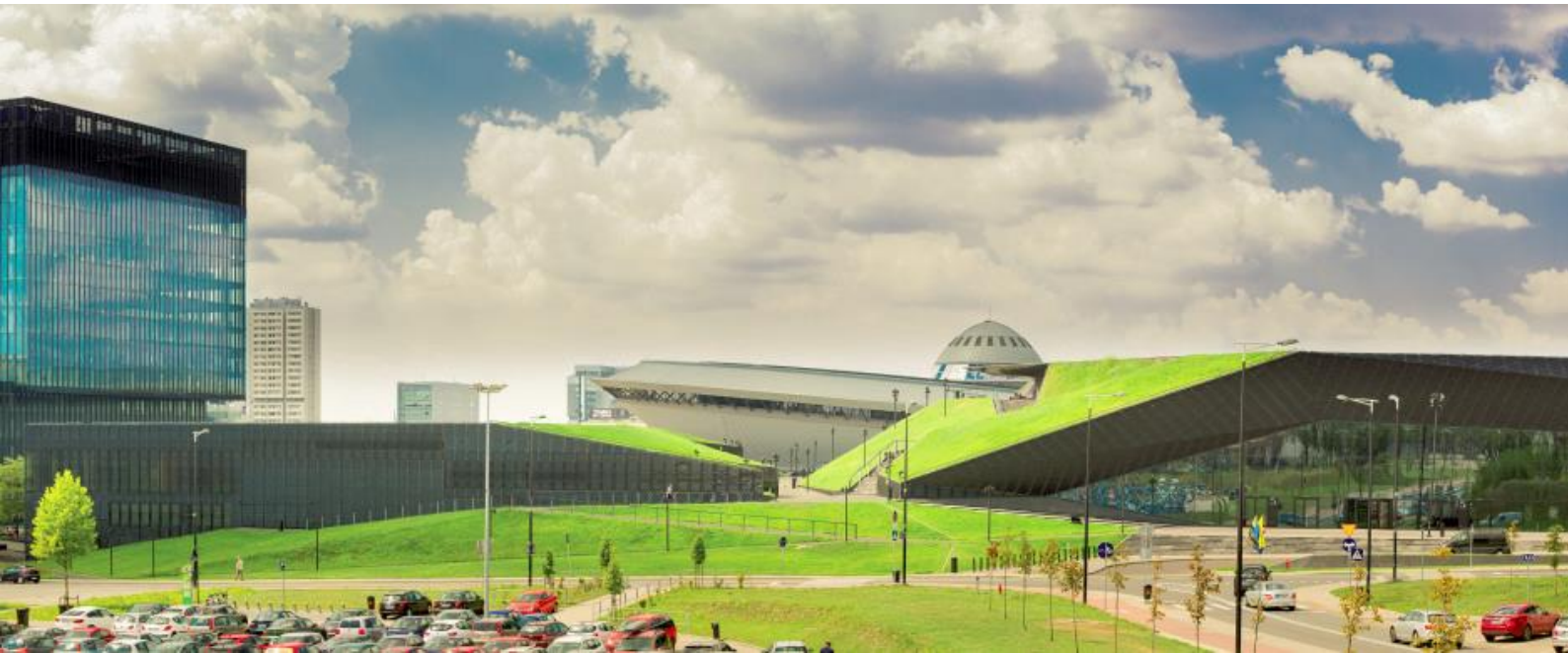


ISMSSE 2021

Symposium Programme

Katowice, Poland
21st - 25th November 2021

The Fifth International Symposium on Mine Safety Science and Engineering (ISMSSE2021) is the premier forum to reach mining safety and health professionals and researchers within the international mining community. The Symposium rich programme with a focus of insightful plenary and breakout -sessions is the backbone of this ISMSSE. This is the first hybrid form of Symposium organization, in which we will meet in the interactive dialogue formats, combining digital and physical interactions at many international locations.



