

8th International Conference on Advanced Composite Materials in Bridges and Structures

Virtual Conference – August 5-7, 2021



FINAL TECHNICAL PROGRAM

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Register also for the free pre-conference
Third International Workshop on Fiber Reinforced Polymer (FRP) Bar
"Advances in concrete reinforcement"
Virtual – August 3-4, 2021; <https://acmbs2020.ca/iw-gfrpcs3/>



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MESSAGE FROM THE CHAIR

The **8th International Conference on Advanced Composite Materials in Bridges and Structures, ACMBS-VIII**, will be held in Sherbrooke, Quebec, Canada from 5-7 August 2021. One of the longest running conference series focusing on this topic, the conference is organized under the auspices of the ACMBS Technical Committee of the Canadian Society for Civil Engineering (CSCE). The conference is hosted by University of Sherbrooke. The success of the previous conferences (Sherbrooke, 1992; Montreal, 1996; Ottawa, 2000; Calgary, 2004; Winnipeg, 2008; Kingston, 2012, and Vancouver 2016) has established this event as a premier forum for the exchange of knowledge and experience with the use of advanced composites in bridges and structures.

The objectives of the ACMBS-VIII Conference are to provide a forum for the presentation and discussion of recent developments in the use of advanced composite materials (ACM) and fiber reinforced polymers (FRP) in bridges & other structures, and to provide an opportunity for national and international delegates from industrial, research and academic institutions to interact and share their knowledge, to learn about new and innovative technologies in the field, and to discuss future directions.

A total of 102 peer-reviewed papers are included in the proceedings. They have been authored by various experts in the field from 15 different countries around the world, including Australia, Belgium, Canada, China, Czech Republic, Egypt, France, Iraq, Italy, Japan, Oman, Spain, Switzerland, UK, and USA. On behalf of the organizing committee, I am very thankful to the authors for their valuable contributions to the conference. I am also very grateful to the paper reviewers for their time and diligence.

I would like to thank all participants – without them this conference would not be successful.

Finally, I would like to invite you to attend the one and half day Pre-Conference *Third International Workshop on FRP Bars for Concrete Structures (IWFRPCS-3)* which will be held from 3-4 August 2021, <https://acmbs2020.ca/iw-gfrpcs3/>. This workshop will be held online and does not charge a registration fee. **DO NOT MISS IT.**

Sincerely,

Professor Brahim Benmokrane, Ph.D., P. Eng., FRSC, FACI, FCSCE, FIIFC, FCAE, FEIC, FBEI

Fellow of the Royal Society of Canada (Academy of Science)

Tier-1 Canada Research Chair in Advanced Composite Materials for Civil Structures

NSERC/Industry Research Chair in Innovative FRP Reinforcement for Sustainable Concrete Infrastructure

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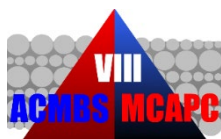
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Conference Program at a Glance

Thursday, August 5, 2021	
Time	Event
8:10 – 8:30	Opening Ceremony
8:30 – 9:00	Keynote Lecture 1
9:00 – 10:00	Sessions 1 (Platform A, B, and C)
10:00 – 10:30	Morning Break
10:30 – 11:00	Keynote Lecture 2
11:00 – 12:00	Session 2 (Platform A, B, and C)
12:00 – 13:30	Lunch Break
13:30 – 14:00	Keynote Lecture 3
14:00 – 15:00	Session 3 (Platform A, B, and C)
15:00 – 15:30	Afternoon Break
15:30 – 16:30	Session 4 (Platform A, B, and C)
16:30 – 17:30	Session 5 (Platform A, B, and C)

Friday, August 6, 2021	
Time	Event
8:30 – 9:00	Keynote Lecture 3
9:00 – 10:00	Session 6 (Platform A, B, and C)
10:00 – 10:30	Morning Break
10:30 – 11:30	Session 7 (Platform A, B, and C)
11:30 – 12:30	Session 8 (Platform A, B, and C)
12:30 – 14:00	Lunch Break
14:00 – 14:30	Keynote Lecture 5
14:30 – 15:30	Session 9 (Platform A, B, and C)
15:30 – 16:00	Afternoon Break
16:00 – 17:10	Session 10 (Platform A, B, and C)

