

	Tuesday 25-May-21	Wednesday 26-May-21	Thursday 27-May-21	Friday 28-May-21	Saturday 29-May-21
7:30					
8:00	Keynote – A theory improving resilience of infrastructures under climate change – Nature Enriched and Attributes Coordinated Watershed				
8:30					
9:00	Opening				
9:30	Panel – Roadmap to the 2030 UN Sustainable Development Goals – Advancing Sustainable and Climate Resilient Infrastructure	Daily welcome	Kick off - Welcome session and Reaching for the Sky! Locking up Carbon in a Super-Tall Hybrid Wood Tower	Daily welcome/re-cap	Daily welcome/re-cap
10:00	Opening Plenary - Discussions	The original Champlain Bridge: Deconstructing a 3.4km structure in the era of sustainable development	S1; Sustainable Design	S13; Buckling and Vibration Behaviour of Structures	Risk and Resilience of Critical Infrastructure in Chile
10:30	Break	Capstone Competition Session	The Future of Disaster Reconnaissance Aided by Machine Learning	S14; Topics in Bridge Engineering	S22; Structural Reliability and Risk Assessment I
11:00	Keynote – Climate Change Adaptation and Resiliency of Critical Infrastructure	S1; Infrastructure Construction and Management I	Allan D. Russell Keynote 2021	S15; History	S23; Seismic Performance of Structures
11:30	Panel – Methods and tools for infrastructure resilience	S2; Infrastructure Construction and Management II	S3; Education, Equity, and Accessibility	S11; FRP Concrete Structures I	S23; Structural Reliability and Risk Assessment II
12:00	Break	Capstone Break	S3; Application of Machine Learning and AI in Structural Engineering	S12; FRP Concrete Structures II	S24; Energy Infrastructure and Resilience
12:30	Question Time panel debate "Can we deliver Net Zero Carbon?"	S3; Construction Automation and Digitalization I	S4; Design of Buildings I	S16; Modular Construction	S25; Structure Fragility and Deterioration Modelling
13:00	S2; Sustainable Water Management	S4; Construction Automation and Digitalization II	S5; Seismic Behaviour of Reinforced Concrete Structures	S17; Construction Monitoring and Automation	S25; Structure Fragility and Deterioration Modelling
13:30	Break	S5; Construction Automation and Digitalization III	S6; Wind Response of Structures	S18; Construction Project Management	S25; Structure Fragility and Deterioration Modelling
14:00	Panel - Adequacy of standards used in practice in three countries: Are there gaps?	S6; Construction Automation and Digitalization IV	S7; Structural Optimization	S19; Construction Project Planning and Optimization	S25; Structure Fragility and Deterioration Modelling
14:30	Break	Break	S8; Mining and Geotechnical Engineering	S20; Water quality	Transportation Committee Meeting
15:00	Break	S7; Sustainable Construction and LCM I	S9; Foundation Analysis and Design	S10; Water quality	ASCE Awards Lectures
15:30	Panel - First Nations Climate Change Risk Assessment - Asset Management Tool	S8; Sustainable Construction and LCM II	S10; Fluid Dynamics of Waterways	S11; Sustainability and Climate Change II	S3; Transportation Models
16:00	S7; Water and Wastewater Treatment I	S9; Building Engineering and Construction Material I	S11; Water Distribution and Collection	S12; Sustainability and Climate Change III	S4; Sustainably Safer Intersections
16:30	Closing Remarks	S10; Building Engineering and Construction Material II	S12; Drainage and Natural Water Systems	S13; Project Management and Construction Management III	S5; Pipe Lines and Underground Structures
17:00	S2; Structural Dynamics	S11; Project Management and Construction Management IV	S13; Project Management and Construction Management III	S14; Project Management and Construction Management III	S6; Pathway to a Sustainable and Durable Infrastructure
17:30		S12; BIM/VDC IV	S14; Project Management and Construction Management III	S15; Project Management and Construction Management IV	S7; Stormwater and Water Infrastructure
18:00		S16; Project Management and Construction Management V	S15; Project Management and Construction Management IV	S16; Project Management and Construction Management V	S8; Field Investigations and Hydraulic Assessment
24 Hours					

- General Structures
- Construction Materials
- Environmental
- Hydrotechnical
- Transportation

Exhibit Hall and Paper + Poster Gallery

General Live Q&A Sessions

Date	Time	Number	S1	Sustainable Design	Moderator
Thurs. May 27	10:30-11:00	233	Ossama Hosny, Ahmed El-Eslamboly, Elkhayam Dorra, Khaled Tarabieh, Ibrahim Abotaleb, Mariam Amer, Heba Gad, Mostafa Farouk, Sondos Mansour, Ahmed Abdel Gellil, Mai Hassan and Mostafa Abdelatty	Developing a Comprehensive Relational Database for Optimizing Land Utilization in Sustainable Farming	Nadine Imbrahim Sina Varamini
		243	Abobakr Al-Sakkaf, Eslam Mohammed Abdelkader, Nehal Elshaboury, Samer El-Zahab, Ashutosh Bagchi and Tarek Zayed	An Integrated Multi-Criteria Decision Making Model for Evaluating Sustainability Rating Systems	
		313	Rowan Shields	Boardwalks The Bridges to Nature	
		571	Harshan Radhakrishnan, Charling Li and Malcolm Shield	Effective Management of Climate Risk in Professional Practice	
			S2	Urban Engineering	
Thurs. May 27	11:00-11:30	220	Felipe Araya and Sebastian Vasquez	EXPLORING URBAN INFRASTRUCTURE MANAGEMENT PRACTICES IN CHILE'S CENTRAL REGION: TOWARD AN INTEGRATIVE APPROACH	Nadine Imbrahim Sina Varamini
		273	Bahareh Bathaei and Mohamed Abdel-Raheem	Parameters Affecting the Selection of the Mitigation Strategies of Heat Island Effect	
		333	Mariko Uda and Christopher Kennedy	Urban Resilience Design Strategies	
		347	Maggie Gray and Trevor Hanson	Towards a VisitAble Housing Policy in Fredericton	
		544	Moustafa Naiem Abdel-Mooty, Wael El-Dakhkhni and Paulin Coulibaly	Community Resilience Classification Under Climate Change Challenges	
			S3	Education, Equity, and Accessibility	
Thurs. May 27	11:30-12:00	25	Alan Perks and Trevor Hanson	Accessibility for all: A report from the CSCE President's Task Force on Accessibility	Nadine Imbrahim Sina Varamini
		61	Dillip Das	Problem Based Learning for Undergraduate Civil Engineering Education in South Africa- A Methodological Approach	
		179	Michelle Liu and Andrea Atkins	Image Content Analysis of Perceived Race and Gender on Websites of Top Accredited Engineering Schools in Canada	
		374	Soowon Chang and Malav Haresh Doshi	Classroom space layout for responding to occupants' health concerns and flexible space utilization	
		625	Hongtao Dang	Studies on Diversity and Inclusion Programs in Construction Companies from the Private Sector in the North America	
			S4	Design of Buildings I	
Thurs. May 27	12:30-13:00	118	Kartik Patel and Rajeev Ruparathna	MASONRY CONSTRUCTION AS A SOLUTION FOR HEALTHY AND RESILIENT BUILDINGS: A LIFE CYCLE THINKING BASED EVALUATION	Joyce Kim Daniel Lacroix
		318	Bitu Yousefi Pihani, Usman Khan and Magdalena Krol	Optimizing Green Roof Design Parameter and Their Effects on Thermal Performance Under Current and Future Climate in the City of Toronto	
		326	Don Rukmal Liyanage, Kasun Hewage, Hirushie Karunathilake and Rehan Sadiq	Life cycle GHG emissions analysis of building-level carbon-capturing technologies	
		501	Zoe Kelly and Asif Iqbal	Indigenous Housing Practices as Inspirations for Modern Green Buildings	
		717	Daniel Lacroix, Konstantinos Kapsis, Joyce Kim and Eugene Kim	Towards climate-resilient and intelligent buildings: Barriers, challenges and regulatory recommendations in Canada	
			S5	Design of Buildings II	
Thurs. May 27	13:00-13:30	196	Daniel Weeks and Fernanda Leite	Understanding Material Consumption During Maintenance of Buildings (for presentation)	Joyce Kim Daniel Lacroix
		306	Krishna Chaitanya Jagadeesh Simma, Thomas Caudell, Susan Bogus and Andrea Mammoli	FUZZY ART: PATTERN RECOGNITION OF WIFI DETECTED OCCUPANCY IN COMMERCIAL BUILDINGS	
		636	Zahra Ghorbani and Craig Dubler	CURRENT TRENDS AND FUTURE OF ADVANCED SIMULATIONS IN FACILITY MANAGEMENT – AN OWNER'S PERSPECTIVE	
		642	Jason Williams and Elena Dragomirescu	Experimental investigation of tornado induced pressures on residential buildings	
		763	Sherif El-Gamal, Adnan Al-Kalbani and Omar Al-Hatmi	Developing and Investigating the Performance of Thermal Insulation Lightweight Sandwich Wall Panels	
			S6	Transportation Materials and Durability	
Thurs. May 27	13:30-14:00	50	Guangyuan Zhao, Paua Barbi and Susan Tighe	Performance Evaluation of Gravel Runway Operation and Maintenance in the Arctic Region of Canada	Susan Tighe Vimy Henderson
		487	Danrong Wang, Susan Tighe and Shunde Yin	Preliminary analysis of permafrost degradation in Ingraham Trail, Northwest Territories	
		588	Romarc Desbrousses and Mohamed Meguid	On the analysis and design of reinforced railway embankments in cold climate: A review	
		725	Jolavien Mekhail, Moustafa Tammam, Nadine Soliman, Omar Mahran, Susanna Mattar, Yara Badawy, Omar El Kadi, Zahra Zayed and Safwan Khedr	Geogrid Reinforcement in the Treated Base Layer of Flexible Pavements	
			S7	Pavement and Geopolymer Materials	
Thurs. May 27	14:00-14:30	207	Raghad Kassab and Pedram Sadeghian	Tensile properties of PET FRP with bio-resin polymer	Susan Tighe Vimy Henderson
		307	Mehan Kafi Farashah, Sina Varamini and Susan Tighe	FIELD PERFORMANCE EVALUATION OF ASPHALT MIXES AT APPROACH INTERSECTIONS: A MUNICIPAL PERSPECTIVE	
		641	Surya Teja Swarna and Kamal Hossain	An Experimental Design Approach for the Design of Two-Lift Concrete Pavements	
		661	Mohammad Hossain and Khandaker Hossain	Self-Sensing Properties of Engineered Geopolymer Composites	
			S8	Mining and Geotechnical Engineering	
Thurs. May 27	15:00-15:30	115	Jian Deng	Quantile Based Probabilistic Characterization of Geotechnical Variables Using Maximum Entropy Principle	Jian Deng Shunde Yin
		226	Zhong-Qi Quentin Yue	METHANE GAS REFINED FAULT THEORY FOR CAUSE OF TECTONIC EARTHQUAKES	
		308	Farhana Chowdhury, Tarek Rashwan, Sifat Azad Papry, Mehran Behazin, Pete Keech, Pulin Mondal, Jitendra Sharma and Magdalena Krol	Measuring key parameters governing anion transport through MX-80 bentonite	
		549	Niakale Kalifala Camara and Claudiane Ouellet-Plamondon	Scenarios to valorize treated spent pot lining in cement and concrete	
			S9	Foundation Analysis and Design	
Thurs. May 27	15:30-16:00	3	Ali A. Mahmood and T G Lee	MATHEMATICAL MODELLING OF THE BEARING CAPACITY OF SIBU (SARAWAK) AREA PEAT FOR UNPAVED ROAD CONSTRUCTION	Jian Deng Shunde Yin
		4	Ali A. Mahmood, T Y Lin and J K Zhi	SUSTAINABLE STABILIZATION OF PEAT: A LITERATURE STUDY	
		352	Phillip Loh, Emad Booya and Don Gardonio	Design and Installation of UHPC H-Piles at the Lily River Detour Bridge, Highway 11, near Kapuskasing, Ontario, Canada	
		529	Mahsa Moradi Shaghghi, Mohsen Tehranizadeh and Babak Moradi Shaghghi	The Effects of Foundation Stiffness on Surface Fault Rupture in Reversed Dip-Slip Faults	
			S10	Fluid Dynamics of Waterways	
Thurs. May 27	16:00-16:30	19	Ghassan Nasif, Ram Balachandar and Ronald Barron	EFFECT OF ASPECT RATIO ON THE MEAN FLOW FEATURES IN OPEN CHANNEL FLOW	Abdolmajid Mohammadian Stephanie Gora
		456	Xinyun Wang and Abdolmajid Mohammadian	Numerical modeling of inclined dense jet on a sloped bottom	
		515	Xin Chen, Xiaohui Yan and Abdojmajid Mohammadian	Numerical modeling of jets near a hydraulic jump	
		527	Gabriel Metri and Tew-Fik Mahdi	Cross sectional water velocity in unsteady flow conditions by pressure sensors	