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SYMPOSIUM PROGRAMME

KEYNOTE SPEAKERS

	<p>Professor Xueqiu HE University of Science and Technology Beijing (China) <i>Welcome Keynote</i></p>
	<p>Professor Hani Mitri McGill University (Canada) <i>Keynote lecture: Underground mining without explosives – a mine safety paradigm shift</i></p>
	<p>Professor Petr Konicek Institute of Geonics, Czech Academy of Sciences (Czech Republic) <i>Keynote lecture: Long term experience with distress blasting in coal mining as a rockburst mitigation technique</i></p>
	<p>Professor Rudrajit Mitra RWTH Aachen University (Germany) <i>Keynote lecture: Rock Engineering – Past to Present to Future</i></p>
	<p>Professor Ting Ren University of Wollongong (Australia) <i>Keynote lecture: Proactive Longwall Goaf Inertisation - Are We There Yet?</i></p>
	<p>Professor Raymond J. Durrheim School of Geosciences University of the Witwatersrand, Johannesburg (South Africa) <i>Keynote lecture: The Response of the South African Mining Sector to the Covid-19 Pandemic</i></p>
	<p>Professor H. Şebnem Düzgün Mining Engineering Department, Colorado School of Mines (USA) <i>Keynote lecture: Big Data and AI for the Safety of the Future Mine Environment</i></p>

SYMPOSIUM PROGRAMME

BREAKOUT -SESSIONS

Monday, November 22 nd		
8:30-9:15	WELCOME CEREMONY Prof. Stanisław Prusek Prof. Xueqiu HE	
9:15-9:35	Keynote speech by Prof. Hani Mitri	
BREAK		
Room 1	SEISMIC HAZARDS IN MINING Chairman: prof. Józef Dubiński	
9:45-10:00	Atsushi Sainoki	Methodology to simulate triggered and induced seismic activities on a fault plane
10:00-10:15	Zarina Mukhamedyarova, Fidelis Suorineni	Impact of mining induced continuous rockmass degradation on seismic wave velocity
10:15-10:30	Marcin Szumny Krzysztof Fuławka Piotr Mertuszka	Blasts aimed at roof protection in development of structures in Lubin mine – case study
10:30-10:45	Shengquan He Xueqiu He Dazhao SONG Hani Mitri Zhenlei Li Tuo Chen	"Silent period" precursor characteristics of AE-EMR signals before coal and rock failure
10:45-11:00	Józef Dubiński Krystyna Stec Jacek Krupanek	Comprehensive Use of Gutenberg-Richter Distribution and Geotomography Results to Improve Seismic Hazard Assessment in Hard Coal Mines
11:00-11:15	Adam Lurka Grzegorz Mutke	Seismic Monitoring and Seismic Data Clustering of mine safety pillar within EPOS PL+ project
11:15-11:30	Łukasz Mazurkiewicz	Experimental and numerical studies of shock-induced fracture and fragmentation of rocks

	Paweł Baranowski Michał Kucewicz Jerzy Małachowski Krzysztof Damaziak	
11:30-11:45	Sławomir Siwek	Relationship of variations in gravitational load of the rock mass with induced seismicity in the Upper Silesian Coal Basin, Poland.
11:45-12:00	Kelly Habib Isaac Vennes Hani Mitri	Hard Rock Breakage with Soundless Chemical Demolition Agents
12:00-12:15	Yizhuo Li Hani Mitri	Determination of mining-induced stresses using diametral rock core deformation
12:15-12:30	Ruofan Wang Li Li	Time-dependent stability of side-exposed backfill associated with the creep of rock walls
12:30-12:45	Isaac Vennes Hani Mitri	Optimization of large-scale panel destressing for remnant pillar extraction
12:45-13:00	Heba Khalil Tuo Chen Yu-Hang Xu Hani Mitri	Effect of mining, and geology on mining-induced seismicity – A case study
LUNCH		
14:15-14:35	Keynote speech by Prof. Petr Konicek	
14:35-14:55	Keynote speech by Prof. Rudrajit Mitra	
14:55-15:00	BREAK	
Room 1	IMPACT OF INDUSTRY 4.0 ON MINE SAFETY Chairman: prof. Derek Apel	
15:00-15:15	Tomasz Cierpisz	SYBET-PROXIMA anti-collision support system for the operator's work
15:15-15:30	Alicja Szmigiel Derek Apel	Predicting the stability of open stopes using Machine Learning

