

ICTUS19

Tunnels connecting to another world

POSTER SESSION 10:00~18:00 / ICC JEJU 3rd Fl. Conference Hall Lobby

Poster Presentation: 15:30~17:00

- **Optimized waterjet parameters for overcutting generation of TBM**
Tae-Min Oh(Korea)*, Gye-Chun Cho, Yohan Cha
- **Application of Modern Rock TBM for the construction of Dobongsan-Okjeong tunnel, Korea**
Seung-Joo Kwak(Korea)*, Joo-Don Kim, Yong-Deck Park
- **Change of Groundwater Inflow by Cutoff Grouting Thickness and Permeability Coefficient**
Youngsang Kim, Joon-Shik Moon(Korea)*
- **Stability evaluation of a double-deck tunnel with a diverging section**
You-Sung La, Bumjoo Kim(Korea)*
- **3D Numerical Simulation of Stress and Strain Properties of Soil Shield Tunnel during Excavation**
Tang Pan(China)*, Huang Jingyu
- **Variations of the mechanical behaviors of grouts under the blasting induced vibration**
Myung Sagong
- **Wear evaluation of TBM disc cutters using the discrete element method**
Byungkwan Park(Korea)*, Chulho Lee, Soon-Wook Choi, Tae-Ho Kang, Soo-Ho Chang
- **Deformation Pattern of Tunnel Bottom after Tunnel Construction In geological conditions of long-term**
Nag-Young Kim(Korea)*, Myoung-Il Kim, Hyuk-Sang Jung, Du-Hee Park
- **Quantitative Assessment of Depth and Extent of Notch Brittle Failure in Deep Tunneling using Inferential Statistical Analysis**
Kang-Hyun Lee(Korea)*, In-Mo Lee, Young-Jin Shin
- **Analysis of excessive displacement behavior under excavation of tunnel bottom in a large-scale fault clay**
Hyuk-Sang Jung(Korea)*, Nag-Young Kim, Ji-Young Lee, Jae-Won Shim, Kang-Hyun Lee
- **Beam-spring analysis combined with back analysis algorithm for tunnel stability under operation**
Kyung-Nam Kang, Ki-il Song(Korea)*, Joon-Sang An
- **Modelling of Rock Cracking Using Expansion of Vermiculite**
Chi-Hyung Ahn, Joung Woo Lee, Yong-Hoon Byun(Korea)*
- **The experimental investigation on the strain rate influence on rock dynamic behaviours under freeze-thaw cycles**
L. Chen, H. Lin, J. Oh, Joon-Shik Moon(Korea)*
- **Choosing effective design solution for fixing offshore hydrotechnical structures to shelf ground**
Latif Aslanov(Azerbaijan)*

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VENUE INFORMATION

Host Country - Korea

Korea is, indeed, "A different Asia" with its own language, letters, custom and unique culture whose people are noted for their generosity, friendliness and warmth. It is populated with 50 million people and has rebuilt itself from the devastation of Korean War achieving economic miracle in just 50 years. Korea today is a fascinating place whose 5,000 year-old culture and history are blended harmoniously with its modern atmosphere. Take your time to taste a full of Korea for the best trip ever in your life.

Conference Venue-ICC Jeju



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ICTUS19

The 2019 International Conference on
Tunnels and Underground Spaces

September 17-21, 2019

ICC Jeju, Jeju Island, Korea

Organized by



Korean Tunnelling and
Underground Space Association

Endorsed by



INTERNATIONAL ASSOCIATION
OF TUNNELLING AND UNDERGROUND SPACE
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ICTUS19 TECHNICAL PROGRAM

TUESDAY, SEPTEMBER 17, 2019

17:00~19:30	REGISTRATION	ICC JEJU 3 rd Fl. Conference Hall Lobby
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WEDNESDAY, SEPTEMBER 18, 2019