		S11	Water Distribution and Collection	
Thurs. May 27	16:30-17:00	100 Bradley Jenks, Fabian Papa and Bryan Karney	Evidence-Based Water Loss Management: Development and Deployment of a Mobile DMA Testing Unit	Abdolmajid Mohammadian Stephanie Gora
		380 Mohamed Gaafar and Evan Davies	NEW METHODOLOGY FOR EFFICIENT MANAGEMENT OF CHLORAMINE CONCENTRATIONS IN STORMWATER SYSTEMS	
		411 Kenneth Johnson and David Browne	Taloyoak, Nunavut – sewage treatment feasibility study	
		451 Kenneth Johnson, Ian Crawford, Simon Plourde, Jason Harasimo, Richard Sithole, Shane Turner, Marc Lafleur and Chris Keung	Iqaluit, Nunavut – sewer main replacement in permafrost	
		S12	Drainage and Natural Water Systems	
Thurs. May 27	17:00-17:30	479 Golnoosh Babajamaaty, Abdolmajid Mohammadian and Abolghasem Pilechi	Numerical Modeling of Microplastics Fate and Transport in a Stretch of the Fraser River	Chris Davidson
		497 Hannah Minchau and Alicia Van Boven	Conceptual Drainage Design of an Urban Rail Transit Project	
		547 Nora Asadollahi, Gabriela Maciel-Jobb Gabriela and John Readshaw	Investigation of a Proposed Morphologic Change in the Squamish Estuary System	
		650 Ummay Sumaiya, Maysara Ghaith, Sonia Hassini and Wael El-Dakhkhni	A Markovian Approach for Drought Severity Analysis for Saskatchewan Province	
		739 Xiaying Xin and Baiyu Zhang	Exploring interactive effects from a tertiary mixture through an aquatic food chain: joint effects of nano-TiO ₂ , nano-ZnO and triclosan	
		S13	Buckling and Vibration Behaviour of Structures	
Fri. May 28	10:00-10:30	142 John Kabanda and Colin McDougall	Comparison of the Cantilever Bending Behavior of Polygonal and Rectangular Hollow Structural Sections	Ann Sychters Kyle Tousignant
		457 Mohammad Farhadmanesh, Arash Asadi Abadi and Amirhossein Cheraghi	Optimal design of truss structures with natural frequency constraints utilizing IWSA algorithm	
		585 Haoyi Zhang, Ayman El Ansary and Wenxing Zhou	Finite Element Analysis of Buckling Capacity of Conical Steel Tanks Considering Field-measured Initiation Imperfections – A Case Study	
		602 Siamak Delir Jafarzadehazar, Emre Erkmen and Lucia Tirca	SHELL ANALYSIS OF STEEL FRAMES CONSIDERING LOW-CYCLE FATIGUE WITHIN THE CONTINUUM-DAMAGE-PLASTICITY FRAMEWORK	
		639 Emre Erkmen, Hossein Moradpoor and Anjan Bhowmick	Effect of using alternative stress-strain definitions on the buckling load predictions of thin-walled members	
		S14	Topics in Bridge Engineering	
Fri. May 28	10:30-11:00	101 Kelvin DeGrow and Erin Medforth	Replacement of the City of Saskatoon Historic Traffic Bridge	Ann Sychters Kyle Tousignant
		274 Campbell Bryden and Matthew Bernard	Assessment and Rehabilitation of a 50-Year Old Concrete Bridge Deck in Nackawic NB	
		365 Ali Semendary, Eric Steinberg and Dagmar Svecova	Effects of Shape and Reinforcement Details of UHPC Shear Key on The Performance of Adjacent Prestressed Concrete Box Beam Bridges	
		762 Sherif El-Gamal, Hind Al-Shukeili and Ali Al-Nuaimi	Feasibility of Using Fiber-Reinforced Polymer Bars as Internal Reinforcement in Concrete Arch Slab Bridges	
		S15	History	
Fri. May 28	11:00-11:30	13 F. Michael Bartlett	A Brief History of the Middle Road Bridge	Michael Bartlett Spencer Ar buckle
		91 Jim Kells and Cal Sexsmith	A brief historical review of Gardiner Dam and the South Saskatchewan River Project	
		151 Ali A. Mahmood and Michael Bartlett	The Niagara power generating stations: a major milestone in the use of hydro-electrical energy	
		270 Negar Bouzari, Staecy-Merville Ngabire and Niel Van Engelen	Civil engineering history overshadowed by politics	
		S16	Modular Construction	
Fri. May 28	12:30-13:00	445 Lucas Marshall, Ala Suliman and Zhen Lei	A Novel Productivity Measure for Steel Fabrication Fitting Process	Lingzi Wu
		493 El Ei Chan, Sang Hyeok Han and Mazdak Nik-Bakh	What Modular and Offsite Construction Contract Administration can learn from Court Dispute Cases	
		592 Labiba Kalam, Jothiarun Dhanapal, Sreekanta Das and Hossein Ghaednia	Applications of Flow-Drilled Connections in Modular Construction	
		594 Labiba Kalam, Jothiarun Dhanapal, Sreekanta Das and Hossein Ghaednia	Behavior of Vectorbloc Beam-Column Connections	
		701 Mi Zhou, Trevor Hrynyk, Scott Walbridge, Garry Rutledge, Dejan Dikic and Mike Arsenaault	Numerical Investigation of the Structural Performance of Post-Tensioned Friction-Based Slab Column Connections for Application in Two-Way Precast Modular Slab Systems	
		S17	Construction Monitoring and Automation	
Fri. May 28	13:00-13:30	162 Shayan Shayesteh and Houtan Jebelli	Investigating the Impact of Construction Robots' Autonomy Level on Workers' Cognitive Load	Lingzi Wu
		163 Amit Ojha, Houtan Jebelli and Melika Sharifronizi	Feasibility of Wearable Physiological Sensing Technologies for Understanding Engagement of Students in Construction Safety Education in Distance Learning	
		166 Amit Ojha, Shahrad Shakerian, Mahmoud Habibnezhad and Houtan Jebelli	Feasibility Verification of Multimodal Wearable Sensing System for Holistic Health Monitoring of Construction Workers	
		172 Yizhi Liu and Houtan Jebelli	Enhanced Teleoperation of Construction Robots Using a GAN-Based Physiological Signal Augmentation Framework	
		283 Juhyeong Ryu, Carl Haas and Eihab Abdel-Rahman	Performance and Ergonomic Characteristics of Expert Masons	
		536 Mohammadali Khazen, Mazdak Nik-Bakht and Osama Moselhi	PROXIMITY DETECTION ON CONSTRUCTION SITES, USING BLUETOOTH LOW ENERGY BEACONS	
		S18	Construction Project Management	
Fri. May 28	13:30-14:00	52 Mohamed Sherif and Ibrahim Abotaleb	Application of Integrated Project Delivery (IPD) in Egypt: Implementation and Challenges	Ivanka Iordanova Phillip Plugge
		63 Shrouk Gharib, Osama Hosny, Ahmed Waly and Ibrahim Abotaleb	Investigating the Impacts of Change Orders in Construction using Dynamic Modeling	
		128 Ahmed Omran and A. Samer Ezeldin	A WEB-BASED CHANGE CONTROL AND MANAGEMENT TOOLKIT FOR LUMP-SUM TURNKEY CONTRACTORS	
		276 Jin Ouk Choi, Binith Shrestha, Young Hoon Kwak and Jennifer Shane	Facility Design Standardization Work Process and Optimization in Capital Projects	
		612 David Martin, Hongtao Dang and Warren Plugge	Integrated Project Delivery Perception and Application in Washington State	
		S19	Construction Project Planning and Optimization	
Fri. May 28	14:00-14:30	62 Amira Saleh, Ibrahim Abotaleb and Ossama Hosny	Optimization of Multi-skilled Labor to Minimize Lost Man-Hours in Construction Projects	Ivanka Iordanova Phillip Plugge
		145 Yosra Rafat and A. Samer Ezeldin	INTERACTIVE EXPERT SYSTEM FOR BUDGETING WORLD BANK CONSULTANCY PROJECTS.	
		604 Valentina Ferrer, Mohamed Elzomor and Piyush Pradhananga	A Framework that Couples Front-End Planning with Sustainable Infrastructure Projects	
		651 Mouhamadou Moustapha Gueye and Conrad Boton	Development of a virtual visit model based on a BIM model and a game engine	
		S20	Concrete Materials	
		262 Ariana Martinez and Ahmed Soliman	Mortar Bar Test for Reactive Aggregates detection: A Review	Peter Bischoff Radhouane Masmoudi

Fri. May 28	16:00-16:30	272	Jamshid Zohrehheydariha, Amirreza Bastani, Bruno Paini, Sreekanta Das and David Lawn	Sustainable Concrete Post Construction for Fencing Reinforced with Basalt Fibres	
		431	Dima Kanaan and Ahmed Soliman	Fresh and Mechanical Properties of One-Part Alkali-Activated Self-Consolidating Concrete	
		S21	FRP-Reinforced Concrete Structures		
Fri. May 28	16:30-17:00	441	Bahareh Nader Tehrani, Ahmed Sabry Farghaly, Alireza Asadian and Brahim Benmokrane	A REVIEW ON BOND PERFORMANCE AND SPLICE BEHAVIOR OF FRP BARS TO CONCRETE	Peter Bischoff Radhouane Masmoudi
		459	Moataz Mahmoud, Mohamed Eladawy and Brahim Benmokrane	EVALUATION OF SHEAR TRANSFER STRENGTH IN FRP CONCRETE COMPOSITE USING NONLINEAR FINITE ELEMENT ANALYSIS	
		521	Ahmed Gouda, Ahmed Ali and Hamdy Mohamed	ANALYSIS OF GFRP-RC CIRCULAR-BEAMS WITH SPIRAL SHEAR-REINFORCEMENT	
		522	Ahmed Gouda, Ahmed Ali and Hamdy Mohamed	SHEAR BEHAVIOUR OF REINFORCED-CONCRETE CIRCULAR-BEAMS WITHOUT WEB-REINFORCEMENT	
		S22	FRP Retrofitting and Structural Systems		
Fri. May 28	17:00-17:30	208	Raghad Kassab and Pedram Sadeghian	Three-point bending of sandwich beams with FRP facing and PP honeycomb core	Peter Bischoff Radhouane Masmoudi
		614	Zaineb Khalid and Emre Erkmen	Analysis of Retrofitted Concrete Columns using 3D Elastic-Plastic-Damage Modelling	
		659	Muhammad Faizan Qureshi and Shamim A. Sheikh	EFFECTIVE BOND LENGTH OF FRP SHEET BONDED TO CONCRETE	
		665	Maha Abdallah, Hamdy Mohamed and Radhouane Masmoudi	THEORETICAL ASSESSMENT OF BEHAVIOR OF CONCRETE-FILLED FRP TUBE COLUMNS UNDER STATIC LOADS	
		666	Maha Abdallah, Hamdy Mohamed and Radhouane Masmoudi	ECCENTRIC BEHAVIOR OF CONCRETE COLUMNS CONFINED WITH GFRP TUBES	
		S23	Seismic Performance of Structures		
Sat. May 29	10:30-11:00	116	Armin Hajighasem Kashani and Peng Wu	The ISPH method in modeling fluid dynamics in a Tuned Liquid Damper (TLD)	Eugene Kim Alan Lloyd
		567	Mahdi Mokhtari, Abrar Islam and Ali Imanpour	Comparison of the Seismic Performance of Steel Moment-Resisting Frames and Moment-Resisting Knee Braced Frames	
		613	Chanh Nien Luong, Cancan Yang and Mohamed Ezzeldin	Earthquake-Induced Damage Assessment of Segmental Post-tensioned Precast Concrete Pier	
		668	Emre Erkmen, Atila Sarikaya, Orkun Arat and Khaled Galal	Analysis of Reinforced Concrete Shear Walls using Elastic-Plastic-Damage Modelling	
		793	Philippe Rosset, Luc Chouinard and Marie-José Nollet	CONSEQUENCES ON RESIDENTIAL BUILDINGS IN GREATER MONTREAL FOR A REPEAT OF THE 1732 M5.8 MONTREAL EARTHQUAKE	
		S24	Energy Infrastructure and Resilience		
Sat. May 29	11:00-11:30	30	Ruifang Yang, Linzhuo Wei, Yuting Chen, Arash Shahi and Brenda McCabe	Is the Nuclear Construction Sector Safer? A Comparison of Safety Climate and Safety Performance in Ontario	Eugene Kim Alan Lloyd
		335	Aaron Colletta, Jaewon Lim and Jin Ouk Choi	Review of Infrastructure Resiliency Policy for Natural Disasters	
		356	Ravihari Kotagodahetti, Kasun Hewage, Hirushie Karunathilake and Rehan Sadiq	Renewable natural gas as a greener energy source: A life cycle cost-benefit analysis	
		413	Mohamed Abouyoussef and Mohamed Ezzeldin	Numerical Modelling of Reinforced Concrete Walls in Nuclear and Industrial Structures under Seismic Loading	
		601	Eric Goforth, Wael El-Dakhkhni and Lydell Wiebe	STEP THROUGH THE NOISE: INSIGHT INTO RESILIENCE-DRIVEN POWER ASSET MANAGEMENT	
		S25	Structure Fragility and Deterioration Modelling		
Sat. May 29	11:30-12:00	106	Majdi Flah and Moncef Nehdi	Automated Crack Identification Using Deep Learning Based Image Processing	Eugene Kim Alan Lloyd
		154	Stacey-Merveille Ngabire, Allan Botham and Rajeev Ruparathna	Life Cycle Costing based Capital Asset Planning Method for Bridge Infrastructure	
		535	Antoine Diot, Azarm Farzam, Marie-José Nollet and Ahmad Abo El Ezz	SIMPLIFIED APPROACH FOR FRAGILITY ANALYSIS OF HIGHWAY BRIDGES	
		S26	Material Performance in Aggressive Environments		
Sat. May 29	12:30-13:00	149	Branna MacDougall, John Kabanda, Hamzeh Hajiloo, Salah Sarhat and Mark Green	Fire Performance of Ultra High-Performance Concrete	Hassan Baaj Colin MacDougall
		257	Ethan Phillon and John Gales	An Investigation into the Numerical Modeling of Timber at Elevated Temperatures	
		608	Md Jihan Hasan and Khandaker M. Anwar Hossain	Assessing Suitability of Geopolymer Composites under Chloride Exposure	
		671	Sara Hassi, Bruce Menu and Mohamed Ebn Touhami	Determination of chloride ion penetration depth of blended mortar using electrochemical impedance spectroscopy	
		732	Malek Lazhari, Maged Youssef and Salah El Fitany	Use of Equivalent Standard Fire Duration to Evaluate the Internal Temperatures in RC Walls Exposed to Fire	
		S27	Damage Detection in Civil Infrastructure		
Sat. May 29	13:00-13:30	334	Bing Han and Fernanda Leite	Exploring Computing Time for Automatic Occlusion Detection: A Scan-based Algorithm Versus A Geometry-based Algorithm	Hassan Baaj Colin MacDougall
		575	Palisa Arafin and Ahm Muntasir Billah	STRUCTURAL DEFECTS CLASSIFICATION AND DETECTION USING CONVOLUTIONAL NEURAL NETWORK (CNN): A REVIEW	
		652	Mohammad Delpasand, Emre Erkmen and Rajamohan Ganesan	A damage detection procedure using spectral element method	
		726	Ahmed Elbeheri, Ashutosh. Bagchi and Tarek Zayed	Defect Based Condition Assessment of Steel Bridges	