15:30-15:45	Andrea Segalini Alessandro Valletta Andrea Carri Roberto Savi	A three-dimensional approach to automatic monitoring of underground constructions
15:45-16:00	Miłosz Bąk	The use of automatic measurement techniques in the geotechnical monitoring system of PGE GiEK S.A, KWB Turów branch
16:00-16:15	Bogacki Sławomir	Computer visualization in creating pro-safe attitudes of employees
16:15-16:30	Justyna Sz wajca Ewa Dąbrowska	Study of the variability of the quality parameters of the "Turów" lignite deposit with the use of digital models.
16:30-16:45	Diego Sancho Calderón Sven Bock Jürgen Franz	Advanced engineering tools for mine shaft design, construction and monitoring
16:45-17:00	Chao Wang Jianhui Xu Kegang Li Zonghong Zhou Yuefeng Li	BP neural network model optimization for rockburst prediction considering sample sizes, optimization algorithms and dimensionless methods
17:00-17:15	Piotr Mertuszka Marcin Szumny Krzysztof Fuławka	Next generation carbon neutral pilots for smart intelligent mining systems – NEXGEN-SIMS
17:15-17:30	Menghan Wei Xueqiu HE Dazhao Song Shan Yin Xianghui Tian	Vector characteristics of electromagnetic radiation generated from rock fracture
17:30-17:45	Cui Hongqing He Xing Wang Zehua	4D gas geological research on coal seam with gas hazard potential in mining panel

17:45-18:00	Kornel Kwast	Bogdanka: coal mine - data mine. ABB AbilityT solutions for longwall complex
18:00-18:15	Krzysztof Stasch Maya Ilieva Grzegorz Józków Jan Kapłon	Remote sensing techniques for surface deformation monitoring and risk assessment in USCB
END OF THE SESSION		
Room 2	ENVIRONMENTAL SUSTAINABILITY IN MINING Chairman: prof. Adam Smoliński	
9:45-10:00	Tomasz Cudny Adam Oleś	Directions for counteracting climate change in the JSW Group's strategy
10:00-10:15	Tomasz Rogala	Transition challenges for the mining sector in terms of efficiency and pro-environmental investments in PGG S.A.
10:15-10:30	Vitaly Zhironkin Dawid Szurgacz Jiří Pokorný	New approach for studying Ecological and Economical problems of Kemerovo mine region
10:30-10:45	Baisheng Nie Xiaotong Wang Jie Gong Feifei Yin Fanbei Kong	Carbon Neutral Path of Coal Gas in China
10:45-11:00	Angelika Więkol-Ryk Alicja Krzemień	Land reclamation of coal mine affected areas in highly acidic waste heaps
11:00-11:15	Sławomir Wochna	Modern KWB Turów mine. Technical innovations and pro-ecological solutions.
11:15-11:30	Izabela Jonek- Kowalska Marian Turek	Economic situation of cities in the post-mining regions in Poland
11:30-11:45	Gąsior Rafał Smoliński Adam	Use of coals and wastes in a co-gasification process aimed at producing hydrogen-rich gas