Saturday, August 7, 2021	
Time	Event
9:00 – 9:30	Keynote Lecture 6
9:30 – 10:30	Session 11 (Platform A, B, and C)
10:30 – 10:45	Closing Ceremony



Thursday, August 5, 2021

Time	Event	Platform
8:10 – 8:30	Opening Session - <i>Session Chair: Brahim Benmokrane</i>	A
	Opening Remarks/Université de Sherbrooke <i>Jean-Pierre Perreault, Vice-rector for research and innovation/University of Sherbrooke</i>	
	Opening Remarks/Faculty of Engineering/Université de Sherbrooke <i>Jean Proulx, Dean, Faculty of Engineering/University of Sherbrooke</i>	
	Introduction to ACMBS-VIII <i>Brahim Benmokrane, Chair ACMBS-VIII</i>	
8:30 – 9:00	Keynote Lecture 1: Abdeldjelil Belarbi Toward a More Comprehensive Approach for the Design of Prestressed Bridge Members Using Non-Corrosive Materials	A
9:00 – 10:00	Sessions 1.A: Practical Applications 1 - <i>Session Chair: Abdeldjelil Belarbi</i>	A
	9:00 – 9:20 Case Study on CFRP Prestressed Concrete Soldier Pile Walls with GFRP Reinforced Precast Concrete Panels <i>Joseph Losaria, Steven Nolan, Andra Diggs II, Dave Hartman (USA) – 022</i>	
	9:20 – 9:40 Hollow Composite Reinforcing Systems for Precast Concrete Slabs <i>Azam Edoe, Allan Manalo, Mohammed Al-Rubaye (Australia) – 015</i>	
	9:40 – 10:00 Influence of Reinforcement on the Behavior of ECC Link Slabs in Bridge Deck Systems <i>Lifei Zhang, Yu Zheng, Lipeng Xia (China) – 120</i>	B
	Session 1.B: Bond and Interfacial Stresses 1 - <i>Session Chair: Emmanuel Ferrier</i>	
	9:00 – 9:20 Damage Identification of Interface State Between FRP Bars and Self-Compacting Concrete Using Piezoceramic Transducers <i>Lingzhu Zhou, Yu Zheng, Gangbing Song (China) – 099</i>	
	9:20 – 9:40 Influence of Pre-Impregnation Process on Mechanical Performance of Glass/Etringitic Matrix Composite <i>Omayma Homoro, Marie Michel, Thouraya Baranger (France) – 118</i>	C
	9:40 – 10:00 Experimental Investigation of the Mechanical Behaviour of the Textile/Matrix Interface of Cementitious Matrix <i>Mohamed Saidi, Aron Gabor (France) – 119</i>	
	Session 1.C: Design Guidelines and Modeling 1 - <i>Session Chair: Kenneth Crawford</i>	
	9:00 – 9:20 Reliability-Based Calibration of Eurocode-Like Design Equations for Shear Strength of FRP-RC Beams <i>Amir Mofidi, Kourosch Nasrollahzadeh, Reza Aghamohammadi (UK) – 053</i>	C
	9:20 – 9:40 Advanced Modal Analysis for Damage Assessment of RC Beam-Column Joints Strengthened with EB FRP <i>Farah Rifai, Ludovic Gauzente, Claude Rospars, Pierre Argoul, Boumediene Nedjar, Marc Quiertant (France) – 105</i>	
	9:40 – 10:00 Examining the Effect of Load Type and History Using Reliability on Optimizing the Design of FRP Strengthened RC Members in Flexure <i>Connor Petrie, Fadi Oudah (Canada) – 148</i>	
10:00 – 10:30	Morning Break	