Structures Live Q&A Sessions					
Date	Time	Number	S01	Structural analysis	Moderator
Wed. May 26	16:30-17:00	74	Saeid Hajjhasemali, Bill Brockbank and Shahriar Mirmirani	Effect of Arch Dimensions and Overfill Depth on Deflection of Three-Hinge Buried Precast Arch Bridges	Mohamed Darwish Radhouane Masmoudi
		317	Reza Abolhelm and Trevor D. Hrynyk	Shell-based finite element modelling of RC flat plates subjected to non-uniform connection region stresses	
		452	Heather Gathman and Ann C. Sychterz	Analysis of full-scale plate-based tensegrity structure using dynamic relaxation	
		545	Sagnik Paul and Ann C. Sychterz	A Computational Analysis for an Adaptive Tensegrity-based Four-Module Roof Structure	
		643	Alan Lloyd and Patrick Barry	Performance of safety netting under low velocity impact loading	
		S02	Structural Dynamics		
Wed. May 26	17:00-17:30	42	J Shayne Love	Frequency Domain Method to Determine Peak Resultant Accelerations of Structure-DVA Systems	Mohamed Darwish Radhouane Masmoudi
		113	Shumsun Siddique, Jian Deng and Eltayeb Mohamedelhasen	Dynamic Stability of Elastic Beams under Axial Arbitrary Loads	
		455	Angshuman C Baruah and Ann Sychterz	Pill-bug inspired adaptive origami tuned-mass dampers	
		589	Mickey George, Maha Abdallah and Hamzeh Hajiloo	The Behaviour of Reinforced Concrete under Impact Loading: Review	
		653	Marc-Andre Chainey and Mazen Chaaraoui	Resonance Testing for the Purpose of Determining Load Sharing between Eye Bar Members with multiple Eye Bars.	
		S03	Application of Machine Learning and AI in Structural Engineering		
Thurs. May 27	11:30-12:00	341	Md Asif Bin Kabir and Ahm Muntasir Billah	Data-Driven Failure Mode Prediction of Exposed Column Base Plate Connection: A Machine Learning Approach	Ayan Sadhu Aham Adawi
		500	Mohamed Barbosh, Kyle Dunphy and Ayan Sadhu	Time-frequency assisted Deep Learning for Crack Localization using Acoustic Emission Data	
		548	Eric Duong, A.J. Darras, Ali Imanpour, Robert Driver and Maha Essa	Applications of Artificial Intelligence Techniques for Optimization of Structural Steel Connections	
		616	Max Midwinter, Chul Min Yeum and Eugene Kim	Explainable Machine Learning for Seismic Vulnerability Assessment of Low-Rise Reinforced Concrete Buildings	
		S04	Seismic Analysis and Design of Structures		
Thurs. May 27	12:30-13:00	79	Shahabaldin Mazloom and Rola Assi	Assessment of Vertical Spectral Acceleration Demands in Eastern Canada Seismic Zone	Jian Deng Ahmed Elshaer
		89	Qi Zhang, Ibrahim R. Soudy and M. Shahria Alam	EVALUATION OF BRIDGE CODE DESIGN CRITERIA USING PERFORMANCE-BASED EARTHQUAKE ENGINEERING METHODOLOGY	
		155	Pierre Thibault, Charles-Darwin Annan and Pampa Dey	New hybrid multi-core buckling-restrained brace designs for enhanced seismic performance	
		419	Nozhat Sadat Ghazi Sharyatpanahi and Anjan Bhowmick	Seismic behavior of steel plate shear walls with door and window sized openings	
		693	Amitabh Dar, Dimitrios Konstantinidis and Wael El-Dakhkhni	Input motion scaling for seismic evaluation of rocking components in Canadian nuclear power plants	
		S05	Seismic Behaviour of Reinforced Concrete Structures		
Thurs. May 27	13:00-13:30	57	Amr Abdallah and Ehab El-Salakawy	Effect of Concrete Strength on GFRP-RC Circular Columns under Simulated Seismic Loading	Jian Deng Ahmed Elshaer
		396	Islam Shabana, Ahmed Farhaly and Brahim Benmokrane	EFFECT OF THE HORIZONTAL WEB REINFORCEMENT RATIO ON THE SEISMIC RESPONSE OF GFRP-RC SQUAT WALLS	
		429	Ahmed Akl and Mohamed Ezzeldin	Seismic Collapse Risk Assessment of Low-Aspect-Ratio Reinforced Concrete Structures	
		490	Farah Dameh and Stavroula J. Pantazopoulou	A Comparative Study: Seismic Deformability and Strength of Non-Conforming Columns	
		757	Mehdi Taheri, Rasoul Mirghaderi and Saeed Mohebbi	Seismic behaviour of steel and diagonally reinforced coupling beams linking reinforced concrete shear walls	
		S06	Wind Response of Structures		
Thurs. May 27	13:30-14:00	60	Mohamed Abugazia, Ashraf El Damatty, Kaoshan Dai and Wensheng Lu	EFFECT OF CHANGING BLADES' PITCH ANGLES ON WIND TURBINE'S STRAINING ACTIONS UNDER TORNADO WIND FIELD	Jian Deng Ahmed Elshaer
		77	Nima Ezami, Ashraf El Damatty and Ahmed Hamada	An Experimental Study of a Transmission Tower Model in Tornado-Like Wind	
		201	M.Mehdi Mirzazadeh and Mark P. Milner	Investigation of Damaged Structures Exposed to the Tornadoes in national capital region of Canada	
		713	Raghdah Al-Chalabi and Ahmed Elshaer	Aerodynamic mitigation of low-rise building roofs using parapets	
		S07	Structural Optimization		
Thurs. May 27	14:00-14:30	41	Mohamed Sherif, Khaled Nassar, Osama Hosny and Sherif Safar	BIM based, Structural and Spatial Optimization for Construction Projects	Jian Deng Ahmed Elshaer
		565	Adriano Torres, Bardia Mahmoudi, A.J. Darras, Ali Imanpour and R.G. Driver	Achieving an Optimized Solution for Structural Design of Single-Storey Steel Buildings using Generative Design Methodology	
		627	Elshaimaa Ahmed, Ashraf El Damatty and Ashraf Nassef	Form-finding of a negative-Gaussian curvature cable dome using a genetic algorithm	
		702	Magdy Alanani and Ahmed Elshaer	Improving wind performance of structural systems of tall buildings by changing their topology	
		S08	Timber Structures		
Thurs. May 27	16:00-16:30	150	Samuel Shulman and Cristiano Loss	Performance of a Grout-Reinforced Hybrid Steel-Timber Shear Connection for Mass Timber Buildings	Ahmed Elshaer Asif Iqbal
		183	Md Shahnewaz, Robert Jackson and Thomas Tannert	EXPERIMENTAL INVESTIGATIONS OF FULL-SCALE CROSS-LAMINATED TIMBER CONCRETE COMPOSITE FLOORS	
		361	Maxime Cleroux, Eugene Kim and Daniel Lacroix	Investigation of the Potential of Using Shape Memory Alloy Dowels in Traditional Timber Connections	
		375	Tyler Hull and Daniel Lacroix	Analytical Investigation of the Potential of Hollowcore Mass Timber Panels for Long Span Floor Systems	
		512	Hothifa Rojob, Peter Phillips and Abul Rafiquzzaman	Laycock Park pedestrian bridge, pushing the limits of timber design	
		706	Md Shahnewaz, Carla Dickof and Thomas Tannert	BENDING PERFORMANCE OF TIMBER-TIMBER COMPOSITE FLOORS	
		S09	Wood and Timber Structures		
Thurs. May 27	16:30-17:00	495	Angelo Aloisio, Petr Sejkot, Asif Iqbal and Massimo Fragiacommo	An Algebraic hysteresis model for wood joints and structural systems	Ahmed Elshaer Asif Iqbal
		596	Moustafa El-Assaly, Ashraf El Damatty and Ahmed Hamada	CASE STUDY FOR A MID-RISE BUILDING WITH DIFFERENT WOOD STRUCTURAL SYSTEMS	
		631	Sam Salem and Vikram Virdi	Experimental Testing of the Shear Strength of CLT-Concrete Composite Sections Utilizing Screws as Shear Connectors	
		645	Sam Salem, Xi Chen and Sherine Ali	Experimental Testing of the Shear Strength of CLT-Concrete Composite Sections Utilizing Adhesive for Shear Connections	
		676	Md Saiful Islam, Ying Hei Chui, Mohamed Al-Hussien and Mohammed Sadiq Altaf	A NEW PANELIZED ROOF DESIGN APPROACH FOR OFFSITE FABRICATION OF LIGHT-FRAME WOOD RESIDENTIAL CONSTRUCTION	
		703	Mohammad Niazi, Ashraf El Damatty and Ahmed Hamada	SHEAR BUCKLING TESTING OF WOOD SHEATHING PANEL	
		S10	Structural Health Monitoring and Damage Identification		
Thurs. May 27	17:00-17:30	23	Mohammad Moravvej, Mamdouh El-Badry and Seyed Mahdi Hosseini	Damage Identification in Shear-Stud-Reinforced Slab-to-Precast Girder Connection Using a Relative Wavelet-Entropy Technique	Ayan Sadhu Aham Adawi
		209	Maziar Jamshidi and Mamdouh El-Badry	Structural Damage Identification from Acceleration Wavelet Data Using Convolutional Neural Networks	
		499	Mohamed Barbosh and Ayan Sadhu	Acoustic Emission-based Improved Damage Localization Technique	

		537	Ethan MacLeod, Brett Wyman, Josiah Matthews and Kaveh Arjomandi	Practical considerations for implementing SHM systems in highway bridges		
		S11			FRP Concrete Structures I	
Fri. May 28	11:00-11:30	28	Ahmed Bediwy, Ehab El-Salakawy and Karam Mahmoud	EFFECT OF LONGITUDINAL REINFORCEMENT RATIO ON THE BEHAVIOUR OF DEEP BEAMS REINFORCED WITH GFRP HEADED-END BARS	Mamdouh El-Badry Peter Bischoff	
		119	Seyed Mahdi Hosseini and Mamdouh El-Badry	Numerical Modeling and Prediction of Failure of Concrete-Filled Fibre-Reinforced Polymer Tubes		
		232	Subharajit Roy and Pedram Sadeghian	Shear Behaviour of Steel Reinforced Concrete-Filled Glass Fiber-Reinforced Polymer Tubes with $\pm 55^\circ$ Angle-Ply		
		406	Girish Narayan Prajapati, Ahmed Sabry Farghaly and Brahim Benmokrane	ENERGY DISSIPATION OF CONCRETE COLUMNS CONFINED WITH GFRP TIES UNDER REVERSED CYCLIC LOADING		
		463	Mohammed Gamal Gouda, Hamdy M. Mohamed, Allan C. Manalo and Brahim Benmokrane	Axial Capacity of Circular Concrete Hollow Columns Reinforced with GFRP Bars and Spirals		
		S12			FRP Concrete Structures II	
Fri. May 28	11:30-12:00	180	Koosha Khorramian, Pedram Sadeghian and Fadi Oudah	Second-Order Analysis of Slender GFRP Reinforced Concrete Columns Using Artificial Neural Network	Mamdouh El-Badry Peter Bischoff	
		206	Senthil Kumar Velkumar and Dr. Pedram Sadeghian	FLEXURAL CAPACITY OF CONCRETE BEAMS REINFORCED WITH GFRP BARS UNDER LOW AXIAL COMPRESSION LOADING		
		465	Abdoulaye Sanni B., Hamdy M. Mohamed, Ammar Yahia and Brahim Benmokrane	Axial Behavior of LWSC Columns Reinforced with GFRP Bars and Spirals		
		466	Shehab Mehany, Hamdy Mohamed and Brahim Benmokrane	FLEXURAL RESPONSE OF LIGHTWEIGHT SCC BEAMS REINFORCED WITH BASALT FRP REINFORCING BARS		
		467	Mahdi Afkhami, Salaheldin Mousa, Hamdy M. Mohamed, Ehab A. Ahmed and Brahim Benmokrane	Lightweight Self-Consolidating Concrete Bridge-Deck Slabs Reinforced With GFRP Bars Under Concentrated Loads		
		S13			Analysis and Design of Bridges	
Fri. May 28	12:30-13:00	46	Lindsey Li, Mike Bartlett and Tim Newson	Integral Abutment Bridges: Modelling and Predictive Approaches for Temperature Movements	Sam Salem Ahmed Hamada	
		84	Zhenning Liu, Yong Li and Rodrigo Astroza	PARAMETER ESTIMATION OF A SHAKE-TABLE TESTED BRIDGE COLUMN WITH BOND-SLIP EFFECT USING STOCHASTIC FILTERING		
		94	Junfu Bai, Niel Van Engelen and Shaohong Cheng	FEA Validation of Moment-Rotation Relationship of Unbonded Fiber-Reinforced Elastomeric Bearings		
		590	Nicholas Thibodeau, Alan Lloyd and Hassan Fatemi	Concentric and Eccentric Material Characterization of Polyurethane Disc Bridge Bearings		
		730	Ahmad Rahmzadeh, M. Shahria Alam and Robert Tremblay	Characterization of the Lateral Response of Base Rocking Steel Bridge Piers		
		S14			Loads on Bridges	
Fri. May 28	13:00-13:30	22	Diego Gomes Padilha, Kaveh Arjomandi and Tracy MacDonald	Live Load Demand on New Brunswick Highway Bridges	Sam Salem Ahmed Hamada	
		43	Shady Labib, Mohammed El-Gendy, Ehab El-Salakawy, Ifan Lim, Val Sylaj and Robert Burak	Transverse Load distribution of Diaphragm-Free Adjacent Box Girder Bridges		
		178	Jesika Rahman and A. H. M. Muntasir Billah	Wave Loading on Bridges: A State-of-the-art Review		
		297	Achraf Ben Afia, Charles-Darwin Annan, Pampa Dey and Samuel Petitclerc	Numerical modeling of the B train double and the CL-625 canadian trucks		
		633	Kunal Tiwary, Sanjaya Patro and Bibhudatta Sahoo	BridgeBase: A knowledge graph framework for monitoring and analysis of bridges		
		S15			Martin Haalstra Session (Steel Structures I)	
Fri. May 28	13:30-14:00	169	Justin Thomas and Kyle Tousignant	Design of RHS Compression Members Subjected to Local Buckling	Kyle Tousignant Jeffrey Packer Scott Walbridge	
		315	Samer Shukur and Magdi Mohareb	Elastic lateral-torsional buckling capacity of wide flange beams with end warping restraints		
		453	Pronob Kumar Ghosh and Anjan Bhowmick	Numerical study of standard and extended shear tab connections in steel I-beam		
		454	Masoud Mohammadzadeh and Anjan Bhowmick	Behavior of Steel I-beams reinforced while under load		
		484	Ali Chehrizi, Michelle Yong Xin Chien and Scott Walbridge	Assessment of fatigue design provisions for bridge elements with very short influence lines		
		S16			Steel Structures II	
Fri. May 28	14:00-14:30	16	Joseph Bouzide and Niel Van Engelen	HUMAN-INDUCED LOADING OF A MONUMENTAL STAIRCASE CONNECTED TO FLEXIBLE ELEMENTS	Kyle Tousignant Jeffrey Packer	
		496	Alireza Zangouie, Leon Wegner and Jacob Muthu	Fretting Fatigue Characterization of Bolted Steel Connections with Different Surface Treatments		
		542	Spencer Arbuckle and Scott Walbridge	Fatigue Assessment of Shear Studs for Steel-Concrete Composite Bridges Using the Hot-Spot Stress Approach		
		S17			Pipe Lines and Underground Structures	
Fri. May 28	15:00-15:30	530	Russell Jackson, Ian Moore and Alkaterini Genikomsou	The Role of Cementitious Liner Thickness in the Rehabilitation of Deteriorated Reinforced Concrete Sewers	Doug Tomlinson Kaveh Arjomandi	
		531	Ranlin Qiu, Ian Moore and Neil Hoult	FE analysis to Simulate Pressure Pipe Liners Spanning across Perforations		
		S18			Underground Structures	
Fri. May 28	15:30-16:00	17	Nolan Stratton, Jonathan Cerce, Shelair Sinjari and Niel Van Engelen	Influence of direction of lateral displacement on unbonded fiber-reinforced elastomeric isolators	Doug Tomlinson Kaveh Arjomandi	
		436	Nanthinee Porchelvan, Jagmohan Humar, Siva Sivathayanan and Pedram Mortazavi	Soil Structure Interaction Analysis of Shear Wall Buildings with a below-ground parkade		
		443	Arghya Chatterjee, Sanat Pokharel and Marc Breault	Geocell Reinforced Lateral Support for Anchoring Structural Foundation		
		731	Miah Riyadh, Jhordy Rodriguez and M. Shahria Alam	SHAPE FACTOR INFLUENCE OF FIBER REINFORCED ELASTOMERIC ISOLATORS ON THE SEISMIC RESPONSE OF A BRIDGE PIER		
		S19			Durability of Structures	
Fri. May 28	16:00-16:30	90	Faizee Faizal Rahiman	Innovative Retrofit of Existing Buildings Subjected to Blast	Doug Tomlinson Pedram Sadeghian	
		266	Kington Chu and Eugene Kim	Concrete Slab-on-Grade Analysis for Slab-Mounted Jib Cranes		
		267	Martin Gagne	Protecting Steel Rebar from Corrosion with External Zinc Anodes		
		S20			Innovation in Structural Engineering	
Fri. May 28	16:30-17:00	71	Esraa Ahmed Khalil and Mohamed Abou Zeid	Influence of Building Envelope on Energy Conservation Towards Sustainable Building in the New Egyptian Administrative Capital	Ahmed Hamada Aiham Adawi	
		343	Mohamed Darwish, Hazem Ismail, Amr Orz, Ahmed Ammar, Omar Eldebaby, Omar Soliman, Khaled Nassar, Mohamed Abouzeid and Passant Youssef	MANUFACTURING AND CHARACTERISTICS OF STRUCTURAL SECTIONS FROM WOOD PLASTIC COMPOSITES		
		679	Thomas Morrison	Application of the building code to existing buildings - background, objectives, and interesting tricks		
		710	Mutaz Suleiman, Ahmed Elshaer and Muntasir Billah	COVID-19 Modular Construction		
		S21			Masonry and Reinforced Concrete Structures	
		199	Jonathan Dirks, Samuel Ekhienmen, Brodie Van Boxel, Sreekantha Das and Bennett Banting	Crack Development and Grout-Block Interaction in Concrete Masonry Prisms	Ahmed Hamada Aiham Adawi	
		355	Wilson Ting Chuen Lam and Nima Mahmoudi	Assessment of Cover Requirement for Roadway Minor Reinforced Concrete Structures with Service Life Modeling		