11:45-12:00	Dong Xuanmeng Guo Liwen Dong Xianwei Wang Fushen	Spectroscopic study on molecular structure of raw coal from Daliuta coal mine
12:00-12:15	Yuan Junwei Wang Yao Chen Xiangjun	Study on the Evolution of Pore Structure of Anthracite Coal under LN2 Freeze-Thaw Cycles
12:15-12:30	Sławomir Wochna Natalia Howaniec Adam Smoliński	Gasification of bituminous coal from Turów coal mine to hydrogen-rich gas
12:30-12:45	Yanwei Liu Jian Miao Haojie Jia Hongkai Han	Experimental Study on Gas Transport Law for Transitional Flow in Porous Media -
12:45-13:00	Rafał Baron Piotr Matusiak Daniel Kowol Marcin Talarek	Concentration of rare earth elements in the Polish power plant wastes
13:00-13:15	Jian Zhao Guangping Huang Lin Liao Wei Victor Liu	Performance of calcium sulfoaluminate cement-based grouts at cold temperatures
END OF THE SESSION		
LUNCH		
14:15-14:35	Keynote speech by Prof. Petr Konicek	
14:35-14:55	Keynote speech by Prof. Rudrajit Mitra	
14:55-15:00	BREAK	
Room 2	PREDICTION AND PREVENTION OF NATURAL HAZARDS IN MINING, Chairman: dr Zbigniew Lubosik	
15:00-15:15	Shuting Miao Petr Konicek	Numerical modelling of distress blasting - A state-of-the-art review

	Pengzhi Pan Hani Mitri	
15:15-15:30	Mariusz Kosiński Łukasz Herezy	Combating the climate hazard in the area of longwall panel 1/VIII/391 in the Stefanów Field – increasing the cooling capacity of central air conditioning by changing the refrigerant from ice water to binary ice
15:30-15:45	Ting Ren Alex Alex Remennikov Dulara Kalubadanage Xiaohan Yang	Development of a protective structure on Continuous Miners against coal burst hazards
15:45-16:00	Rickard Hansen	Proposed design fire scenarios for underground hard rock mines
16:00-16:15	Chunchen Wei Chengguo Zhang John Watson Ismet Canbulat	Assessment of ejection velocity using a coupled model in coal excavations
16:15-16:30	Zhou Chao Xue Qiu He DA-zhao SONG Zhen lei Li Yang Liu Lei Guo	Study on signal characteristics of burst tendency coal under different loading rates
Room 2	RISK ASSESSMENT & SAFETY MANAGEMENT, Chairman: prof. Alicja Krzemień	
16:30-16:45	Roman Gaška Marcin Kruk Zbigniew Wolny Mariusz Myrlak Tomasz Karpiel	Optimization of the technology for testing the safety circuit of the mining shaft hoisting machine by applying the criterion of safety maximization while minimizing the downtime for the required tests and inspections.

16:45-17:00	Bentkowska Anna	The psychological aspect of crisis management in the face of a pandemic
17:00-17:15	Rickard Hansen	The activation of fire suppression systems on mining vehicles – what happens after that?
17:15-17:30	Ochman Grzegorz	Web application supporting operations of OHS services of PGG S.A. based on the client (JS / Angular) - server (PHP / Laravel) architecture
17:30-17:45	Tomasz Cierpisz	PORTAS-EPIDEMIA epidemic suppression system in underground mining plants
17:45-18:00	Dawid Klimanek	Innovative training methods at PGG S.A.
18:00-18:15	Karol Dworak Sławomir Bojarczuk	Underground roadways convergence monitoring with the use of laser scanning
END OF THE SESSION		

Tuesday, November 23rd		
9:00-9:30	Keynote speech by Prof. Raymond J. Durrheim	
BREAK		
Room 1	PREDICTION AND PREVENTION OF NATURAL HAZARDS IN MINING, Chairman: prof. Petr Konicek	
9:45-10:00	Zhenlei Li Dazhao Song Xueqiu He Shirui Lan Taoping Zhong	Rockburst induced by pillars and hard-thick roof in shallow multiple coal seam mining
10:00-10:15	Bei Pei Yaxiang Kang Zhiyin Zhu Liwei Chen Rongkun Pan Minggao Yu Guoxun Jing	Acceleration characteristics of compound flame in the initial stage of gas/coal dust explosion
10:15-10:30	Zarina Mukhamedyarova Fidelis Suorineni	Backfill strength mobilization monitoring with time
10:30-10:45	Jon Roberts Rongfu Liao Peter Wypych	Development of Simulation Methods for Dust Suppression System Design in Mining
10:45-11:00	Zulfiqar Ali Murat Karakus Giang D. Nguyen Khalid Amrouch	Effect of Loading Rate and Time Delay on the Tangent Modulus Method (TMM) in Coal and Coal Measured Rocks
11:00-11:15	Jianli Shao Wenquan Zhang Xunan Wu Yu Lei Xintao Wu	A coupled stress-seepage-damage model and its application in water inrush from faults