Thursday, August 5, 2021

Thursday, August 5, 2021			
10:30 – 11:00	Keynote Lecture 2: Ehab El-Salakawy Seismic Performance of Concrete Structures Internally Reinforced with FRP		A
11:00 – 12:00	Session 2.A: Performance under Seismic, Dynamic and Impact Loading 1 - Session Chair: Ehab El-Salakawy		A
	11:00 – 11:20	Large GFRP-Confined Concrete Columns Subjected to Simulated Seismic Loads <i>Zahra Kharal, Shamim Sheikh (Canada) – 093</i>	
	11:20 – 11:40	Effect of the Axial Load Ratio on the Cyclic Shear Performance of GFRP-Reinforced Squat Walls <i>Islam Shabana, Ahmed Sabry Farghaly, Brahim Benmokrane (Canada) - 037</i>	
	11:40 – 12:00	Effect Of Aspect Ratio on The Behavior of GFRP-RC Circular Columns Under Simulated Seismic Loading <i>Amr E. M. Abdallah, Ehab El-Salakawy (Canada) – 063</i>	
	Session 2.B: Internally Reinforced Concrete Members 1 - Session Chair: Adil Al-Mayah		B
	11:00 – 11:20	Reliability-Based Slenderness Limit of GFRP Reinforced Concrete Columns <i>Koosha Khorramian, Pedram Sadeghian, Fadi Oudah (Canada) - 023</i>	
	11:20 – 11:40	Gravity Load Effect on Punching Behavior of GFRP-RC Interior Slab-Column Connection Subjected to Lateral Cyclic Load <i>Mohamed Eladawy, Brahim Benmokrane, Mohamed Hassan (Canada) – 045</i>	
	11:40 – 12:00	Behavior of Arch Slabs Reinforced with FRP Bars under Concentrated Loads <i>Sherif El-Gamal, Ali Al-Nuaimi, Hind Al-Shukeili (Oman) - 128</i>	
	Session 2.C: Durability, Fatigue and Long-Term Performance 1 - Session Chair: David Hartman		C
	11:00 – 11:20	Improved GFRP Rebar for Reinforced Concrete Structural Application <i>Doug Gremel, Ryan Koch, Mala Nagarajan, David Hartman (USA) – 086</i>	
11:20 – 11:40	Behaviour of A GFRP-Reinforced Concrete Bridge Deck Under Pulsating and Rolling Loads <i>Laura M. Tauskela, Severus Gao, and Amir Z. Fam (Canada) – 046</i>		
11:40 – 12:00	Durability Performance of various Corrosion Resistant Reinforcing Materials under Sever Environmental Exposures <i>Raafat El-Hacha, Mouhammad Amiri, Martin Hudecek, Kip Skabar (Canada) – 139</i>		
12:00 – 13:30	Lunch Break		

Thursday, August 5, 2021

13:30 – 14:00	Keynote Lecture 3: Mark F. Green		A
	Fire Resistance of FRP Reinforced Concrete Structures: New Insights and Developments		
	Session 3.A: Fire Resistance 1 - Session Chair: Mark Green		
14:00 – 14:20	Experimental Investigation of Fire-Damaged RC Columns Retrofitted with CFRP Jackets <i>Cheng Tan, Jia Xu, Riyad Aboutaha (USA) – 003</i>		A
14:20 – 14:40	Behavior of GFRP Bars and Sheet Coupons Under Sustained Stress and High Temperatures <i>Jahanzaib, M. Faizan, Qureshi, Zahra Kharal, Shamim Sheikh (Canada) – 092</i>		
14:40 – 15:00	Effects of Load Level on The Structural Fire Behaviour of GFRP-Reinforced Concrete Beams with Straight-End Bar Lap Splices <i>Sobita Gurung, Sam Salem (Canada) - 153</i>		
	Session 3.B: Internally Reinforced Concrete Members 2 - Session Chair: Karim Benzarti		
14:00 – 14:20	Assumptions and Rationale for The Design of Top Mat GFRP Reinforcement for Bridge Decks in The State of Texas <i>Taya Retterer, Timothy Bradberry, Marco Rossini, Antonio Nanni (USA) - 052</i>		B
14:20 – 14:40	In-Site Quality Control of the Tensile Strength of Glass Fiber-Reinforced Polymer (GFRP) Bent Bars <i>Khaled Mohamed, Claude Nazair, Marc-Antoine Loranger, Brahim Benmokrane (Canada) - 108</i>		
14:40 – 15:00	Long-Span Square RC Members with Uniformly Distributed FRP Bars Under Flexure Loads <i>Salaheldin Mousa, Hamdy M. Mohamed, Brahim Benmokrane, Antonio Nanni (Canada) - 079</i>		
	Session 3.C: Confinement of Concrete 1 - Session Chair: Pierre Labossière		
14:00 – 14:20	Experimental Behaviour of Hollow $\pm 55^\circ$ Filament Wound GFRP Pipes Under Monotonic Flexural Loads <i>Dillon Betts, Pedram Sadeghian, Amir Fam (Canada) – 014</i>		C
14:20 – 14:40	Modeling the Nonlinear Response of ± 55 Angle-Ply GFRP Tube Used in CFFT Applications <i>Akram Jawdhari, Amir Fam, Pedram Sadeghian (USA/Canada) – 111</i>		
14:40 – 15:00	Experimental Behaviour of Concrete Confined with Unidirectional Flax Fiber-Reinforced Bio-Based Polymers <i>Dillon Betts, Pedram Sadeghian, Amir Fam (Canada) – 033</i>		
15:00 – 15:30	Afternoon Break		