Fri. May 28	17:00-17:30	570	Allan Kuan, Evan C. Bentz and Michael P. Collins	Calculation of longitudinal strain parameter used in CSA A23.3:19 torsion provisions for reinforced concrete members	
		593	Taylor Quinlan, Alan Lloyd and Sajjadul Haque	Effect of core fill placement time on shear capacity in prestressed hollow core slabs	
		731	Miah Riyadh, Jhordy Rodriguez and M. Shahria Alam	SHAPE FACTOR INFLUENCE OF FIBER REINFORCED ELASTOMERIC ISOLATORS ON THE SEISMIC RESPONSE OF A BRIDGE PIER	
		S22		Structural Reliability and Risk Assessment I	
Sat. May 29	10:00-10:30	27	Mohamad Salaheddine, Kaveh Arjomandi and Diego Padilha	STRUCTURAL RELIABILITY ASSESSMENT OF HIGHWAY BRIDGES USING VISUAL INSPECTION DATA	Jeffrey Packer Ahmed Hamda
		181	Koosha Khorramian, Fadi Oudah and Pedram Sadeghian	Reliability-Based Evaluation of the Stiffness Reduction Factor for Slender GFRP Reinforced Concrete Columns	
		230	Quanhan Xi and Jeffrey Packer	ASSESSING THE PROBABILISTIC ASSUMPTIONS BEHIND STRUCTURAL RELIABILITY VIA SIMULATION	
		238	Mingsai Xu and Cancan Yang	Corrosion-induced serviceability risks for bridge decks in a changing climate	
		S23		Structural Reliability and Risk Assessment II	
Sat. May 29	10:30-11:00	78	Saleh Ahmadi Soleimani, Georgios P. Balomenos and Dimitrios Konstantinidis	Probabilistic 3D finite element analysis of elastomeric bridge bearings	Jeffrey Packer Ahmed Hamda
		288	Elizabeth Buckley, Koosha Khorramian and Fadi Oudah	Application of Adaptive Kriging Method in Bridge Girder Reliability Analysis	
		437	Michelle Chien, Scott Walbridge and Bertram Kühn	Probabilistic Analysis of Brittle Fracture Design Code Provisions for Steel Bridges	
		555	Mohammad Barkhori Mehni and Scott Walbridge	Considering non-stationary loading due to climate change in the reliability analysis of structures	
		584	Connor Petrie, Fadi Oudah and Glen Norlander	USE OF STRUCTURAL HEALTH MONITORING DATA IN RELIABILITY-BASED ANALYSIS OF EXISTING RC CORBEL CONSIDERING TEFLON DEGRADATION	
		S24		Precast Concrete Structures	
Sat. May 29	11:00-11:30	108	Benedict Egbon and Doug Tomlinson	Structural Evaluation of Notched Insulation in Precast Concrete Sandwich Panels	Maha Hassan Sreekanta Das
		120	Seyed Mahdi Hosseini and Mamdouh El-Badry	Experimental Study on the Use of Steel Double-Headed Studs in Slab-to-Precast Girder Connection	
		460	Basil Ibrahim, Salaheldin Mousa, Hamdy M. Mohamed and Brahim Benmokrane	Flexural Cyclic Testing of Precast High-strength Concrete Tunnel Segments Reinforced with GFRP Bars	
		461	Seyed Mohammad Hosseini, Salaheldin Mousa, Hamdy M. Mohamed and Brahim Benmokrane	EFFICIENCY OF PRECAST CONCRETE TUNNEL LINING SEGMENTS REINFORCED WITH GFRP BARS UNDER BENDING LOAD	
		742	Susana Hernandez Brito, Ehab El-Salakawy, Karam Mahmoud and Karl Truderung	Reinforcing Bar Connection of Hollow-core Slabs to Steel Beam Supports	
		S25		FRP Concrete Structures III	
Sat. May 29	11:30-12:00	195	Alok Dua and Vahid Sadeghian	Response of Curved UHPC-CFRP Panels to Close-In Blast Load Effects: A Numerical Study	Maha Hassan Sreekanta Das
		464	Ahmed Elhamaymy, Hamdy M. Mohamed and Brahim Benmokrane	Durability of RC Square Columns Reinforced with GFRP Bars, Spirals and Ties in Simulated Severe Marine Environment	
		469	Ibrahim Mostafa, Salaheldin Mousa, Hamdy M Mohamed and Brahim Benmokrane	EFFECT OF LONGITUDINAL REINFORCEMENT TYPE ON THE TORSIONAL BEHAVIOR OF CONCRETE BOX GIRDERS REINFORCED WITH GFRP BARS	
		740	Mu'Taz Almomani, Karam Mahmoud and Ehab El-Salakawy	Effect of Slenderness Ratio on HSC Columns Reinforced with GFRP Bars and Spirals	
		S26		Pre-Stressed and Post-Tensioned Concrete Structures	
Sat. May 29	12:30-13:00	35	Peter Bischoff	Review of Deflection Provisions for Reinforced and Partially (Cracked) Prestressed Concrete	Ahmed Hamada Aiham Adawi
		95	Mohamed Abugazia and Mohamed El-Sefy	FLEXURAL STRENGTHENING OF RC CONTINUOUS SLABS USING EXTERNAL PRESTRESSING SYSTEMS	
		98	Liyang Huang and Yong Li	ANALYTICAL STUDY OF STRUCTURAL DETERIORATION OF A 27-YEAR-OLD PRESTRESSED BRIDGE GIRDER	
		433	Asmaa Abdeldaim Ahmed, Mohamed Hassan, M.-Iqbal Khan and Radhouane Masmoudi	EFFECT OF PRESTRESSING RATIO ON RECTANGULAR CONCRETE FILLED FRP TUBE BEAMS SUBJECTED TO BENDING LOADING	
		480	Amirhossein Vosogh, Armin Sadeghian and Munzer Hassan	Design challenges of the widening of an existing bridge with post-tensioned concrete deck	
		S27		Bridges- Lessons Learnt from Real Cases	
Sat. May 29	13:00-13:30	68	Marc-André Carrier, David Ma and Shahriar Mirmirani	Challenges in the Design and Construction of a MSE Bridge Abutment Wall with Sloped Precast Panels in Turcot Interchange	Ahmed Hamada Aiham Adawi
		264	Julia Mekhael, Yoser Hamid, Sareen Tourabian, Alaa El-Awad Gonzalez, Ashrf Jabr, Erfan Mohammadpour, Sameh Salib and Khaled Sennah	Landmark Cable-Stayed Pedestrian Bridge	
		789	Maha Hassan and Hussein Abbas	REHABILITATION STUDY OF AN OLD METALLIC ORTHOTROPIC DECK BRIDGE	

