

2023 ARMA East Asia Geomechanics Workshop

Program Overview

Workshop date: August 11-12, 2023

Venue: The Hong Kong Polytechnic University (PolyU)

Lim Por Yen Lecture Theatre (N001)

DATE	TIME	PROGRAM
Aug. 11 th	8:15-8:25	Reception
	8:25-8:35	Welcome Speech
	8:35-8:45	Opening Speech
	8:45-9:00	Group Photo
	9:00-9:40	Keynote (Prof. Manchao He)
	9:40-10:40	Invited Talks
	10:40-11:10	Coffee Break and Posters
	11:10-12:10	Invited Talks
	12:10-14: 00	Lunch & Coffee
	14:00-14:40	Keynote (Prof. Hyung-Mok Kim)
	14:40-15:40	Invited Talks
	15:40-16:10	Coffee Break and Posters
	16:10-17:30	Invited Talks
	18:30-20:30	Group Dinner
Aug. 12 th	9:00-9:40	Keynote (Prof. Derek Elsworth)
	9:40-10:40	Invited Talks
	10:40-11:10	Coffee Break and Posters
	11:10-12:10	Invited Talks
	12:10-14: 00	Lunch & Coffee
	14:00-14:40	Keynote (Prof. Kenji Furui)
	14:40-15:40	Invited Talks
	15:40-16:10	Coffee Break and Posters
	16:10-16:50	Invited Talks
	16:50-18:00	Closing Session

Conference Agenda

Plenary Session Day 1

Sustainable energy development of unconventional resources

Time	Speaker	Topic
8:15-8:25	Reception	
8:25-8:35	Dr. Andy Leung	Welcome from PolyU CEE
8:35-8:45	Dr. Han Gang	Opening Speech
8:45-9:00	Group photo of all attendees	
SECTION 1	CHAIR: Dr. Gang Han	
9:00-9:40	Prof. Manchao He (China University of Mining and Technology, Beijing, China)	Possible Earthquake Prediction Strategies (Keynote)
SECTION 1	CHAIR: Prof. Mao Sheng	
9:40-10:00	Dr. Fengshou Zhang (Tongji University)	Frictional properties of faults for engineering in the extreme environment (Invited)
10:00-10:20	Dr. Bing Hou (China University of Petroleum-Beijing, China)	Layer-penetration fracturing technology in deep coal-bearing strata (Invited)
10:20-10:40	Dr. Fiona Kowk (The University of Hong Kong, China)	Multiphase Flow in Cohesive Granular Material (Invited)
10:40-11:10	Coffee Break and Posters	
SECTION 2	CHAIR: Prof. Fengshou Zhang	
11:10-11:30	Dr. Xuhai Tang (Wuhan University, China)	The digital twins of grain-based rocks with micro-RME and AGBM (Invited)
11:30-11:50	Dr. Bisheng Wu (Tsinghua University, China)	How energy dissipation controls the evolution of multiple hydraulic fractures (Invited)
11:50-12:10	Dr. Tianshou Ma (Southwest Petroleum University, China)	Physics-constrained distributed neural network model for 3D in-situ stress prediction (Invited)
12:10-14:00	Lunch at U. Green	

SECTION 3 CHAIR: Prof. Ki-Bok Min		
14:00-14:40	Prof. Hyung-Mok Kim (Sejong University, South Korea)	The essential elements for implementing underground storage of compressed air and hydrogen energies in excavated and lined hard rock caverns (Keynote)
14:40-15:00	Dr. Haiyan Zhu (Chengdu University of Technology, China)	Four-dimensional geo stress prediction and its application in shale gas fracturing (Invited)
15:00-15:20	Dr. Bo Zhang (University of Alberta, Canada)	GeoCloud - a multiscale and multiphysics data-driven modeling platform for subsurface energy systems (Invited)
15:20-15:40	Dr. Hui Wu (Peking University, China)	Investigation of the effect of matrix on tracer transport processes in subsurface fractured reservoirs (Invited)
15:40-16:10	Coffee Break and Posters	
SECTION 4 CHAIR: Prof. Bing Hou		
16:10-16:30	Dr. Peng Tan (CNPC Engineering Technology Research and Development Company Limited, Beijing, China)	Balanced hydraulic fracturing technology for controlling fault activation of shale formations: Concept and strategy (Invited)
16:30-16:50	Dr. Yuedu Chen (Taiyuan University of Technology, China)	THM coupled behaviors of hydro-shear stimulation and heat extraction in hot fractured reservoirs: experiment and modeling (Invited)
SECTION 5 CHAIR: Prof. Haiyan Zhu		
16:50-17:10	Dr. Xiaorong Li (China University of Petroleum-Beijing, China)	The failure mechanism of cement sheath integrity considering the coupled thermo-hydro-mechanical-chemical effects (Invited)
17:10-17:30	Dr. Yiqun Zhang (China University of Petroleum-Beijing, China)	Integrated Technology of Natural Gas Hydrate Reservoir Stimulation and Carbon Storage by Radial Well Cavitation Jet (Invited)
18:30-20:30	Group dinner at U. Green	