Thursday, August 5, 2021

Thursday, August 5, 2021			
15:30 – 16:30	Session 4.A: Performance under Seismic, Dynamic and Impact Loading 2 - Session Chair: Shamim Sheikh		A
	15:30 – 15:50	Elasto-Plastic Transition Point of GFRP-Reinforced Shear Walls Under Cyclic Loading <i>Ahmed Hassanein, Nayera Mohamed, Ahmed Farghaly, Brahim Benmokrane (Canada) – 069</i>	
	15:50 – 16:10	A Review on Seismic Performance of Reinforced Concrete Columns Strengthened with Smart and Composite Materials <i>Adel Al Ekkawi, Raafat El-Hacha – 160</i>	
	16:10 – 16:30	Evaluation of Concrete Columns Reinforced with GFRP Bars and Spirals Subjected to Quasi-Static Cyclic Load <i>Girish Narayan Prajapati, Ahmed Sabry Farghaly, Brahim Benmokrane (Canada) – 038</i>	B
	Session 4.B: Confinement of Concrete 2 - Session Chair: Amir Fam		
	15:30 – 15:50	Plasticity Based Failure Criteria for Circular Concrete Columns Wrapped with FRPs <i>Koosha Khorramian, Pedram Sadeghian (Canada) – 024</i>	
	15:50 – 16:10	Axial Capacity of Concrete Filled GFRP Tubes with Simulated Tube Damage <i>Oswaldo Taveras, Abdeldayem Hadhood, Amir Fam, Bhum Keun Song (Canada) – 134</i>	C
	16:10 – 16:30	Slenderness Effects in Concrete-Filled FRP Tube Columns <i>Kevin Barber, Sam Salem, Amir Fam (Canada) – 156</i>	
	Session 4.C: Design Guidelines and Modeling 2 - Session Chair: Amr El-Ragaby		
	15:30 – 15:50	Safety Evaluation of The Reduction Factor for CFFTs Columns without Longitudinal Reinforcement <i>Koosha Khorramian, Pedram Sadeghian, Fadi Oudah (Canada) – 039</i>	C
	15:50 – 16:10	Development of Design Charts for One-Way Slabs Reinforced with Glass Fibre Reinforced Polymer (GFRP) Bars <i>Aslan Zarei, Douglas Tomlinson (Canada) – 101</i>	
	16:10 – 16:30	Effect of Reinforcement Type on Punching Shear Behavior of GFRP-RC Edge Slab–Column Connections <i>Ahmed E. Salama, Mohamed Hassan, Brahim Benmokrane (Canada) – 142</i>	

Thursday, August 5, 2021

Session 5.A: Bond and Interfacial Stresses 2 - Session Chair: Mamdouh El-Badry

16:30 – 17:30	16:30 – 16:50	Analytical Study on The Bond Between CFRP Rod Panels and Concrete Substrate <i>Akram Jawdhari, Issam Harik (USA) – 007</i>	A
	16:50 – 17:10	Evaluating FRP-Concrete Bond Performance <i>Kenneth Crawford (USA) – 041</i>	
	17:10 – 17:30	Towards the Use of digital Image Correlation to Detect and Measure FRP-Concrete Debonding in RC Structures <i>Joshua E. Woods, Yuan-Sen Yang, David T. Lau, Jeffrey Erochko (Canada) – 060</i>	

Session 5.B: Fibre-Reinforced Cementitious Matrix 1 - Session Chair: Nemkumar (Nemy) Banthia