Construction Live Q&A Sessions

Date	Time	Number	S01	Infrastructure Construction & Mgmt. I	Moderator
Wed. May 26	11:00-11:30	14	Long Nguyen, Alexis Slobodzin, Claude Villiers and Seneshaw Tsegaye	Interdependencies of Lifelines: A Case Study of Transportation Infrastructure Under Hurricane Impacts	Min Liu
		131	K. Joseph Shrestha, Mohammad Uddin and Jeremiah Adebisi	Current Practices of Calculating and Utilizing Road User Costs in the U.S.	
		173	Aryan Hojjati, Dexter V.L. Hunt and Christopher D.F. Rogers	Assessing the Carbon Cost of Utility Installation via Multi-Utility Tunnels (MUTs)	
		198	Randy Pickle and Anya van Rooyen	Gordie Howe International Bridge Construction Anxieties – The Bridge	
		316	William Rasdorf, Minerva Bonilla, Min Liu, Rebecca Tippet and Majed Al-Ghandour	Seasonal Population Determination for Road Maintenance Fund Distribution	
			S02	Infrastructure Construction & Mgmt. II	
Wed. May 26	11:30-12:00	395	Monjurul Hasan and Ross Newton	A Framework to Evaluate the School Infrastructure Project Need Using Fuzzy Expert System	Min Liu
		478	Gasser Ali and Islam El-Adaway	Improving the Reliability of Electric Power Infrastructure Using Distributed Solar Generation: An Agent-Based Modeling Approach	
		580	Julio Constantino and Mohamed Abdel-Raheem	Towards a more sustainable approach to evaluate Brownfields	
			S03	Construction Automation & Digitalization I	
Wed. May 26	12:30-13:00	152	Ghulam Muhammad Ali, Edgar C. Tamayo, Asif Mansoor, Jacek Olearczyk	An automated approach to generating optimized crane mat layout plans	Ala Suliman
		153	Ramtin Azami, Zhen Lei, Travis Zubick and Rick Hermann	An Automated Mobile Crane Selection System for Heavy Industrial Construction Projects	
		203	Alaeldin Suliman, Jeff Rankin and Alex Caskey	Technology-Oriented Innovation in Construction: A Conceptual Mapping Framework	
		222	Lingzi Wu and Simaan Abourizk	Towards construction's digital future: a roadmap for enhancing data value	
		256	Gaang Lee, Sanghyun Lee and George Brogmus	Feasibility of Wearable Heart Rate Sensing-based Whole-body Physical Fatigue Monitoring for Construction Workers	
			S04	Construction Automation & Digitalization II	
Wed. May 26	13:00-13:30	329	Walid Anane, Ivanka Iordanova and Claudiane Ouellet-Plamondon	The Use of BIM for Robotic 3D Concrete Printing	Ala Suliman
		367	Harsh Shah and Zia Din	Lessons Learned from the Development of an Immersive Virtual Reality (IVR) Game for Construction Safety	
		474	Tamima Elbashbishy, Gasser Ali and Islam El-Adaway	Role of Transactional Blockchain in Facilitating Procurement in International Construction Projects	
		509	Araham Martinez, Mohammad Askarihosni, Neging Alimohammadi, Azadeh Dezyanian and Mazdak Nik-Bakht	Discovery of Energy Performance Patterns for Residential Buildings through Machine Learning	
			S05	Construction Automation & Digitalization III	
Wed. May 26	13:30-14:00	662	Mohammed Sulaiman, Hexu Liu, Mohamed Binalhaj and Osama Abudayyeh	UAV Applications in the AEC/FM Industry: A Review	Hexu Liu
		711	Mohamed Bin-Alhj, Hexu Liu and Mohammed Sulaiman	Occupant-centric Facility Maintenance Management: An NLP-based model	
		712	Tian Jin, Farnaz Sadeghpour and George Jergeas	Auto-Positioning of UWB RTLS for Construction Site Applications	
		718	Mahdi Naimi Jamal, Tian Jin and Farnaz Sadeghpour	A Web-Based Platform for Real-time Location Tracking Using a TOF-based UWB Tracking System	
			S06	Construction Automation & Digitalization IV	
Wed. May 26	14:00-14:30	776	Hamidreza Karimian, Mohamed Ouf, Nunzio Cotrufo and Jean-Simon Venne	Sensing and Data Collection Methods for Occupant-Centric Building Control: A Critical Review of State of the Art	Hexu Liu
		792	Diana Salhab, Lynn Shehab, Karim Noueihed and Ahmed Hammad	abm as a decision support system for project delivery methods	
		796	Leo Marcy, Etienne Clement and Ivanka Iordanova	Framework for automation of construction progress tracking in indoor environment, using autonomous rover and beacons-based system	
		806	Zinab Mohamed, Tarek Hegazy, Arlene Oetomo and Plinio P. Morita	Using Wearables to Monitor and Mitigate Workers' Fatigue	
			S7	Sustainable Construction & LCM I	
Wed. May 26	15:00-15:30	137	Alex Gray and Arezou Sadoughi	Mass Timber: A Review of Typologies and Environmental Benefits	Sara Rankohi
		143	Elnaz Asadian, Ali Karji and Robert Leicht	Building Energy Retrofits: A review of Decision-Making Models	
		185	Ana Daniela Pinto, Juyeong Choi, Tarek Abichou, Fehintola Sanusi and Emilia Aninat	Adaptation of Municipal Solid Waste Management Systems in response to the Covid-19 Pandemic	
		225	Mojtaba Rezvani, Hossein Taghaddos, Soroush Sobhkhiz, Mojtaba Noghabaei and Khashayar Ghorab	User Engagement for Sustainable development: How can Virtual Reality help?	
		803	Julian Prestia, Jin Ouk Choi, Seungtaek Lee and David James	Lessons Learned from UNLV's Solar Decathlon 2017 Competition Experience – Design and Construction of a Modular House	
			S8	Sustainable Construction & LCM II	
Wed. May 26	15:30-16:00	794	Flavie Plourde-Mainville and Claudiane Ouellet-Plamondon	Green and sustainable certifications for existing buildings, the example of the upgrading to standards and heritage restoration of Montreal city hall	Sara Rankohi
		813	Peter Calcetas and Brianna Murree	Innovation and effectiveness through diversity	
		814	Mehtar Sandhu and Markus Dann	LIFE-CYCLE ANALYSIS FOR UPGRADING RESIDENTIAL BUILDINGS TO OPTIMIZE ENERGY CONSUMPTION	
		815	Hongtao Dang and Bill Bender	Essential Elements and Best Practices for Teaching a Culminating Capstone Course Online in Construction Management Programs	
			S9	Building Engineering & Construction Material I	
Wed. May 26	16:00-16:30	360	Zaineb Al-Faesly and Martin Noel	The Feasibility of Reuse in the Concrete Industry	Dan Tran
		381	Kareem Mostafa and Tarek Hegazy	Using Data Mining for Prioritizing Roof Rehabilitation Works	
		532	Yewande Abraham and Max Spaan	EVALUATING OCCUPANT FEEDBACK ON INDOOR ENVIRONMENTAL QUALITY IN EDUCATIONAL ENVIRONMENTS	
		577	Mohammad Anis and Mohamed Abdel-Raheem	Initial Investigation of a More Sustainable Method for Constructing Electric Conductive Pavement	
			S10	Building Engineering & Construction Material II	
Wed. May 26	16:30-17:00	578	Mohamed Abdel-Raheem, Miranda Garcia and Maria Pruneda	Investigating the Financial Feasibility of Energy-Efficient Appliances Used in Homes	Dan Tran
		772	Reem Gamal, Kareem Reda, Zenah Helmy, Ziad Abdeen, Gehad Ayman, Omar Sawan and Mohamed Naguib Abuzeid	EXPLORING POTENTIAL BUILDING MATERIALS FOR PLANET MARS	
		804	Maryam Jalalpour and Chukwuma Nnaji	INVESTIGATING THE IMPACT OF TROMBE WALL ON BUILDING ENERGY SAVING AND THERMAL COMFORT – A CASE STUDY	
			S11	BIM/VDC IV	
Wed. May 26	17:00-17:30	698	Allison Boyd, D. Cody Bradley and Lloyd Waugh	USE OF VIRTUAL REALITY TO MINIMIZE THE SPREAD OF COVID-19 ON CONSTRUCTION SITES	Dan Tran
		781	Mamdouh Mohamed, Phuong Nguyen and Daniel Tran	Preliminary Analysis of Emerging Visualization and Image Modeling	
		786	Phuong Nguyen and Dan Tran	Developing a GIS-Based Fleet Optimization Model for Winter Maintenance Operations	
		795	Mennatallah Hammam, Kristen Parrish and Jeffrey Feghaly	A New Look at Designing Electrical Construction Processes	
		800	Jong Won Ma and Fernanda Leite	PARALLELIZATION STRATEGIES FOR HIERARCHICAL DENSITY-BASED CLUSTERING ALGORITHM USING OPENMP FOR SCAN-TO-BIM APPLICATIONS	
			S12	Project Mgmt. & Construction Mgmt. I	
Wed. May 26	17:00-17:30	86	A. Samer Ezeldin and Yasmin El Hakim	Analysis of Concurrent Delays in The Construction Industry	Xinwing Li
		157	Asif Mansoor, Muhammad Khan, Waleed Shakeel, Ghulam Muhammad Ali, Ahmed Bouferguene and Mohamed Al-Hussein	SUPPLY CHAIN OPTIMIZATION TO GAIN COMPETITIVE EDGE IN CONSTRUCTION INDUSTRY	
		217	Fei Han, Susan Bogus, Heather Moore and Su Zhang	Forecasting Budget Overruns by Productivity Variations in Electrical	

26	15:00-15:30	237	Noha Elsohni and A.Samer Ezeldin	An Examination of Quality Management System Implementation in Egyptian Contracting Companies	
		242	Navid Nickdoost and Juyeong Choi	A Framework to Determine the Optimal Locations of Temporary Debris Management Sites in Response to a Hurricane Event	
		S13		Project Mgmt. & Construction Mgmt. II	
Wed. May 26	15:30-16:00	305	Hafsa Chbaly, Daniel Forgues and Samia Ben Rajeb	IMPROVING PROJECT DEFINITION PRACTICES WITH LEAN-LED DESIGN	Xinwing Li
		346	Tarek Hegazy and Kareem Mostafa	Enhanced CPM/LOB Computation for Repetitive Scheduling	
		425	Michaela LaPatin, Lauryn Sparing, Helena Tiedmann, Olga Kavvada, Maria Giorda, Jean Daniélou, Miriam Hacker and Kasey M. Faust	Why do Energy Projects Fail? Understanding How Different Types of Controversy Impact Construction Projects	
		427	Changcui Qiu and Xinming Li	Blended Analysis of Occupational Safety Hazards and Risk Assessment	
		446	Pierre Martel, Daniel Forgues and Conrad Boton	Production et utilisation des coûts dans les modes de réalisation collaboratifs dans l'industrie de la construction	
		S14		Project Mgmt. & Construction Mgmt. III	
Wed. May 26	16:00-16:30	483	Nicolas Diaz and Ming Lu	Integrating Simulation and Emission Models for Equipment Cost Analysis in Earthmoving Operations	Xinwing Li
		538	Estacio Pereira and Nicholas Thom	Teaching project planning and control using a management game approach.	
		598	Warren Plugge, Hongtao Dang and David Martin	MANAGEMENT STRATEGIES, PROJECT TEAMS, AND VALUE ADDED USING LEAN PROJECT DELIVERY FOR SUSTAINABLE, RELIABLE, AND EFFECTIVE CONSTRUCTION	
		609	Avesha Siddika and Ming Lu	EVALUATING RISK INDICES FOR EXECUTION PLANS OF CONSTRUCTION	
		S15		Project Mgmt. & Construction Mgmt. IV	
Wed. May 26	16:30-17:00	635	Elnaz Asadian, Robert Leicht and John Messner	Lean Adoption Barriers for trade contractors	Erik Poirier
		724	Agnel Marcano Pina and Farnaz Sadeghpour	An Overview of Modeling Spatial Relationships in Site Layout Planning Literature	
		768	Mubarak Aldossary and Abdulaziz Bubshait	KEY FACTORS AFFECTING CONSTRUCTION SAFETY PERFORMANCE IN SAUDI ARABIA	
		S16		Project Mgmt. & Construction Mgmt. V	
Wed. May 26	17:00-17:30	397	Jean-Paul Agboh and Erik Andrew Poirier	Optimisation du processus de relevé de quantité et d'estimation supporté par le bim dans une firme d'architecture au québec	Erik Poirier
		519	Claire Delarue, Erik Poirier and Daniel Forgues	A FACETED CLASSIFICATION SYSTEM FOR INNOVATION IN THE CONSTRUCTION INDUSTRY	
		520	Claire Delarue, Erik Poirier and Daniel Forgues	CONSTRUCTION INNOVATION IN THE PROVINCE OF QUEBEC : BARRIERS, DRIVERS, ENABLERS AND IMPACT	
		785	Mamdouh Mohamed and Daniel Tran	HIGHWAY CONSTRUCTION PROGRAM DELIVERY APPROACHES: THE VIEW FROM THE FIELD	
		790	Phuong Nguyen, Mamdouh Mohamed and Dan Tran	Examining Skill Sets for Successfully Managing Alternative Contracting Methods for Highway Projects and Programs	
		811	Negar Soltanikarbaschi and Ahmed Hammad	AN INTEGRATED AHP-TOPSIS METHODOLOGY FOR SELECTING SUITABLE PROJECT DELIVERY METHOD FOR CONSTRUCTION PROJECTS	
		S17		Infrastructure Construction & Mgmt. III	
Thurs. May 27	11:30-12:00	667	Khalid Kaddoura, Nicholas Gan and Leo Chen	Scheduling Annual Inspections of Sanitary Trunk Sewers Using a Prioritization Framework	Hongtao Dang
		778	Ahmed Ibrahim and Mohamed Meguid	THE APPLICABILITY OF THE TWO-FLUID MODEL TO SIMULATE SOIL INTERNAL FLUIDIZATION DUE TO PIPE LEAKAGE	
		782	Yuan Yuan Zhang, Fan Zhang, Caleb Prine, Amit Tripathi and Steve Puryear	A MARKET ACCESSIBILITY STUDY OF THE INLAND WATERWAY SYSTEM IN MISSISSIPPI	
		783	Anh Chau, Hiep Hoang, Long Nguyen and Long Le-Hoai	CONSTRUCTION OF RIGID PAVEMENT IN EMERGING ECONOMIES: CHALLENGES AND OPPORTUNITIES	
		802	Mohammed Arrafi, Ibukun Awolusi, Samer Dessouky and Tulio Sulbaran	COMPARATIVE ANALYSIS OF ENERGY HARVESTING METHODS IN TRANSPORTATION	
		S18		COVID-19 & Construction	
Thurs. May 27	12:30-13:00	348	Supriya Jha, Dr. Manas Kumar Bhoi and Dr. Uma Chaduvula	A Risk management Tool for Construction Sector India during COVID-19	Hongtao Dang
		407	Maha Hassan and Dina Saad	Fast provision of healthcare facilities (HCF) in response to COVID-19 Pandemic Outbreak	
		485	Felipe Araya, Leonardo Sierra and Diego Basualto	IDENTIFYING THE IMPACTS OF COVID-19 ON CHILEAN CONSTRUCTION PROJECTS	
		618	Hongtao Dang and Jennifer Serne	Effective Safety Protocols and Project Productivity Impacts for Construction Companies in Washington State During the COVID-19 Pandemic	
		777	Arkaprabha Bhattacharyya and Makarand Hastak	IMPACT ANALYSIS OF COVID-19 PANDEMIC ON CONSTRUCTION EMPLOYMENT IN THE UNITED STATES	
		S19		BIM/VDC I	
Thurs. May 27	16:00-16:30	51	Patrick Nolan and George Gibson	Constructability in the Design Process: A Review of Current Practice within the UK Construction Industry	Mazdak Nik-Bakht
		144	Hossein Nasrazadani, Kamelia Shahi, Arash Shahi and Brenda McCabe	BUILDING INFORMATION MODELING IN CANADA: A MULTIDISCIPLINARY PRACTICAL ANALYSIS	
		170	Mathieu Robitaille, Erik A. Poirier and Ali Motamedi	Applying ISO19650 guidelines on digital deliverables intended for BIM-	
		239	Amelia Celozo, Daniel de Oliveira and Fernanda Leite	Association of BIM-related Contract Language and BIM Use on Construction Projects	
		S20		BIM/VDC II	
Thurs. May 27	16:30-17:00	241	Sarah Mahbod, Ivanka Iordanova and Erik Andrew Poirier	A gap analysis of current CCDC standard contract documents and provisions for successful BIM-enabled projects in Canada	Mazdak Nik-Bakht
		248	Yasmine Aoubacha and Ivanka Iordanova	Monitoring and control of compliance with requirements in an architectural project, based on BIM	
		384	Nabil Lechhab, Ivanka Iordanova and Daniel Forgues	Evaluation of the Return on the Investment from BIM in the Context of an Architectural Firm	
		491	Emmanuelle Nonirit, Daniel Forgues and Erik Poirier	A Framework supporting the empirical evaluation of BIM Assessment	
		503	Vafa Rostamiasi and Ahmad Jrade	Integrating Building Information Modeling and Virtual Reality to facilitate the implementation of Universal Design for facilities at the conceptual stage	
		S21		BIM/VDC III	
Thurs. May 27	17:00-17:30	539	Nkechi McNeil-Ayuk and Ahmad Jrade	Integrating Building Information Modeling (BIM) and sustainability indicators and criteria to select associated construction method at the conceptual design stage of buildings.	Mazdak Nik-Bakht
		546	Aly Elgayar and Ahmad Jrade	Integrating 3D Modeling and GIS-Based Land Use and Multimodal Transport Accessibility Evaluation Model to Design and Retrofit Sustainable Bridges	
		583	Marie Boize, Ali Motamedi and Daniel Forgues	From collaborative BIM to Value-driven asset management: a case study	
		648	Austin McClymonds, Robert Leicht and Somayah Asadi	System Architecture for Supporting BIM to Robotic Construction Integration	
		S22		Modular & Offsite Construction I	
		350	Huaming Li, Gongfan Chen, Min Liu, Simon Hsiang and Ashtad Jarvamardi	Situation Awareness Based Smart Contract for the Modular Construction	Sang Han

