



**2nd International Conference on Geomechanics and
Geoenvironmental Engineering, Sydney, 2022
(iCGMGE 2022)**

27-30 Nov 2022 Sydney, Australia

6th GCSTMR World Congress

Western Sydney University, Parramatta South Campus, Sydney, Australia

[Corner of Victoria Road and James Ruse Drive (enter via Victoria Road), Parramatta]

Organised by:

School of Engineering, Design and Built Environment

Western Sydney University

and

Global Circle for Scientific, Technological and Management Research (GCSTMR)

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Time: Australian Eastern Time (AEST)

Day 1 – Sunday 27 Nov 2022

(Room: EA.G.32)

Time	Event	Remark
5:30 – 7:30 pm	Registration, Refreshments, and Networking (Room EA.G.32)	<p>Delegates will be welcomed by the General Chair, conference chairs, and the local organizing committee members.</p> <p>General Chair: Prof. Ataur Rahman</p> <p>Conference Chairs: Prof. Ataur Rahman Assoc/Prof. Fidelis Mashiri Prof. Zhong Tao Prof. Chin Leo Prof. Samanthika Liyanapathirana Prof. Henry Wong A/Prof. Qinghua Zeng Prof. Hao Ding</p> <p>Conference Secretaries: Dr Muhit Rahman Dr Md Kamrul Hassan Dr Pan Hu Dr Xuefeng Dong</p> <p>IT Services: Dr. Rezaul Bashar</p> <p>Conference Management Coordinator: Ms Jenis Islam</p>

Day 2 – Monday 28 November 2022

(Room: EA.G.18)

(Zoom ID: 842 7785 5984; password: 264182)

Time	Session
8:00 – 9:00 am	Registration Parramatta South Campus, Building EA Room PS-EB.G.33 Desk in charge: Ms Jenis Islam
9:00 – 9:30 am	Conference Opening Room EA.G.18, Parramatta South Campus Moderator: Prof. Ataur Rahman, Chair, GCSTMR Acknowledgment of Indigenous owners of the land Speech: Prof. Ataur Rahman, Chair (iCWEE-2022) Speech: Assoc/Prof. Fidelis Mashiri, Chair (iCSER-2022) Speech: Prof. Chin Leo, Chair (iCGMGE-2022) Speech: A/Prof. Qinghua Zeng, Chair (iCMEMS-2022) Speech: Prof. Mike Kagioglou Dean, School of Engineering, Design and Built Environment Speech: Mr Jihad Dib, MP Shadow Minister for Emergency Services, and Shadow Minister for Energy and Climate Change Housekeeping: Prof. Ataur Rahman
	Plenary Session 1 - Chair: A/Prof. Fidelis Mashiri and Prof Zhong Tao (Room EA.G.18)
9:30 – 10:00 am	Plenary 1: Professor Brian Uy, The University of Sydney, Australia
	Plenary Session 1 - Chair: Prof. Ataur Rahman (Room EA.G.18)
10:00 – 10:30 am	Plenary 2: Evolution of WSUD in Australia under a changing climate, Professor Dr Tony Ladson, Victoria University, Australia
10:30 – 11:00 am	Morning Tea (Room PS-EB.G.33)
	Plenary Session 2 - Chair: Prof. Henry Wong and Prof. Samantha Liyanapathirana (Room EA.G.18)
11:00 – 11:30 am	