16:30 – 17:30	16:30 – 16:50	A Review on Properties of Carbon Nanofibre Infused Ultra-High-Performance Fibre Reinforced Concrete <i>Marwa Ibrahim, Raafat El-Hacha – 159</i>	B
	16:50 – 17:10	Splitting and Direct Tensile Strengths of Ambient Cured Geopolymer Concrete with Glass Fibers <i>Shehroze Ali, M Neaz Sheikh, Muhammad N.S. Hadi (Australia) – 025</i>	
	17:10 – 17:30	Mechanical Properties of Concrete Reinforced with Alkali Resistant-Glass Fibers and Polypropylene Fibers <i>Habil Ahmad, M. Neaz Sheikh, Muhammad N.S. Hadi (Australia) – 047</i>	

Session 5.C: Internally Reinforced Concrete Members 3 - Session Chair: John Newhook

16:30 – 17:30	16:30 – 16:50	New Compressive Test Methods for GFRP Bars <i>Omar Alajarmeh, Allan Manalo, Ali Mohammed, Brahim Benmokrane (Australia/Canada) – 019</i>	C
	16:50 – 17:10	Manufacturing and Structural Performance of GFRP-Reinforced Precast Concrete Boat Ramp Planks <i>Allan Manalo, Omar Alajarmeh, Charles-Dean Sorbello, Senarath Weerakoon, Brahim Benmokrane (Australia/Canada) - 062</i>	
	17:10 – 17:30	Evaluation of GFRP Reinforced Circular Geopolymer Concrete Columns Under Concentric and Eccentric Axial Loading <i>Shehroze Ali, M Neaz Sheikh, Muhammad N.S. Hadi, Ian Cumming (Australia) - 066</i>	

Friday, August 6, 2021

Time	Event		Platform
8:30 – 9:00	Keynote Lecture 4: Riadh Al-Mahaidi Enhancement of the Performance of FRP Systems with Anchorage Devices: Research and Applications		A
9:00 – 10:00	Session 6.A: Strengthening of Structures 1 - Session Chair: Riadh Al-Mahaidi		A
	9:00 – 9:20	Bridge Footing Strengthening Using Various FRP Systems <i>Xingji Lu, Riyad Aboutaha (USA) - 001</i>	
	9:20 – 9:40	Repairing Concrete Structures Damaged by Frost Using Carbon Fiber Reinforced Epoxy Composites <i>Elhem Ghorbel, Mariem Limaiem, Oualid Limam (France) – 127</i>	
	9:40 – 10:00	Influence of Bidirectional GFRP System on Shear Capacity of Reinforced Concrete Deep Beams <i>Mustafa Raheem, Hayder Rasheed (USA) - 067</i>	B
	Session 6.B: Internally Reinforced Concrete Members 4 - Session Chair: Renata Kotynia		
	9:00 – 9:20	Behavior of Concentrically Loaded GFRP-RC Circular Hollow Columns with Varying Transverse Reinforcement Ratios <i>Mohammed Gamal Gouda, Hamdy M. Mohamed, Allan C. Manalo, Brahim Benmokrane (Canada) 164</i>	
	9:20 – 9:40	Experimental Testing of GFRP-Reinforced Concrete Beams with Mid-Span Lap Splices Utilizing Straight- and Hooked-End Bars <i>Omar Nour, Sam Salem, Ahmed Mostafa (Canada) - 155</i>	
	9:40 – 10:00	GFRP Reinforced Precast Concrete Tunnel Lining Segments Under Flexural Cyclic Loading <i>Basil Ibrahim, Salaheldin Mousa, Hamdy M. Mohamed, Brahim Benmokrane (Canada) 162</i>	
	Session 6.C: Fibre-Reinforced Cementitious Matrix 2 - Session Chair: Pedram Sadeghian		C
	9:00 – 9:20	Use of Fabric Reinforced Cementitious Mortar to Strengthen Reinforced Concrete Beams in Shear <i>Dylan Kennedy, Ahmad Rteil (Canada) - 006</i>	
9:20 – 9:40	Stress-Strain Behaviour of Glass Fiber-Reinforced Grout for Masonry Construction <i>Omar Gouda, Ahmed Hassanein, Khaled Galal (Canada) – 110</i>		
9:40 – 10:00	Mechanical Characteristics Analysis of Different Fiber-Reinforced Lightweight Concrete <i>Shuren Wang, Xiaogang Wu, Wenxue Chen, Yahong Ding, Jianhui Yang (China) – 138</i>		
10:00 – 10:30	Morning Break		