08:00~17:00	REGISTRATION	ICC JEJU 3 rd Fl. Conference Hall Lobby
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09:00~09:10	OPENING CEREMONY	ASEM19/ANBRE19 Opening Remarks Chang-Koon Choi, Chairman	Halla Hall
09:10~09:50	PLENARY SESSION	Steel and Composite Structures: Key challenges and trends for the future Brian Uy	Halla Hall
09:50~10:10	COFFEE BREAK		
10:10~10:50	CONFERENCE OPENING	ICTUS19 Opening Remarks HanKyu Yoo, Chair ICTUS19 / President of KTA Byeong Doo Son Co-Chair ICTUS19 / Vice President of KTA	Room D (#302)
10:50~11:25	KEYNOTE LECTURES I		
	SESSION Chair: Prof. Yong-Joo Lee	Underground Construction on the Moon Prof. Jamal Rostami	Room B (Samda Hall)
12:00~13:00	LUNCH (OCEAN VIEW in ICC JEJU 5 th FL.)		
13:00~14:30	Structural and Hydraulic Interaction in Underground Structures		Room D (#302)
	SESSION W4D Chair: Prof. Jamal Rostami Co-chair: Bumjoo Kim	Inversion analysis of three-dimensional initial geostress field of underground caverns of hydropower station Shun-shun Li(China)*, Chao Su The study on performance evaluation of heat resistance and smoke control system using air-curtain system in tunnel Byoung-Jik Park(Korea)*, Yang-Kyun Kim, Yong-Ho Yoo, Jin-Ouk Park, Hwi-Seong Kim Significance of Anisotropic Permeability in the Coupled-numerical Analysis of Tunnelling Kang-Hyun Kim(Korea)*, Ho-Jong Kim, Jae-Ho Jeong, Jong-Ho Shin Rock-support interaction analysis for tunnels in generalized strain-softening Mohr-coulomb rock masses considering the dead weight loading Mohammad Reza Zareifard(Iran)* Earthquake Risk Assessment of Cut-and-Cover Underground Railway Station Sun-Yong Kwon(Korea)*, Mintaek Yoo, Chengcan Wang, Seongwon Hong	
14:30~14:50	COFFEE BREAK		
14:50~17:20	Developments in Underground Space Technologies		Room D (#302)
	SESSION W5D Chair: Myung Sagong	Analytical study of the support pressure for the stability of shallow underground circular opening Tsuyoshi Nishimura(Japan)*, Masanori Kohno, Masahiro Watariue, Kintoki Ogawa	

WEDNESDAY, SEPTEMBER 18, 2019

14:50~17:20	Developments in Underground Space Technologies		Room D (#302)
	SESSION W5D Chair: Hyu-soung Shin Co-chair: Seongwon Hong	The Development of Tunnel Face Stability Calculate System by Machine Learning based on Drilling Data of Blasting Hole Haruka-Gomi Behaviour of serviced tunnel and surrounding ground based on offset from divergence tunnel Soon Kyo Hong(Korea)*, Dong Wook Oh, Suk Min Kong, Yong Joo Lee Damage estimation of ground frame structure due to tunnel excavation using indoor model test Kyoungmin Nam(Korea)*, Jungjoo Kim, Hankyu Yoo Experimental study on side wall ventilation performance to improve smoke exhaust efficiency in tunnel Jinouk Park(Korea)*, Sanghyun Byun, Jaehong Yoo, Yongho Yoo, Yangkyun Kim, Byungjik Park, Whiseong Kim Experimental study on fire behavior in sound barrier tunnel Yangkyun Kim(Korea)*, Sang-Don Lee, Byung-Jik Park, Whi-Seong Kim, Jin-Ouk Park, Yong-Ho Yoo Numerical Analysis of Long-wavelength Elastic Wave Propagation in Jointed Rock Masses Ji-Won Kim(Korea)*, Gye-Chun Cho Seismic reliability of high-speed railway considering composite damage types using 2004 M6.6 Niigata earthquake case history Dongyoup Kwak(Korea)*, Seunghoon Yang, Tadahiyo Kishida	
18:00~19:30	RECEPTION		OCEAN VIEW in ICC JEJU 5 th FL.