Fri. May 28	11:00-11:30	377	Aswin Ramaswamy Govindan and Xinming Li	DESIGN AND IMPLEMENTATION OF A FUZZY EXPERT SYSTEM FOR AN ERGONOMIC PERFORMANCE ASSESSMENT IN MODULAR CONSTRUCTION OPERATIONS USING THE DMAIC APPROACH	
		422	Ahmed Boudaoura, Marouene Mejri, Ivanka Iordanova and Erik Andrew Poirier	Une étude de cas de l'impact de la fabrication modulaire sur un projet d'agrandissement hospitalier	
		471	Mohamad Abdul Nabi and Islam El-Adaway	Analyzing the Causes of Conflicts, Claims, and Disputes in Modular Construction Projects	
		472	Assaad Rayan, Islam El-Adaway, Makarand Hastak and Kim La Scola Needy	OPPORTUNITIES AND CHALLENGES OF OFFSITE CONSTRUCTION	
		S23	Modular & Offsite Construction II		
Fri. May 28	11:30-12:00	473	Mohamad Abdul Nabi, Islam El-Adaway, Rayan Assaad and Muaz Ahmed	PRIORITIZATION OF PROJECT FACTORS AFFECTING THE USE OF MODULAR CONSTRUCTION: COMPARISON BETWEEN THE PERSPECTIVES OF INDUSTRY AND LITERATURE	Sang Han
		595	Ivanka Iordanova, Raissa Messa and Carlo Carbone	Information management in off-site construction: case study of mid-rise modular building in Quebec	
		707	Amirhossein Mehdiipoor and Ivanka Iordanova	SYSTEMATIC LITERATURE REVIEW ON THE COMBINATION OF DIGITAL FABRICATION, BIM AND OFF-SITE MANUFACTURING IN CONSTRUCTION - A RESEARCH ROAD MAP	
		715	Jingwen Wang, Yomna Mohamed, Sanghyeok Han and Xinming Li	Automated Ergonomics-Based Productivity Analysis for Intelligent Manufacturing in Industrialized Construction	
		745	Regina Dias Barkokebas, Mohamed Al-Hussein and Xinming Li	Virtual Reality-Motion Capture-based Ergonomic Risk Assessment of Workstation Designs of Construction Manufacturing Facilities	

Materials Live Q&A Sessions

Date	Time	S1	Advanced composite materials	Moderator	
Thurs. May 27	11:30-12:00	176	Adeyemi Adesina and Sreekanta Das	Flexural and crack characteristics of fibre-reinforced alkali-activated composite	Sreekanta Das
		197	Sina Mahmoodi and Pedram Sadeghian	Self-healing of Engineered Cementitious Composite with Crystalline Admixture under Different Exposure Conditions	Pedram Sadeghian
		787	Mohamed Shokr, Mohamed Meguid and Sam Bhat	On the Effect of Thermal Cycles on the Tensile Behavior of Rigid Fiberglass Geogrid	
		816	Uma Chaduvula and Pathik Bhagat	DESIGN OF HAUL ROAD ON SOFT SOIL USING 3D CELLULAR CONFINEMENT	
		820	Samer Al Martini, Nabil Al Mzayyen, Reem Sabouni and Shahria Alam	INVESTIGATION ON BOND PERFORMANCE BETWEEN BASALT FRP REBARS AND RCYCLD AGGREGATE CONCRETE	
		S2	Advanced Computational Techniques		
Thurs. May 27	12:30-13:00	114	Sankalp Yerra and Jian Deng	RELIABILITY ANALYSIS OF SLOPE STABILITY USING CENSORED SAMPLES AND GENETIC ALGORITHM	Anas Issa
		117	Afshin Marani and Moncef L. Nehdi	Application of Artificial Neural Networks (ANNs) in Prediction of Compressive Strength of PCM-integrated Concretes	Qi Zhang
		376	Kabore Aguerata and Ouellet-Plamondon Claudiane	Characterization of the clay for hygrothermal modelling	
		438	Michael Cohen	Analytical Study on Predicating the Shear Resistance of Steel Fiber Reinforced Concrete Beams	
		S3	Cement and Concrete I		
Thurs. May 27	13:00-13:30	291	Ahmed Nawar and Ahmed Soliman	Concrete Repair with Alternative Cements: A review	Ahmed Soliman
		371	Ahmed Abubakr, Ahmed Soliman and Sameh Diab	Effects of Fibre type on the performance of Fibre-Reinforced Alkali Activated Slag Concrete	Niel Van Engelen
		729	Osama Abdelrahman and Ahmed Soliman	PROPERTIES OF SUSTAINABLE SCM INCORPORATING LIMESTONE FILLER	
		S4	Cement and Concrete II		
Thurs. May 27	13:30-14:00	34	Sara El-Gamal, Habiba El Khouly, Shaden Fayek, Merna Mohamed, Gina Roupheil, Nada Ali, Athnassious Ghaly and Mohamed Abou-Zeid	INCORPORATING CARBON DIOXIDE INTO PORTLAND CEMENT CONCRETE	Ahmed Soliman
		36	Ahmed Abbas, Ahmed El-Wakil, Eslam El-Basel, May Hassan, Nada Abo-Elmagd, Yasser Kilany, Aya El-Degouky, Mendi Madi and Mohamed Abou-Elmagd	Effect of admixtures on the performance of anti-washout concrete	Niel Van Engelen
		47	Riham Abuzaid, Mina Rofael, Hussien Enaya, Mohamed Bahaa, Fady Wala'A Almakhadmeh, Ahmed Soliman and Diba Ahadzadeh	Properties of White Portland cement Concrete	
		278	Wala'A Almakhadmeh, Ahmed Soliman and Diba Ahadzadeh	A Design of Experiment Approach to Study the influence of waterglass parameters on the shrinkage of alkali activated slag mortars.	
		289	Esraa Elsayed, Ahmed Soliman and Hesham El Naggar	Silicate-based and Alkali-free Accelerators for Shotcrete Applications: A Comparative Study	
		S5	Durability of Structures I		
Thurs. May 27	14:00-14:30	102	Waqas Latif Baloch, Hocine Siad, Mohamed Lachemi and Mustafa Şahmaran	Mechanical performance of the composite concrete system under fire exposure	Mohamed Abou-Zeid
		204	Afraa Hassan and Dr. Muntasir Billah	Reducing Concrete Drying Shrinkage Using Superabsorbent Cellulose Fiber	Claudiane Ouellet-Plamondon
		328	Lei Zhang, Ahmed Suleiman, Afshin Marani and Moncef Nehdi	Effect of various temperatures and relative humidities on crack self-healing in fiber-reinforced mortars incorporating crystalline additives	
		370	Ahmed Abubakr, Ahmed Soliman and Sameh Diab	Impact Behaviour of Alkali Activated Slag Concrete at Ambient and Elevated Temperatures	
		382	Saeid Salehi and Susan Tighe	Investigation of the Effects of Long-Term Aging and Testing Temperature Sensitivity on the Flexibility Index (FI) Parameter Obtained from the Illinois Flexibility Index Test (I-FIT)	
		S6	Durability of Structures II		
Thurs. May 27	16:00-16:30	586	Hamidreza Asghari, Martin Noel and Hamzeh Hajiloo	Mechanical properties of FRCM at high temperatures	Mohamed Abou-Zeid
		603	Cédric Androuët and Jean-Philippe Charron	EFFECTS OF SHRINKAGE REDUCING ADMIXTURES, MIXING AND CURING CONDITIONS ON THE SHRINKAGE OF AN ULTRA-HIGH PERFORMANCE FIBER REINFORCED CONCRETE	Claudiane Ouellet-Plamondon
		812	Raghda Moharram, Aya Effat, Nouran Soliman, Mariam Zahwy and Mohamed Abou-Zeid	Impact of Climate Change on the Construction Industry in Egypt	
		S7	High Performance and High Strength Materials		
Thurs. May 27	16:30-17:00	109	Md. Jahidul Islam, Nishat Tabassum Borsha, Nishat Naila Meghna and Rahi Bin-Te Enam	MECHANICAL AND DURABILITY PROPERTIES OF FLY ASH BLENDED CONCRETE WITH GALVANIZED IRON FIBER	Mohamed Abou-Zeid
		416	Mouna A Reda and Samir E Chidiac	Properties and performance metrics of healing agents in self-healing concrete	Claudiane Ouellet-Plamondon
		506	Peter Seibert, Gilbert Brindley and Jerry Reece	Recent UHPC Bridge Overlay Installations in the US	
		552	Austin Martins-Robalino and Dan Palermo	Comparative Experimental Study of the Flexural Behaviour of UHP-SFRC and ECC Beams Reinforced with Smooth Bars	
		S8	Innovative and Emerging Materials		
Thurs. May 27	17:00-17:30	49	Tamanna Kabir, Abimbola Grace Oyeyi, Hanna Al-Bayati, Daniel Pickel and Susan Tighe	Porous Rubber Pavement – In situ performance evaluation of stiffness and friction in Canada	Pedram Sadeghian
		342	Alisha Kandola, Josephine Wong, Japleen Bhandher, Kaden Cowan and Saif Aldabagh	Application of Shape Memory Alloys in Structures in Seismic Regions	Qi Zhang
		708	Dhruv Sood and Khandaker M.A. Hossain	DEVELOPMENT AND VOLUMETRIC CHANGE EVALUATION OF GEOPOLYMER BINDERS IN WATER CURING REGIME	
		716	K I M Iqbal, Yoonsu Choi, Nazmul Islam and Philip Park	Electrical Properties of Conductive Concrete Containing Graphite	
		S9	Materials and structures I		
Fri. May 28	13:00-13:30	132	Adrien Sparling, Dan Palermo and Usman Khan	Climate Change Adaptation of CSA Standards for Masonry Connectors	Georgios Balomenos
		378	Osama Abdelrahman and Ahmed Soliman	EFFECT OF MORTAR CONSISTENCY ON MICROENCAPSULATED PHASE CHANGE MATERIALS (MPCMs) STABILITY	Katerina Genikomsou
		418	Moamen Elsamrah and Samir Chidiac	Design evolution of dry casks for spent nuclear fuel transportation & storage: A review	
		540	Gyanesh Patnaik, Anshul Kaushik, Abhishek Rajput and Guru Prakash	Performance of carbon-fiber reinforced polymer plates under impact loading	
		S10	Materials and structures II		
Fri. May 28	13:30-14:00	581	Nancy Sakr and Mohamed Abou-Zeid	Utilization of Recycled Plastic in the construction industry	Katerina Genikomsou
		697	Mahmoud Trimech, Charles-Darwin Annan, Scott Walbridge, Sofiene Amira and François Nadeau	DEFECTS AND QUALITY CONTROL OF FRICTION STIR WELDED JOINTS IN ALUMINUM BRIDGE DECKS	Georgios Balomenos
		801	Étienne Cantin Bellemare, Sacha Dumeignil, Mohamed Lamine Kateb and Pierre Lacroix	The Darwin Bridges - The world's first bridges made of concrete with recycled glass powder	
		810	Maha Dabas, Beatriz Martin-Perez and Husham Almansour	Effects of Different Patterns of Reinforcement Corrosion on Concrete Cover and Residual Strength in Aged Bridge Piers: State- of-the-Art Review	
		818	Nader Hanna, Baher Leon, Passant Hussein, Ziad Dakroury, Salah Elgamal, Mohamed Abouzeid and Karim Rizkalla	Storage and Handling of Hazardous Materials in Structures	

		S11	Recycled Materials I		
Fri. May 28	14:00-14:30	32	Youssef Mokhtar, Mohab El-Dyasty, Nouran Gohar, Sandra Ghaly, Omar Assem, Kirolos Hanna, Mohamed Abou-Zeid and Mayer Farag	Analysis of Waste Glass as a partial replacement for Coarse and Fine aggregates	Muntasir Billah
		38	Amr Elsabagh, Mai Hassan, Sondos Mansour, Mohamed Abou-Zeid, Heba Gad, Ahmed Farrag, Mariam Zaki, Hossam Zaher, Ahmed Badawy and Reem Abou Ali	Thermally Controlled Concrete Incorporating Waste Materials and Byproducts	Md Shahnawaz
		58	Obaid Mahmoodi, Hocine Siad, Mohamed Lachemi and Mustafa Sahmaran	Effects of Chemical Parameters on the Fresh State Properties of CDW-Based Geopolymer Systems	
		110	Khatun Ehsani, Kamrul Islam and Md. Jahidul Islam	EFFECT OF FIBER TYPES AND LENGTH ON MECHANICAL PROPERTIES OF RECYCLED AGGREGATE CONCRETE	
		S12	Recycled Materials II		
Fri. May 28	16:00-16:30	175	Adeyemi Adesina and Sreekanta Das	Influence of various recycled aggregates on the compressive strength, thermal conductivity, water absorption and UPV of fibre-reinforced composites	Muntasir Billah
		189	Mehsam Tanzim Khan, Anindya Samya Saha and Khan Mahmud Amanat	A FEW MECHANICAL AND FLEXURAL PROPERTIES OF BRICK, RECYCLED AND NATURAL AGGREGATE CONCRETE	Md Shahnawaz
		299	Farshad Meftahi and Ahmed Soliman	Evaluating properties of Alkali-Activated Materials incorporating waste materials using non-destructive testing: A review	
		727	Arman Hatami Shirkouh and Ahmed Soliman	RUBBERIZED ALKALI-ACTIVATED CONCRETE – A REVIEW	
		773	Serageldin Zamel, Mohamed Gad, Abdelrahman Hady, Karim Al Ahmar, Ahmed Awad, Islam Abouelatta, Hassan El Kassas and Mohamed Abou-Zeid	INCORPORATION OF COMBINED RICE HUSK AND STRAW WASTE IN CONCRETE PRODUCTION	
		S13	Soil-Structure and Fluid-Structure Interactions		
Fri. May 28	16:30-17:00	33	Sukhjinder Singh Kahlon, Gursharan Singh and Gurpreet Singh	Effect Of Zycosoil As An Admixture On VG 30 Bitumen	Muntasir Billah
		408	Khanh Q. Nguyen, Patrice Cousin, Khaled Mohamed, Mathieu Robert and Brahim Benmokrane	Influence of Wall Thickness on the Thermo-mechanical Properties of Aging HDPE pipes under the Natural Environment of North America	Qi Zhang
		587	Ehsan Solatiyan, Nicolas Bueche, Michel Vaillancourt and Alan Carter	Permeability measurements of reinforced asphalt overlays	
		807	Khanh Q. Nguyen, Khaled Mohamed, Patrice Cousin, Mathieu Robert and Brahim Benmokrane	Stress Crack Resistance of Recycled and Virgin HDPE corrugated pipe for Transportation Infrastructure Applications	
		819	Abdelmoneim El Naggar, Maged Youssef, Hany El Naggar and Ayman El Ansary	DIFFERENTIAL SETTLEMENT EFFECT ON RC FRAMED STRUCTURES	
		S14	Wood product in civil engineering		
Fri. May 28	17:00-17:30	182	Md Shahnewaz, Robert Jackson and Thomas Tannert	PERFORMANCE OF STEEL KERF PLATES AS SHEAR CONNECTOR FOR CROSS-LAMINATED TIMBER -CONCRETE COMPOSITE SYSTEMS	Asif Iqbal
		362	Yannick Vetter, Serena Siciliano and Daniel Lacroix	Analytical Investigation of FRP on The Flexural Resistance of Glulam Beams	Joshua Woods
		402	Mohamed Darwish, Ramy Azer, Azmy Azmy, Abdelrahman Hegazy, Sherif El Leissy, Ahmed Ahmed, Ahmed Morsi, Khaled Nassar and Passant Youssef	New Technology for Drying Wood using Quicklime	
		439	Yash Vyas, Dorothy Johns, Zaiyi Liao and Russell Richman	Developing a novel 1D-HAM numerical modelling tool for assessing the hygrothermal properties of CLT including adhesive layers	
		440	Dorothy Johns, Yash Vyas, Zaiyi Liao and Russell Richman	Hygrothermal analysis of CLT in Canadian climates with and without adhesive layers using 1D-HAM numerical modelling tool	