	Plenary 3: A Bounding Surface Viscoplasticity Model for Time-Dependent Behaviour of Soils including Primary and Tertiary Creep Prof. Nasser Khalili, University of New South Wales, Australia
	Plenary Session 2 - Chair: A/Prof Qinghua Zeng (Room EA.G.18)
11:30 – 12:00 pm	Plenary 4: Pro Michael Ferry, University of New South Wales, Australia
	Plenary Session 2 - Chair: Prof Ataur Rahman (Room EA.G.18)
12:00 – 12:30 pm	Plenary 5: Quantitative Precipitation Estimates and Future of Hydrologic Design and Modeling Prof. Ramesh Teegavarapu, Florida Atlantic University, USA
12:30 – 1:30 pm	Lunch (Room PS-EB.G.33)
	Plenary Session 3 - Chair: A/Prof Fidelis Mashiri and Prof Zhong Tao (Room EA.G.18)
1:30 – 2:00 pm	Plenary 6: Fatigue of High Strength and Ultra-High Strength Professor Xiao-Ling Zhao, University of New South Wales, Australia
	Plenary Session 3 - Chair: Prof. Chin Leo and Prof. Samanthika Liyanapathirana (Room EA.G.18)
2:00 – 2:30 pm	Plenary 7: Measurements from the interior, capabilities and challenges with using X-rays and transparent soil Prof. David Airey, University of Sydney, Australia
	Plenary Session 3 - Chair: Dr Fazlul Karim (Room EA.G.18)
2:30 – 3:00 pm	Plenary 8: Advanced wastewater treatment: past, present, and future in Australia Prof. Faisal Hai, University of Wollongong, Australia
3:00 – 3:30 pm	Afternoon Tea break (Room PS-EB.G.33)
	Plenary Session 4 - Chair: A/Prof. Qinghua Zeng (Room EA.G.18)
3:30 – 4:00 pm	Plenary 9: Professor Qing Li, University of Sydney
	Plenary Session 4 - Chair: Prof. Ataur Rahman (Room EA.G.18)

4:00 – 4:30 pm	Plenary 10: WaterNSW Dr. Marlène van der Sterren, Manager Water Quality Modelling team at WaterNSW
	Plenary Session 4 - Chairs: A/Prof. Fidelis Mashiri and Prof. Zhong Tao (Room EA.G.18)
4:30 – 5:00 pm	Plenary 11: Prof. Jin Guan Teng Hong Kong Polytechnic University, Hong Kong
	Plenary Session 4 - Chair: Prof. Chin Leo and Prof. Henry Wong (Room EA.G.18)
5:00 – 5:30 pm	Plenary 12: Impact of water adsorption on earthen materials performances Prof. Antonin Fabbri, ENTPE, France
5:30 – 6:00 pm	Plenary 13: Serviceability limit state (SLS) design of geosynthetic-reinforced piled embankments Dr Suzanne van Eekelen, Deltares, Netherlands

Day 3 – Tuesday 29 Nov 2022

(Room: EB.G.36)

(Zoom ID: 891 7866 4082; password: icgmge2022)

Time	Session
8:00 – 9:00 am	Registration, Parramatta South Campus (Room PS-EB.G.33)
9:00 – 10:30 am	iCGMGE 2022: Technical Session 1 (Room-EB.G.36) Chair: Prof. Antonin Fabbri
9:00 – 9:30 am	Keynote 1: Prof. Yuxia Hu, University of Western Australia, Australia New Foundation for Offshore Renewable Energy Exploration – Helical Pile
9:30 – 9:45 am	Paper 1: Connecting meso and macro behaviour in constitutive modelling of geomaterials <i>Giang D. Nguyen, Ha H. Bui</i>
9:45 – 10:00 am	Paper 2: Comparison of EICP and biopolymer stabilisation for improving the mechanical properties of soil-based building materials <i>Cuccurullo Alessia, Sravan Muguda, Perlot-Bascoulès Celine, Gallipoli Domenico, Hughes Paul, Augarde Charles</i>
10:00 – 10:15 am	Paper 3: Numerical studies on the behavior of a freezing soil <i>Xin Li, Henry Kwaiwan WONG, Benoit PARDOEN, Antonin FABBRI, Youneng LIU</i>
10:15 – 10:30 am	Paper 4: Effect of date palm fibre treatments on the interface mechanical behavior of the fiber-stabilized soil <i>FOUCHAL Fazia, MAHI Abdelhak, Hamouine Abdelmadjid</i>
10:30 – 11:00 am	Morning Tea (Room EB.G.33)
11:00 – 12:30 pm	iCGMGE 2022: Technical Session 2 (Room-EB.G.36) Chair: A/Prof. Giang D. Nguyen
11:00 – 11:30 am	Keynote Paper 2: Dr Jim Yang, Arcadis Australia Pacific, Australia Some Technical Challenges of Piled Foundation Design – Case Studies
11:30 – 11:45 am	Paper 5: MPM Simulation of multi-physics problems within unsaturated soils <i>Xiaoqin Lei, Henry Wong</i>
11:45 – 12:00 pm	Paper 6: Multiscale numerical analysis of damage in heterogeneous rocks applied to underground works <i>Benoît Pardoën, Christos Mourlas</i>
12:00 – 12:15 pm	Paper 7: Proposal of a homogenization model of the mechanical properties of a silt treated with lime and binder <i>Lucile PIGEOT, Anthony SOIVE, Nathalie DUFOUR, Ahmed LOUKILI</i>