THURSDAY, SEPTEMBER 19, 2019

08:30~17:00	REGISTRATION	ICC JEJU 3 rd Fl. Conference Hall Lobby
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09:35~10:10	KEYNOTE LECTURES II		
	SESSION Chair: Prof. Yong-Joo Lee	Digitalization in TBM-Tunnelling-automatization of rock mass classification and update of geological prognosis Prof. Thomas Marcher	Room A (Samda Hall)
10:10~10:30	COFFEE BREAK		
10:30~12:00	Improvements in Conventional Tunneling & Tunneling and Underground Works in Extreme Conditions		Room D (#302)
	SESSION H3D Chair: Prof. Thomas Marcher Co-chair: Myung Sagong	A study on the behaviour of single piles to adjacent TBM tunnelling Young Jin Jeon(Korea)*, Seung Chan Jeon, Sang-Joon Jeon, Cheol-Ju Lee Evaluation of cut methods for reducing the blasting vibration in NATM tunnel Seung-Joong Lee(Korea)*, Byung-Ryeol Kim, Sung-Oong Choi, Nam-Soo Kim Discrete element analysis for the performance evaluation on screw conveyor of EPB shield TBM Soo-Ho Chang, Tae-Ho Kang, Soon-Wook Choi, Chulho Lee, Byungkwan Park(Korea)* A Case Study on Design Change Considering Site Condition for two-Arch Tunnel in Singapore Myongho Choi, Seung Kwon, Sekbue Chang, Yonghyun Kwon(Korea)*	

THURSDAY, SEPTEMBER 19, 2019

10:30~12:00	Improvements in Conventional Tunneling & Tunneling and Underground Works in Extreme Conditions		Room D (#302)
	SESSION H3D Chair: Prof. Thomas Marcher Co-chair: Myung Sagong	An Investigation of Tunnel Deformation Behavior Based on Excavation of Mountain Tunnels Shongloong Chen(Taiwan)*, Shen-Chung Lee, Jin-Sheng Chen Numerical Study for Evaluating Ground Behavior at Offshore with Submerged Floating Tunnel Seok-Jun Kang(Korea)*, Gye-Chun Cho Mixing efficiency according to focusing tube and abrasive input rate for rock cutting Yohan Cha(Korea)*, Tae-Min Oh, Hyun-Joong Hwang, Kyoung-Youl Kim, Gye-Chun Cho	
12:00~13:00	LUNCH (OCEAN VIEW in ICC JEJU 5 th FL.)		
13:00~14:30	Resilience and Sustainability in Underground Space		Room D (#302)
	SESSION H4D Chair: Hangseok Choi Co-chair: Joon-Shik Moon	Self-enhancement of automatic tunnel incident detection (TID) on CCTV by an AI deep-learning Kyu Beom Lee(Korea)*, Hyu Soung Shin Metro train induced vibration measurement on buildings Bharathi M, Dhiraj Raj, Yogendra Singh(India)* Relevance of the concrete used for the support and lining in tunnels excavated through different rockmasses from safety, economic and environmental point of view Rafael Rodriguez(Spain)*, Patricia Fernández, Fernando Pérez, Betariz Malagón Biopolymers for enhancing shear resistance of soil Yeong-Man Kwon(Korea)*, Ilhan Chang, Gye-Chun Cho Evaluation of tunnel shaft dynamic behavior in liquefiable ground during earthquake Mintaek Yoo(Korea)*, Sun Yong Kwon	
14:30~14:50	COFFEE BREAK		
14:50~17:20	Innovation in Mechanized Tunneling		Room D (#302)
	SESSION H5D Chair: Cheol-Ju Lee Co-chair: KI IL SONG	Determination of Effective Parameters on Surface Settlement during Shield TBM Dongku Kim(Korea)*, Khanh Pham, Sangyeong Park, Ju-Young Oh, Hangseok Choi Optimum EPB TBM operation considering different foam injection conditions Hyobum Lee(Korea)*, Dahan Shin, Minkyu Kang, Dae-Young Kim, Hangseok Choi Tunnel Ahead Prediction on Tunnel face and side Chang-Ho Hong(Korea)*, Min-Hyeong Lee, Gye-Chun Cho, Hee-Hwan Ryu Effect of standoff distance and abrasive flow rate on the removal volume for AWJ rock drilling Hyun-Joong Hwang(Korea)*, Yohan Cha, Tae-Min Oh, Gye-Chun Cho Variable Density TBMs as a solution for tunneling in difficult ground and flexible TBM usage Ruben Duhme, Jean-Daniel Brabant(Singapore)* Relationship between brittleness of rock, CAI and cutting performance of a TBM disc cutter Hoyoung Jeong(Korea)*, Seungbum Choi, Sudeuk Lee, Seokwon Jeon Application of multivariate regression analysis for estimation of TBM utilization factor Tae Young Ko(Korea)*, Yeong-Taek Pak, Seung-Mo Son, Taek-Kon Kim	
18:00~20:00	BANQUET		Booyoung Jeju Hotel & Resort (Sapphire B2F)