Plenary Session Day 2

Geophysics and Rock Physics for sustainable energy development

Time	Speaker	Topic
SECTION 6 CHAIR: Dr. Qi Zhao		
9:00-9:40	Prof. Derek Elsworth (The Pennsylvania State University, USA)	Understanding Triggered Seismicity and Permeability Evolution in the Subsurface – Key Needs in Pursuit of the Energy Transition (Keynote)
9:40-10:00	Dr. Ki-Bok Min (Seoul National University, South Korea)	Findings and lessons learned from geomechanical studies at Enhanced Geothermal Systems Project in Pohang, Korea (Invited)
10:00-10:20	Dr. Bo Li (Tongji University, China)	Experimental and numerical analysis of coupled HMC processes in single rock fractures (Invited)
10:20-10:40	Dr. Yongchae Cho (Seoul National University, South Korea)	A practical application of elastic full-waveform inversion: Gulf of Mexico ocean-bottom node case study (Invited)
10:40-11:10	Coffee Break and Posters	
SECTION 7 CHAIR: Prof. Yongchae Cho		
11:10-11:30	Dr. Hongfeng Yang (Chinese University of Hong Kong, China)	Earthquakes during shale gas development in the Sichuan basin (Invited)
11:30-11:50	Dr. Ping Tong (Nanyang Technological University, Country)	Investigating geothermal energy potential in Singapore using adjoint-state seismic imaging techniques (Invited)
11:50-12:10	Dr. Hui Yang (University of Toronto, Canada)	Water Effects on Elastic Wave Propagation and Attenuation across Single Clay-rich Rock Fractures (Invited)
12:10-14:00	Lunch at U. Green	

SECTION 8 CHAIR: Prof. Bo Li		
14:00-14:40	Prof. Kenji Furui (Waseda University, Japan)	Perspectives of Oil and Natural Gas Development and Geomechanics-Related Issues in Geological CO2 Storage (Keynote)
14:40-15:00	Dr. Manman Hu (The University of Hong Kong, China)	Environmental Geomechanics for Sustainable Energy Resources Engineering (Invited)
15:00-15:20	Dr. Mao Sheng (China University of Petroleum-Beijing, China)	Mechanical Characteristics of Shale bedding and impacts on hydraulic fracture propagation (Invited)
15:20-15:40	Dr. Fengchen An (China University of Petroleum-Beijing, China)	An ABAQUS VUEL the subroutine of pore-pressure cohesive elements for simulation of 3D dynamic meso-scale fracking in quasi-brittle materials (Invited)
15:40-16:10	Coffee Break	
SECTION 9 CHAIR: Prof. Xuhai Tang		
16:10-16:30	Dr. Shan Wu (Hefei University of Technology, China)	Investigating the propagation of multiple hydraulic fractures in shale oil rocks using acoustic emission (Invited)
16:30-16:50	Dr. Qi Zhao (The Hong Kong Polytechnic University, China)	Numerical simulation of injection-induced seismicity in the fractured rock mass (Invited)
Closing Session		

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Hong Kong, China

Workshop Programme

**Geomechanics and Geophysics for
Sustainable Energy Development**



THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學



DEPARTMENT OF
CIVIL AND ENVIRONMENTAL ENGINEERING
土木及環境工程學系