11:15-11:30	Shahe Shnorhokian Hani Mitri	Quantifying the Influence of Variations in Rock Mass Properties on Stope Stability
11:30-11:45	Magdalena Wróblewska Marcin Grygierek	Assessment of visual representation methods of linear discontinuous deformation zones in the right-of-way
11:45-12:00	Zeng Qingliang Xu Penghui Meng Zhaosheng Wan Lirong	Dynamic response analysis of four leg hydraulic support under impact load
12:00-12:15	Paweł Piasecki Robert Michułka Krzysztof Kujawski Radosław Miller	Exploitation of a copper ore deposit in the conditions of reduced thickness of dolomite-anhydrite rocks (adjacent to the tertiary layers) on the example of the LU-XV/16F mining district in the Lubin Mine
12:15-12:30	Yu Lei Wenquan Zhang Jianli Shao Xunan Wu Zaiyong Wang Xintao Wu	Study on fault activation characteristics and grouting simulation under fluid solid coupling
12:30-12:45	Dong Xianwei Li Gaojing Dong Xuanmeng Wang Fusheng	Study on the effect of coal microscopic pore structure to its spontaneous combustion tendency
LUNCH		
14:00-14:20	Keynote speech by prof. Ting Ren	
14:20-14:40	Keynote speech by prof. Şebnem Düzgün	
BREAK		

Room 1	MINING PRODUCTIVITY AND EFFICIENCY Chairman: dr Tomasz Rogala	
15:00-15:15	Łukasz Herezy Sebastian Buczak Dawid Osowski Bartosz Rożnawski	Influence of changes in longwall panels' parameters on technology and cost effectiveness
15:15-15:30	Tomasz Grzyśka	A longwall system with a significantly higher efficiency work cycle
15:30-15:45	Paweł Śliwiński	Application of the Monitoring System for Self-Propelled Mining Machines in KGHM PM S.A.
15:45-16:00	Duong Duc Hai Dao Hong Quang Phan Van Viet	Status and prospects of fully mechanized mining technology in Vietnamese coal mines
16:00-16:15	Jacek Korski	Roadway development efficiency - factors , aspects and constraints
16:15-16:30	Łukasz Bednarczyk	Digitalization of the process of traction calculations for underground transport systems in the mines of PGG S.A.
16:30-16:45	Leszek Kwiska Marcin Świerczek	Cooperation of mine rescue with other units and rescue services in the country and abroad
16:45-17:00	Dawid Szurgacz	Powered roof support operating in changing mining and geological conditions
17:00-17:15	Piotr Buchwald Jan Syty	Predicted heat strain as the basis for planning rescue work in a hot environment
17:15-17:30	Andrzej Kleszcz Paweł Wachowicz Adam Szadurski	Maintaining the readiness of the Mine Rescue Unit in the event of a pandemic
17:30-17:45	Sylwester Rajwa Sven Bock	Optimization of selected parameters of the base of shield support dedicated for the condition of a weak floor
17:45-18:00	Tomasz Cierpisz	SWAR-II new wireless system to support rescue operations in underground mining plants
18:00-18:15	Tomasz Budniok	Modern underground mining transport systems