12:15 – 12:30 pm	Paper 8: Dry density estimation using light penetrometer applied to tropical residual soils <i>Bilal Yoka, Mathilde Morvan, Pierre Breul</i>
12:30 – 1:30 pm	Lunch (Room PS-EB.G.33)
1:30 – 3:00 pm	iCGMGE 2022: Technical Session 3 (Room-EB.G.36) Chair: Prof. Chin Leo
1:30 – 1:45 pm	Paper 9: Ground-borne wave propagation emitted by a tunnel boring machine in a finite domain. Theoretical formulation and numerical resolution <i>RALLU Antoine, DAHI Younes, BRANQUE Denis</i>
1:45 – 2:00 pm	Paper 10: Analytical modelling of irreversible dilative creep behaviour of underground cavities <i>SUN Yufeng, WONG Kwai Kwan, Benoit Pardoën, Frederic DELERUYELLE, DUFOUR Nathalie, Deni BRANQUE, LEO Chin</i>
2:00 – 2:15 pm	Paper 11: Study of clays: comparison of classical parameters for swelling and non-swelling soils <i>Mathilde Lefebvre, Mathilde Morvan</i>
2:15 – 2:30 pm	Paper 12: Physical experiment study on the influence of river submerged island on near field characteristics of reservoir landslide-tsunami <i>Zhang Yujie , Zhang Shen , Tang Yang</i>
2:30 – 2:45 pm	Paper 13: An investigation into the performance of integral bridge abutment backfill under cyclic translational movements <i>Lila Dhar Sigdel, Chin Jian Leo, Samanthika Liyanapathirana, Pan Hu, Minghao Lu</i>
2:45 – 3:00 pm	Paper 14: The Influence of Dilatancy Effect of Shallow Sand on the Performance of Plough <i>Liyuan Li , Teng Wang</i>
3:00 – 3:30 pm	Afternoon Tea (Room EB.G.33)
3:30 – 4:15 pm	iCGMGE 2022: Technical Session 4 (Room-EB.G.36) Chair: Dr Mathilde Morvan
3:30 – 3:45 pm	Paper 15: Simulating the effects of a bushfire event on soil-structure interactions of an integral abutment bridge <i>Minghao Lu</i>
3:45 – 4:00 pm	Paper 16: Evaluation of the Different Design Procedures for Geosynthetic Materials in Pavements <i>Mehrad Kamalzare, Deema Edrees, Sahar Ahmed</i>
4:00 – 4:15 pm	Paper 17: Revisiting of the critical state concept to model the behaviour of fine iron sand <i>Van Doan, Chin Leo, Samanthika Liyanapathirana, Pan Hu</i>
7:30 – 9:30 pm	CONFERENCE DINNER (Only for the CONFERENCE DINNER ticket holders)

Day 4: Wednesday 30 Nov 2022

(Room: EB.G.36)

(Zoom ID: 891 7866 4082; password: icgmge2022)