Environmental Live Q&A Sessions

Date	Time	Number	S1	Sustainability and Climate Change I	Moderator
Wed. May 26	12:30-13:00	130	Hevar Palani and Aslihan Karatas	Integrated Framework for Identifying Energy-Use Behavior of Hotel Guests	Zoe Li
		332	Lynal Albert and Izaria Ferguson	The COVID pandemic-An exploration of environmental implications	
		349	Danae Lemieux and Dena McMartin	Enriching the Decision-Aiding Process for Asset Management Programs for Climate Change Preparedness in Small Municipalities on the Prairies	
		621	May Haggag, Wael El-Dakhkhni, Ahmed Siam and Elkafi Hassini	Data Analytics Applications for City Resilience under Climate-Induced Hazards	
		S2	Sustainable Water Management		
Wed. May 26	13:00-13:30	290	Atefeh Aliashrafi and Nicolas M Peleato	Monitoring Microbial Quality of Source Waters Using Bayesian Belief Networks	Dr. Jinkai Xue
		327	Arham Malik, Karen Abogadil, Usman Khan and Liam Butler	Artificial Intelligence-based Prediction of Permeable Pavement Surface Infiltration Rates	
		559	Mohamed Elmersy, Wael El-Dakhkhni and Benzong Zhao	Porous Media Classification using Multivariate Statistical Methods	
		S3	Waste Management Planning		
Wed. May 26	13:30-14:00	187	Amy Richter, Kelvin Tsun Wai Ng and Nima Karimi	Applying a novel recursion algorithm to optimize waste management regions spanning inter-provincial boundaries	Dr. Richard Zytner
		188	Amy Richter, Kelvin Tsun Wai Ng and Nima Karimi	Stacking different spatial statistics in a novel recursion algorithm to improve the design of waste management regions in Saskatchewan	
		193	Nima Karimi, Amy Richter and Kelvin Tsun Wai Ng	Environmental and economic assessment of municipal landfill locations in Saskatchewan and Manitoba	
		654	Sanaasadat Eslami, Golam Kabir and Kelvin Tsun Wai Ng	Prediction of C&D, Grit, Asphalt and Treated Biomedical Wastes during COVID-19 using Grey Model	
		S4	Waste Treatment and Disposal		
Wed. May 26	14:00-14:30	192	Nima Karimi, Amy Richter and Kelvin Tsun Wai Ng	Temporal and spatial assessment of landfill gas emission near the City of Regina landfill	Dr. Kelvin Tsun Wai Ng
		263	Eranda Bartholameuz, Ganesh Doluweera and Ian Gates	Biomass and Municipal Solid Waste to Electricity Conversion, Technology Options for Distributed Electricity Generation in Canada	
		277	Brienne Nelson, Zachary Kanmacher, Richard G. Zytner, Yohan Dulac, Alexandre R. Cabral, April Yochim, Rachel Vaillancourt and Brent Boss	Mitigating fugitive methane emissions from closed landfills: A case study	
		670	Hamoun Jalilzadeh, J Patrick Hettiaratchi, Poornima Jayasinghe, Tina Abedi Yarandy and Zhongchao Tan	CHARACTERISTICS OF EXCAVATED WASTE FROM A 14-YEAR-OLD LANDFILL BIOREACTOR: CALGARY BIOCELL CASE STUDY	
		S5	Site Remediation I		
Wed. May 26	15:00-15:30	80	Jihun Kim and Wonjae Chang	Conceptualizing a Stress-Tolerant Bioremediation Strategy for Petroleum Hydrocarbon-Contaminated Soils in Cold Climates: A Preliminary Review	Dr. Baiyu Zhang
		81	Tasnim Nayeema, Aslan Hwanhwi Lee, Darshdeep Singh, Luverne Hogg and Wonjae Chang	Soil Treatment Towards Stress-Tolerant Bioremediation Strategy for Petroleum Hydrocarbon-Contaminated Soils in Cold Climates using Zeolite as a Remediation Agent: A Preliminary Study	
		323	Antonio Cavalcante Pereira, Catherine Mulligan, Dileep Palakkeel Veetil and Sam Bhat	ENVIRONMENTAL REMEDIATION OF A SHALLOW MESOTROPIC LAKE WATER USING ON-SITE NON-WOVEN GEOTEXTILE FILTRATION TREATMENT	
		428	Anton Skorobogatov, Xing Li, Reza Nasrollahpour, Jianxun He, Angus Chu, Caterina Valeo and Bert van Duin	Dynamic multi-year performance of bioretention mesocosms – patterns of change	
		S6	Site Remediation II		
Wed. May 26	15:30-16:00	40	Richard Zytner, Aseel Dawrea and John Donald	Detecting NAPL in Unsaturated Soil	Dr. Chunjiang An
		174	Mohammad Khodabakhshisoureshjani, Richard Zytner and Herman Eberl	A 3D Bioventing Model to Estimate Closure Time	
		265	Rajan Ray, Grant Hilbers and Nihar Biswas	Mass Recovery for BTEX stripping from Organic and Sandy soil using SVE process	
		282	Connor Dunlop, Amin Costas, Bassim Abbassi and Richard G. Zytner	Improved NASM Framework for Food Processing Wash-water and Solid Residuals	
		S7	Water and wastewater treatment I		
Wed. May 26	16:00-16:30	268	Rajan Ray, Mamata Sharma and Nihar Biswas	Diversion of electron in mixed microbial culture to treat the high sulfate and LCFA contaminated wastewater treatment	Dr. Onita Basu
		285	Xiujuan Chen, Gordon Huang, Chunjiang An and Yinghui Wu	Multifunctional PVDF membrane modified with nanocomposites for membrane fouling mitigation	
		735	Bo Liu, Bing Chen, Fei Wu, Guihua Dong and Baiyu Zhang	Development of microfluidic photocatalytic oxidation for drinking water treatment	
		756	Jordan Hollman, Nicole Acosta, Maria Bautista, Janine McCalder, Lawrence Man, Alexander Buchner Beaudet, Barbara Waddell, Jianwei Chen, Darina Kuzma, Rhonda Gail Clark, Norma Ruecker, Kevin Frankowski, Casey Hubert, Michael Parkins, Cathryn Ryan and Gopal Achari	COVID-19 MONITORING USING WASTEWATER-BASED EPIDEMIOLOGY: THE PROMISE AND PERIL OF SEEKING USABLE DATA IN A PANDEMIC	
		S8	Water and wastewater treatment II		
Thurs. May 27	13:00-13:30	53	Mohsen Asadi, Ali Motalebi Damuchali and Kerry McPhedran	Odour emissions and dispersion from a cold region municipal wastewater treatment plant	Dr. Bing Chen
		56	Khaled Zoroufchi Benis, Jafar Soltan and Kerry McPhedran	Assessment of agricultural waste products for cost-effective and eco-friendly treatment of arsenic contaminated waters	
		59	Shahab Minaei, Jafar Soltan, Rajesh Seth and Kerry McPhedran	Using the STP-EX model for a screening level assessment of chemicals of emerging concern during the municipal wastewater treatment plant process	
		70	A. Piche, H Hamidi and Onita Basu	Biofiltration Optimization Strategies – operational and water quality adjustments	
		S9	Water and wastewater treatment III		
Thurs. May 28	13:30-14:00	87	Harrison Bull, Ali Ekhlasiinia, Ali Motalebi Damuchali and Kerry McPhedran	Evaluation of the arsenic and iron removal from residual wastewaters of a drinking water treatment plant	Dr. Catherine Mulligan
		338	Mengna Li, Gordon Huang and Xiujuan Chen	Development of a novel MoS2 nanosheet modified FO membrane for desalination	
		582	Rajan Ray, Mamata Sharma, Laura Cordova-Villegas and Nihar Biswas	HYDROGEN PRODUCTION IN INCUBATED ANAEROBIC MESOPHILIC MIXED CULTURE BY OLEIC ACID (OA) FOR DIFFERENT PERIODS	
		S10	Water quality		
Thurs. May 28	14:00-14:30	107	Terry Fonstad and Crystal Rinas	Variable Rate Ion Exchange in Contaminant Transport	Dr. Kerry McPhedran
		111	Crystal Rinas and Terry Fonstad	Movement of Cations Following the Decommissioning of an Earthen Manure Storage	
		363	Ziyu Li and Nicolas Peleato	Cross-source detection of naphthenic acids and phenol using 3D fluorescence spectroscopy	
		688	Sasan Fazeli and Maria Elektorowicz	IDENTIFICATION AND MITIGATION OF BY-PRODUCTS FORMED DURING AN ADVANCE OXIDATION OF EMERGING CONTAMINANTS: EXAMPLE OF PHARMACEUTICAL SULFAMETHOXAZOLE	
		738	Qiao Kang, Arpana Datta and Bing Chen	Parameter Analysis in Simulating Transport of Metformin in a Sandy Medium	
		S11	Sustainability and Climate Change II		

Thurs. May 28	15:00-15:30	234	Osezele Stephen Anuge, Abhijeet Ghosh and Kelvin Tsun Wai Ng	Utilization of organic wastes as a bio-resource: A case study of Corn Cobs in Nigeria	Dr. Jianbing Li
		247	Abhijeet Ghosh, Amy Richter and Kelvin Tsun Wai Ng	APPLICATIONS OF GEOGRAPHIC INFORMATION SYSTEMS TO SITE WASTE FACILITIES IN SASKATCHEWAN - PHASE 1	
		337	Jing Huang, Guohe Huang, Xiaying Xin and Chunjiang An	Insights into effects of tillage and residue management on the growth of canola in Canadian prairie-A case study in Saskatchewan	
		563	Sanaalsadat Eslami, Kelvin Tsun Wai Ng and Golam Kabir	Prediction of Waste Disposal during COVID-19 using System Dynamics Modeling	
		S12	Sustainability and Climate Change III		
Thurs. May 28	15:30-16:00	435	Marie Vigier, Jennie Moore and Claudiane Ouellet-Plamondon	What are the key factors towards (real) urban sustainability?	Dr. Jianbing Li
		629	David Lapp and Dan Sandink	The PIEVC Protocol for Assessing Public Infrastructure Vulnerability to Climate Change Impacts: National and International Application	
		754	Eric Shen, Cathy Liao and Daniel Yang	A Study on the Control of Indoor Temperature in Typical Canadian Homes	