	Mariusz Boruszko Bernard Krakowczyk Andrzej Tor Wojciech Zasadni Leszek Żyrek	with regard to limiting adverse on the working environment
END OF THE SESSION		
Room 2	OCCUPATIONAL HEALTH AND SAFETY IN MINING Chairman: dr Isaac Vennes	
9:45-10:00	Ahmad Zueter Saad Akhtar Agus Sasmito	Uncertainty Analysis Using Monte Carlo of Selective Artificial Ground Freezing Systems for the Safety of Deep Underground Mine
10:00-10:15	Władysław Witkowski Jerzy Latko	Innovative technical solutions used in the mining shaft hoist to increase work efficiency and safety at TAURON Wydobywanie S.A. ZG Janina
10:15-10:30	Rachid Halabi Mustafa Kumral	Special safety issues in mines located in remote areas and extreme weather conditions
10:30-10:45	Dariusz Kołodziejczyk	The experiences of Polska Grupa Górnicza S.A. in the selection of appropriate personal protective equipment and employee equipment.
10:45-11:00	Łukasz Mazurkiewicz Paweł Baranowski Michał Kucewicz Jerzy Małachowski Krzysztof Damaziak	Modelling and optimization studies in support of blasting work in the copper ore mines
11:00-11:15	Jan Syty Dariusz Radoń Roman Wolski	Specialized rescue work during failure of shaft lifts
11:15-11:30	Lishuai JIANG, Yang ZHAO, Qing XU, Xingyu WU	Preliminary Study on the Fractured Rock Mechanics with Sand-powder 3D Printing

11:30-11:45	Jean-Pierre K. Tshibangu Fanny Descamps	How understanding true triaxial stress states can help in assessing the safety of mine openings?
11:45-12:00	Michał Patyk Dagmara Nowak- Senderowska	Occupational risk based on employees' knowledge and awareness of hazards in mining
12:00-12:15	Elie Abou-Jaoude	Transformational leadership and human consciousness in the context of safety management in the mining industry
12:15-12:30	Dalija NAMJESNIK Jannes KINSCHER	Impact of past mining on public safety – Gardanne abandoned coalmine (France)
12:30-12:45	Przemysław Kotniewicz Marek Michałjow Mariusz Koszyk	Mining rescue during the transformation of hard coal mining, directions of changes
12:45-13:00	Arend Spath Bharath Belle	The use of Longwall Active Explosion Barriers to mitigate the risk of explosions
END OF THE SESSION		
LUNCH		
14:00-14:20	Keynote speech by prof. Ting Ren	
14:20-14:40	Keynote speech by prof. Şebnem Düzgün	
BREAK		
Room 2	GROUND CONTROL & STRATA MONITORING Chairman: prof. Mitra Rudrajit	
15:00-15:15	Michał Marciniak Michał Kowalski	Geomechanical Model of Bogdanka Coal Mine
15:15-15:30	Andre Vervoort	Modelling of upward surface movement above abandoned coal mines in the Campine coal basin
15:30-15:45	Tomasz Kuchta	Development of power roof support monitoring system at JSW

15:45-16:00	Lihai Tan Linming Dou Jian Sun Shikang Song Xiaohan Yang	Fracture Features of Brittle Coal under Uniaxial and Cyclic Compression Loads
16:00-16:15	Maria Przyłucka Zbigniew Kowalski Zbigniew Perski	Twenty years of mining induced subsidence in the USCB in Poland identified using InSAR
End of the session		
Room 2	FROM HAZARD TO RESOURCE: COALBED/MINE METHANE. MEGA project dissemination Chairman: dr KRZYSZTOF KAPUSTA	
16:15-16:30	Renata Cicha-Szot, Grzegorz Leśniak Tomasz Topór Małgorzata Słota- Valim Paweł Budak Bartłomiej Jura Janusz Makówka Jacek Skiba Marcin Karbownik Daniel Brunner	Application of long-reach directional drilling for gas drainage of adjacent seams in coal mines with severe geological conditions
16:30-16:45	Krzysztof Kapusta Krzysztof Stańczyk Alicja Krzemień Hywel Thomas Renato Zagorscak Sevket Durucan Anna Korre Thomas Kempka Christopher Otto Natalie Nakaten Elena Chabab Olga Solcova	MEGAPlus: Unconventional Methane Production from Combined CBM-UCG Technology under the EU Research Fund for Coal and Steel (RFCS)