Time	Event
8:00 – 9:00 am	Registration Parramatta South Campus Room PS-EB.G.33
9:00 – 10:30 am	iCGMGE 2022: Technical Session 5 (Room-EB.G.36) Chair: A/Prof. Yinghui Tian
9:00 – 9:30 am	Keynote Paper 3: Dr Richard Kelly, Chief Technical Principal, SMEC, Australia Interpretation of thermal and dilatatory pore pressure dissipation tests
9:30 – 9:45 am	Paper 18: Effects of Pile Extraction on Adjacent Structures in Soft Soil <i>Bosco Poon, Kim Chan</i>
9:45 – 10:00 am	Paper 19: Characterisation of coastal landslides in the Basque Country of France <i>Cuccurullo Alessia, Guillen Lucie, Thiery Yannick, Perlot-Bascoulès Celine, Bruno Agostino Walter, Gallipoli Domenico</i>
10:00 – 10:15 am	Paper 20: Ability of FEM modelling approaches to reproduce the heat exchange and the structural behaviour of complex energy geostructures <i>Alice Di Donna</i>
10:15 – 10:30 am	Paper 21: A combined retrofitting technology applied to adobe masonry <i>Shaoping Deng, Yao Zhang, Hexian Su, Wen Pan, Bo He</i>
10:30 – 11:00 am	Morning Tea (Room EB.G.33)
11:00 – 12:30 am	iCGMGE 2022: Technical Session 6 (Room-EB.G.36) Chair: Prof. Samanthika Liyanapathirana
11:00 – 11:30 am	Keynote Paper 4: Prof. Hadi Khabbaz, University of Technology, Australia Challenges and Opportunities for Incorporating Closed Landfill Sites in Infrastructure Development
11:30 – 11:45 am	Paper 22: A double-scale numerical modelling describing the time-dependent behaviour of viscous clayey rock <i>Yufeng SUN, Benoit Pardoën, Abraham P. van den Eijnden, Henry Wong</i>
11:45 – 12:00 pm	Paper 23: Investigation of different gas properties and stress effects on salt cavern permeability <i>Yuan Ziran, Xie Lingzhi, He bo, Wang Runxi, Zhang Yao, Liu Jun</i>
12:00 – 12:15 pm	Paper 24: Study the fracture process zone development characteristics and fracture mechanism of shale based on CSCBD splitting tests with digital image correlation method <i>Baolin Chen, Lingzhi Xie, Yao Zhang, Bo He, Jun Liu, Runxi Wang</i>

12:15 – 12:30 pm	Paper 25: Environmental Geology Assessment of proposed Dam site at Nenggiri River, Kelantan, Malaysia <i>Wan Zuhairi Yaacob</i>
12:30 – 1:30 pm	Lunch (Room EB.G.33)
1:30 – 3:00 pm	iCGMGE 2022: Technical Session 7 (Room-EB.G.36) Chair: Dr Cuccurullo Alessia
1:30 – 2:00 pm	Keynote Paper 5: A/Prof. Yinghui Tian, University of Melbourne, Australia Anchoring systems for the next generation of floating infrastructures
2:00 – 2:15 pm	Paper 26: Change in mechanical behaviour of unsaturated earthen materials under freezing-thawing <i>Lassana TRAORÉ, Antonin FABBRI, Fabrice ROJAT, Fionn McGREGOR</i>
2:15 – 2:30 pm	Paper 27: Simple calculation method and mechanism analysis of settlement deformation of offshore large silt - returning immersed tube tunnel <i>YUE Xia-bing, WU Ding-yi, XIE Xuan-di, XIAO Tian-peng, WANG Yi-ding</i>
2:30 – 2:45 pm	Paper 28: Study on optimization of inclined and vertical piles in foundation pits using numerical simulation <i>Tang Yang, Zhang Shen, Zhang Yujie</i>
2:45 – 3:00 pm	Paper 29: Experimental Investigation of EPS Inclusion Utilization in Mitigating Soil Structure Interaction Issues in Integral Abutment Bridges <i>Ahmed Alqarawi, Chin Leo, Samanthika Liyanapathirana, Lila Sigdel, Pan Hu</i>
3:00 – 3:30 pm	Afternoon Tea (Room EB.G.33)
3:30 – 4:15 pm	iCGMGE 2022: Technical Session 8 (Room-EB.G.36) Chair: Dr Pan Hu
3:30 – 3:45 pm	Paper 30: An investigation into application of recycled waste glass aggregates to replace traditional quarried aggregates <i>K.K. Widuruwan Premathilaka, D.S. Liyanapathirana, Chin Leo, Pan Hu</i>
3:45 – 4:00 pm	Paper 31: Stability Analysis of a Highway Slope with Support Structure under Freeze-Thaw Action <i>Xin Hou, Zhijia Xue, Xujie Deng</i>
4:00 – 4:15 pm	Paper 32: Adsorption of NaOH solution on kaolinite and montmorillonite surfaces: a molecular dynamics study <i>Yixing Xu, A/Prof. Qinghua Zeng, Prof. Chin Leo</i>
5:00 – 5:30 pm	Conference Closing and Awards (Room EA.G.18)