Hydrotechnical Live Q&A Sessions

Date	Time	Number	S1	Experimental and Computational Hydraulics I	Moderator
Fri. May 28	11:00-11:30	228	Preet Patel, Magdalena Krol and Shooka Karimpour	Influence of Surge Waves on the Transport of Macroplastics	Colin Rennie Amir Azimi
		236	Mahsa Janati and Amir Hossein Azimi	Dynamic Interaction of Twin Particle Clouds in Stagnant Water	
		353	Arefeh Shamskhany and Shooka Karimpour	The role of microplastic characteristics on vertical transport and mixing	
		359	Zhuoran Li and Shooka Karimpour	Numerical Investigation of Turbulent Structures and Air Entrainment in Positive Surge Waves	
		417	S. Samuel Li and Salar Kheshtgar Darvazeh	Suppression of vortex shedding from bridge pier using attached splitter plate	
			S2	Experimental and Computational Hydraulics II	
Fri. May 28	11:30-12:00	200	Reza Nasrollahpour, Anton Skorobogatov, Jianxun He, Caterina Valeo, Angus Chu and Bert van Duin	The effects of climatic and design variables on evapotranspiration in bioretention systems	Colin Rennie Amir Azimi
		244	Fardin Sharif and Amir Hossein Azimi	Experimental study of Sand-water Coaxial Jets with Low Velocity Ratio	
		442	Ryan Pierce, Amir Golpira and Abul Baki	A comparative study of mean and turbulent flow fields around a boulder within a boulder array and an individual boulder	
		508	Eman Alqasimi and Tew-Fik Mahdi	Comparison of Three Minimization Theories for River Morphological Adjustments	
			S3	Computational Hydraulics	
Fri. May 28	12:30-13:00	223	Andrea Kneale and Haitham Ghamry	Wetted Area in Comparison to Habitat Suitability Criteria based Methodologies for Sustainable Water Resources Management	Kerry Mazurek Peng Wu
		312	Nathan Valsangkar and Dave McLean	Case Study of Flood Profile Hydraulic Modeling Uncertainty	
		486	Tibing Xu, Jinlong Zuo and Zhijian Huang	Pressure distribution in the dam-break flow modeled by a mesh-free method	
		504	Mostafa Bigdeli and Abdolmajid Mohammadian	Numerical simulation of turbulent offset dense jet flow	
			S4	Hydrology and Hydrologic Modelling	
Fri. May 28	13:00-13:30	184	Zoe Li, Maysara Ghaith and Pengxiao Zhou	An Improved Polynomial Chaos Expansion Approach for Probabilistic Hydrological Forecasting	Kerry Mazurek Peng Wu
		389	Audrey Coulombe, Jean-Luc Martel, Annie Poulin, Mathias Glaus, Geneviève Audet and Steve Girard	Assessment of adaptation solutions to floods with PCSWMM and a multicriteria analysis for a very small watershed	
		528	Everett Snieder and Usman Khan	Investigating event selection for GA-based SWMM rainfall-runoff model calibration.	
		644	Zahidul Islam, Shalini Kashyap and Michael Seneka	Comparison of Evaporative Losses in Alberta Based on Five Evapotranspiration Models	
		660	Arpita Islam, Maysara Ghaith, Sonia Hassini and Wael El-Dakhkhni	Synthesized Water Level Generation using First Order Markov Chain Process	
			S5	Hydrology, Surfacewater and Groundwater Modelling	
Fri. May 28	13:30-14:00	321	Rahma Khalid, Everett Snieder and Usman Khan	Surrogate model development for Bioretention Cell simulation-optimisation applications	Van Nguyen and Zahidul Islam
		606	Shalini Kashyap, Ernst Kerkhoven, Zahidul Islam, Aaron Petty and Sarah Depoe	Predicting Navigability in the Lower Athabasca River System Through Numerical Modelling	
		664	Mohamed Boujoudar, Abdelaziz Beljadid and Ahmed Taik	Modelling of unsaturated flow through porous media using meshless methods	
		673	Hasan Karjoun and Abdelaziz Beljadid	Modelling of coupled surface and subsurface water flows	
		674	Truong-Huy Nguyen and Van-Thanh-Van Nguyen	Development of New Extreme Rainfall Maps for Urban Infrastructure Design in Canada Using the Scale-Invariance Generalized Extreme Value Distribution	
			S6	Artificial Intelligence and Flow Hydraulics	
Fri. May 28	14:00-14:30	160	Cody Kupferschmidt and Andrew Binns	Development of an AI Tool to Identify Reference Reaches for Natural Channel Design	Van Nguyen and Zahidul Islam
		259	Mia Marrocco, Priscilla Williams, Ram Balachandrar and Ronald Barron	Exploring the Use of Artificial Neural Networks for Scour Prediction	
		444	Hassan Alfaifi, Abdolmajid Mohammadian and Hossein Bonakdari	Predicting the Geometrical Characteristics of an Inclined Negatively-Buoyant Jet for Angles from 30° to 60° Using GMDH neural network	
		615	Ziyuan Cai, Rebecca Dziedzic and S. Samuel Li	Water distribution system leak detection using support vector machines	
		694	Amr Gharib, Evan Davies and Nesa Ilich	Robust Cross-Validated Feature Selection for Machine Learning Streamflow Forecasting Models: A Case Study	
			S7	Stormwater and Water Infrastructure	
Fri. May 28	15:00-15:30	105	Claudia Vesga-Rodriguez, Jeremy Ball, Hossein Azinfar, Kerry A. Mazurek, Alireza Nazemi and Angela Schmidt	Municipal Stormwater and Climate Change	Amir Azimi and Shalini Kashyap
		605	Baljeet Kaur, Andrew Binns, Dan Sandink, Bahram Gharabaghi and Ed McBean	Reducing the risk of basement flooding through building- and lot-scale flood mitigation approaches: performance of foundation drainage systems	
		623	Mohammad Amini and Rebecca Dziedzic	Comparison of Machine Learning Classifiers for Predicting Water Main	
		672	Maysara Ghaith, Ahmed Yosri and Wael El-Dakhkhni	Digital Twin: A City-Scale Flood Imitation Framework	
681	Matthew Senior and Ron Scheckenberger	Assessing Drainage System Impacts Due to Urban Intensification in Rurally-Serviced Residential Areas			
			S8	Field Investigations and Hydraulic Assessment	
Fri. May 28	15:30-16:00	171	Mario Freitas, Pierre Léger and Lineu Pedroso	Stability Analysis of an Overtopped Spillway Using Computational Fluid Dynamics	Amir Azimi and Shalini Kashyap
		309	Mike Gallant, Norma Posada, Jonathan Slaney and Pierre Raymond	Advancing the Practice of Soil Bioengineering in Alberta – the Bow River Bioengineering Demonstration and Education Project	
		498	Shayan Salavitarab and S. Samuel Li	Estimates of river bathymetry from satellite images: A case study of the Nicolet River in Quebec	
		690	Mayari Bernard-Garcia and Tew-Fik Mahdi	Review and Updated Guidance for Embankment Overtopping Dam Breach Dimensions	
		755	Katelyn Kirby, Colin Rennie, Sean Ferguson, Ioan Nistor and Julien Cousineau	Riverine hydrokinetic energy extraction: Investigation into a location's suitability for turbine deployment	

Transportation Live Q&A Sessions

Date	Time	Number	S1	Sustainably Safer Communities	Moderator
Thurs. May 27	15:00-15:30	24	Hassan Hamad and Emanuele Sacchi	Operating speed prediction models for urban streets in residential areas: a case study in the City of Saskatoon	Gordon Lovegrove
		26	Dillip Das	Exploring the linkage between human factors and road geometric elements influencing the road traffic accidents on the national roads of South Africa	
		569	Abdul Rahman Masoud, Ahmed Idris and Gordon Lovegrove	Quality of Life outcomes of the SMARTer Growth Neighborhood Design Principles: Case Study City of Kelowna	
		723	Hannah Smith and Farnaz Sadeghpour	Measuring the Stated Preference for Cycling Facilities: The Case Study of Calgary	
			S2	Zero Emission Vehicles	
Thurs. May 27	15:30-16:00	303	Hui Yang and Yonghoon Kim	Valuing Demand Response for Electric Vehicles Charging	Gordon Lovegrove
		331	Linda Navarro and Bahareh Bathaei	A Multiple Linear Regression (MLR) Model for the Application of Electrical Vehicles in the United States	
		336	Fateme Hosseinzadeh, Mohammad Ansari Esfeh and Lina Kattan	Travel Time Reliability with the Presence of Connected Vehicles	
		354	Chris Schmelzle and Michael Paulsen	Establishing Workflow Processes for Bridge Inspections using UAV	
		401	Mohamed Hegazi and Gordon Lovegrove	Hydrail One: A Standard Gauge Low Power Fuel Cell / Battery Hybrid Hydrail Vehicle	
		695	Fehintola Sanusi, Juyeong Choi and Ren Moses	A Multiyear Infrastructure Planning Framework for Connected and Automated Vehicles	
			S3	Transportation Models	
Fri. May 28	15:00-15:30	533	Seyedata Nahidi and Susan Tighe	How a state-of-the-art prediction technique for random parameter models can improve the construction work environment in Ontarian highways?	Gordon Lovegrove
		640	Nayera Elgharably, Ashraf Nassef, Said Easa and Ashraf El Damatty	New Hybrid Search Algorithm for the Capacitated Vehicle Routing Problem	
		805	Patrick Meredith-Karam, Siva Srikuenthiran, James Vaughan, Eric Miller and Amer Shalaby	INTEGRATING ACTIVITY-BASED MODELLING WITH AGENT-BASED TRANSIT ASSIGNMENT	
			S4	Sustainably Safer Intersections	
Fri. May 28	15:30-16:00	229	Essam Dabbour and Olaa Dabbour	Establishing the acceleration profiles for vehicles departing in a straight path at two-way stop-controlled intersections	Gordon Lovegrove
		245	Natalie Farag, Farah Choudhury, Yichen Cao, Diana Ponce, Christine Del Rosario, Sulaf Alkarawi, Manny Rataul, Shriniwas Arkatkar and Said Easa	Design of Roundabout to Replace All-Way Stop Controlled Intersection: Case Study in Niagara-on-the-Lake	
		249	Rahmah Tariq, Michelle Nguyen, Michelle Yip, Neil Gobin, Jasmine Puthoor, Said Easa and Essam Dabbour	SELECTING AND EVALUATING MIOVISION SMART CITY INTERSECTIONS ACROSS NIAGARA REGION	
		364	Scott Juniper and Gordon Lovegrove	A Review of the Literature on Design & Performance of Multi Lane Roundabouts in Canada: The Case for Turbo Roundabouts	
		450	Janet Oyaro and Johnnie Ben-Edigbe	INFLUENCE OF RAINFALL ON THE PROBABILITY OF RED-LIGHT RUNNING AT SIGNALISED INTERSECTIONS	

French Live Q&A Session

Date	Time	Number		French Session	Moderator
Fri. May 28	12:30-13:00	132	Adrien Sparling, Dan Palermo and Usman Khan	Climate Change Adaptation of CSA Standards for Masonry Connectors	Ann Sychterz
		376	Kabore Aguerata and Ouellet-Plamondon Claudiane	Characterization of the clay for hygrothermal modelling	

Papers With Presentations Only (Not In Live Q&A Session)

Number	Authors	Speaker	Title	Track
430	Huu Huynh, Gunnar Lucko and Mohamed S. Eid	Huu Huynh	Resource sharing: Singularity function cooperative game	Construction
465	Abdoulaye Sanni B., Hamdy M. Mohamed, Ammar Yahia and Brahim Benmokrane	Christopher Willis	AN ANALYSIS OF ARTIFICIAL INTELLIGENCE RESEARCH IN THE CONSTRUCTION INDUSTRY	Construction
470	Amr El-Sayegh and Islam El-Adaway	Amr Elsayegh	Collaborative Planning in Construction Projects: Cost and Schedule Performance Prediction	Construction
579	Miranda Garcia, Mohamed Abdel-Raheem and Blanca Hernandez	Miranda Garcia	Economics of Water Efficient Appliances and Fixtures in the Domestic Sector	Construction
598	Warren Plugge, Hongtao Dang and David Martin	Warren Plugge	Management Strategies, Project Teams, and Value Added Using Lean Project Delivery For Sustainable, Reliable, and Effective Construction	Construction
658	Sara Rankohi, Mario Bourgault, Ivanka Iordanova, Christophe Danjou, Pablo Garcia and Jonathan Grondin	Sara Rankohi	INTEGRATION AND I4.0 TRACKING SYSTEMS FOR STEEL MANUFACTURING INDUSTRY	Construction
75	Ali Ekhlasi Nia, Harrison Bull, Ali Motalebi Damuchali and Kerry McPhedran	Ali Ekhlasi Nia	Evaluation of arsenic and iron in sediments of a drinking water treatment plant	Environmental
97	Vu Bui, Amira Abdelrasoul and Dena McMartin	Tan Vu Bui	Investigation on Nanocomposite Membrane Stability with Oily Wastewater Using Molecular Dynamics Simulations	Environmental
517	Mengfan Cai, Chunjiang An, Christophe Guy and Qi Feng	Mengfan Cai	An emission model for regional biogenic oxygenated volatile organic compounds from crops	Environmental
750	Ashnabanu Jariwala, Ahmed Elghanam, Sabrina Singh, David Lee, Hyeongu Yeo, Rajesh Seth, Hisham Hafez and Nihar Biswas	Rajesh Seth	Biomethane Recovery from Brewer's Yeast Using Two-Stage Anaerobic Digestion	Environmental
10	Mark Bruder, Tatiana Chiesa and Dan Cressman	Mark Bruder	Coxwell Bypass Tunnel – Project Update Mid-Construction	General
205	Rishi Gupta, Brian Burrell, Mohit Garg, Aditi Gupta, Meror Krayemhoff and Joss Krayenhoff	Rishi Gupta	HISTORICAL DEVELOPMENT OF RAMMED EARTH CONSTRUCTION AND ITS USE IN CANADA	General
310	Kaoutar Zellat, Mohamed Cherif Djemai and Mahmoud Bensaïbi	Mohamed Cherif DJEMAI	Piers type and height effect on bridges fragilities	General
554	Foad Esmaeili, Mostafa Fadaeefath Abadi and Fuzhan Nasiri	Foad Esmaeili	Deterioration Prediction Model Development and Analysis for Alberta's Provincial Highway Road Network's Pavement Condition	General
330	Homero Hernandez, Arsalan Mostaani and Amir Hossein Azimi	Amir Azimi	Segregation of Particles in Multi Size and Density Beds by Circular Wall Jets	Hydrotechnical
646	Amine Hanini, Abdelaziz Beljadid and Driss Ouazar	Amine HANINI	Numerical Modelling of Variable Density Shallow Water Flows with Friction Term	Hydrotechnical
368	Mohammad Mohtasham Moein and Ahmed Soliman	Mohammad Mohtasham Moein	Predicting the compressive strength of Alkali-Activated Concrete using various data mining methods	Materials
458	Alireza Dehghan, Michael L. J. Maher and Michael P. Navarra	Alireza Dehghan	The effects of aggregate properties on concrete mix designs and behaviour	Materials
475	Hanaa Al-Bayati and Susan Tighe	Hanaa Al-Bayati	EXPERIMENTAL ASSESSMENT OF VARIOUS TREATMENT TECHNIQUES FOR ENHANCING THE PROPERTIES OF DIFFERENT TYPES OF COARSE RECYCLED CONCRETE AGGREGATE	Materials
808	Sohaib Akbar, F. Michael Bartlett and Maged A. Youssef	Sohaib Akbar	Flexural ductility of concrete beams reinforced with high strength steel	Materials
809	Donia Eldwib, Farida Said, Amr Elshawarby, Salah Elgamal, Omar Elshehemy, Mohamed Zaytoun, Mina Bakhoum, Reem Aboali and Mohamed Abouzeid	Donia Eldwib	3D Printing Concrete Incorporating Environmentally Friendly Materials	Materials
72	Thikra Dawood, Emad Elwakil, Hector Novoa and José Gárate Delgado	Thikra Dawood	PREDICTION OF WATER PIPE FAILURE USING FUZZY INFERENCE SYSTEM	Structures
543	Seyed Arman Hosseini and Mehdi Banazadeh	Seyed Arman Hosseini	Collapse risk assessment of mid-rise to high-rise buildings with SMRF equipped with viscous damper (VD) and buckling-restrained brace frame (BRBF)	Structures
543	Seyed Arman Hosseini and Mehdi Banazadeh	Seyed Arman Hosseini	Collapse risk assessment of mid-rise to high-rise buildings with SMRF equipped with viscous damper (VD) and buckling-restrained brace frame (BRBF)	Structures
568	Thikra Dawood, Emad Elwakil, Tarek Zayed and Zhenhua Zhu	Thikra Dawood	AUTOMATED ASSESSMENT OF CRACKS IN SUBWAY STRUCTURES	Structures