	Karel Soukup Stephane Lafortune Farid Laouafa Chris Williams Bartłomiej Bezak	
16:45-17:00	Renata Cicha-Szot Paweł Budak Tadeusz Szpunar Marcin Majkrzak	Wellbore Stability in Horizontal CBM wells: Practical solutions to Better Understand the Uncertainty in Rock Strength and Coal Heterogeneity in the Upper-Silesian Coal Basin
17:00-17:15	Weiqin Zuo Wenming Zhang Yanwei Liu Hongkai Han Cheng Huang Wenji Jiang Hani Mitri	Study on Damage of Coal Pore Structure by Clean Fracturing Fluid
17:15-17:30	Paweł Hyla Roman Gaška Adam Musialik	Mining of longwalls with a high concentration of methane at TAURON Wydobywanie S.A. ZG Brzeszcze, methods of ventilating, monitoring and combating the methane hazard and the economic use of the captured methane.
17:30-17:45	Artur Badylak	Activities of Jastrzębska Spółka Węglowa S.A. in the context of the upcoming European Commission' s methane strategy
17:45-18:00	Ndongala Mabeka Jean-Pierre K. TSHIBANGU Fanny DESCAMPS	An approach to assess the recoverable methane gas of Belgian abandoned coalmines
END OF THE SESSION		

Wednesday, November 24th		
9:00-9:15	Welcome speech by Prof. Adam Smoliński	
Room 1	SYNERGY OF SCIENCE AND MINING Chairman: prof. Adam Smoliński, dr Aleksandra Koteras	
9:15-9:30	Joanna Całus Moszko Agnieszka Klupa Aleksander Wrana	CEReS – Co-processing of Coal Mine & Electronic Wastes: Novel Resources for a Sustainable Future - Valuable products from mine tails after bioleaching
9:30-9:45	Przemysław Rompalski Marian Jacek Łączny	Carbonation of fluidized fly ashes and its possible increased application in mining engineering
9:45-10:00	Magdalena Cempa Barbara Białecka	Innovative management of coal by-products leading also to CO2 emissions reduction
10:00-10:15	Aleksandra Zgórska Adam Hamerla Jan Bondaruk	Development and actualization of brownfields database with the use of unmanned aerial vehicles - the case of Upper Silesia, Poland.
10:15-10:30	Dagmara Sobczak Jan Szymała Ewa Janson Joanna Całus- Moszko Stanisław Konsek	Shaft liquidation method adjusted for high precipitation associated with climate change impact
10:30-10:45	Anna Michalska Aleksandra Koteras	Distribution of Mercury Content Inside Mining Waste Dump in Poland - case study
10:45-11:00	Wojciech Masny Łukasz Nita Jerzy Ficek	Case study of rock bolting in deep coal mine in Poland
11:00-11:15	Janina Świątek Kazimierz Stoiński Marek Płonka	Dynamics of large diameter hydraulic legs under applied test methods
11:15-11:30	Rafał Pierszalik	The significance of the preliminary treatment of the Pen206_18 borehole penetrometer measurement cycle results for a reliable determination of a rock strength
11:30-11:45	Andrzej Staniek	Non-destructive testing of grouted rock bolts

11:45-12:00	Rafał Pierszalik	Influence of an operational characteristics of a new Pen206_18 type borehole penetrometer on measurement results for an improved determination of rock strength parameters
12:00-12:15	Copa Agnieszka	Activities of PGG S.A. during the epidemic threat caused by the SARS-CoV-2 virus
12:15-12:30	Mani Ram Saharan R.P. Choudhary	A Novel Approach of Destress Blasting for Ground Control in A Coal Mine
LUNCH		
12:30-12:45	Szymon Łagosz Piotr Litwa Krzysztof Każmierczak	SENSE VR - creating complex training scenarios for virtual reality
12:45-13:00	Aleksandra Koteras Patrycja Waszczuk Marcin Lutyński	Factors influencing potential CO2 storage capacity in shales
13:00-13:15	Artur Dyczko	Construction of a heuristic architecture of the production line management system in the JSW S.A. Mining Group from the point of view of output stabilisation and quality improvement as well as maximisation of economic effects
End of the session		
15:00-18.00	ICMSSE Members Meeting	