://hkust.zoom.us/j/91577458847?pwd=aJrRHM0bDM2a0FqYjAvVUhiaE95UT09">https://hkust.zoom.us/j/91577458847?pwd=aJrRHM0bDM2a0FqYjAvVUhiaE95UT09</a>	Meeting ID: 915 7745 8847 Passcode: HKSTAM2022
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