Friday, August 6, 2021

Friday, August 6, 2021			
10:30 – 11:30	Session 7.A: Performance under Seismic, Dynamic and Impact Loading 3 - Session Chair: Khaled Galal		A
	10:30 – 10:50	Hybrid Simulation of Damaged Reinforced Concrete Shear Walls Repaired Using Externally Bonded CFRP Sheets <i>Joshua E. Woods, David T. Lau, Jeffrey Erochko (Canada) – 029</i>	
	10:50 – 11:10	Framework for Developing Modeling Parameters of FRP- Retrofitted Reinforced Concrete Shear Walls <i>Jazalyn Dukes, Siamak Sattar (USA) – 032</i>	
	11:10 – 11:30	Seismic Performance of Masonry Walls Strengthened for Shear Using Externally Bonded FRP <i>Nestore Galati, Tarek Alkhrdaji, Nancy Torres Castellanos (USA) – 084</i>	
	Session 7.B: Basalt FRP 1 - Session Chair: Hamdy Mohamed		B
	10:30 – 10:50	Structural Behaviour of Precast Slab Made with Pre-Stressed Basalt Fibre Reinforced Bars and FRSCC <i>M. Sonebi, S. Taylor, B. Dal Lago, L. Ferrara, P. Deegan, A Pattarini (UK) – 031</i>	
	10:50 – 11:10	Development Length of Basalt-FRP Bars Embedded in Normal and High Strength Concrete <i>Decebal Michaud, Amir Fam (Canada) – 049</i>	
	11:10 – 11:30	Shear Strength of Lightweight Self-Consolidating Concrete Beams Reinforced with FRP Bars <i>Shehab Mehany, Hamdy M. Mohamed, Brahim Benmokrane (Canada) - 081</i>	
	Session 7.C: Durability, Fatigue and Long-Term Performance 2 - Session Chair: John Busel		C
	10:30 – 10:50	Durability of GFRP-RC Square Columns in Severe Marine Environment <i>Ahmed Elhamaymy, Hamdy M. Mohamed, Brahim Benmokrane (Canada) 163</i>	
	10:50 – 11:10	Flexural Behavior of GFRP Bars after Exposure to Elevated Temperatures <i>Sherif El-Gamal, Abdulrahman Al-Fahdi (Oman) – 129</i>	
	11:10 – 11:30	Durability Assessment of Fiber-Reinforced Polymer Composites Externally Bonded to A Concrete Bridge After 26-Year Exposure <i>Sandra Milev, Jovan Tatar (USA) – 154</i>	

Friday, August 6, 2021

Session 8.A: Design Guidelines and Modeling 3 - Session Chair: Ahmad Rteil

11:30 – 12:30	11:30 – 11:50	Numerical Modeling of Hybrid Steel/GFRP Reinforced Concrete Bridges Piers <i>Ahmed Arafa, Brahim Benmokrane (Egypt/Canada) – 143</i>	A
	11:50 – 12:10	Advanced Image-Based Microstructural Finite Element Modeling of Concrete: Porosity Effect on Mechanical Performance <i>Mustafa Alhusain, Adil Al-Mayah (Canada) – 151</i>	
	12:10 – 12:30	Finite Element Modeling of GFRP Concrete Slab-Column Edge Connections Reinforced with GFRP Shear Stirrups <i>Ahmed E. Salama, Mohamed Hassan, Brahim Benmokrane (Canada) – 141</i>	

Session 8.B: Bond and Interfacial Stresses 3 - Session Chair: Timothy Bradberry

11:30 – 12:30	11:30 – 11:50	Load-Slip Response of Larger Diameter GFRP Truss-Action Shear Connectors for Precast Concrete Insulated Wall Panels <i>Sergio Arevalo, Douglas Tomlinson (Canada) – 102</i>	B
	11:50 – 12:10	Field Investigation of CFRP Bond on RC Bridges <i>Kenneth C. Crawford (USA) – 146</i>	
	12:10 – 12:30	Effect of Bond Strength of Newly Developed Glass Fiber-Reinforced Polymer Bars on the Load-Slip Performance <i>Mohamed Eladawy, Wenxue Chen, Brahim Benmokrane (Canada) – 158</i>	

Session 8.C: Internally Reinforced Concrete Members 5 - Session Chair: Sam Salem

11:30 – 12:30	11:30 – 11:50	Effect of Confinement on Compression Splices of GFRP Bars in Concrete Columns <i>Amirhomayoon Tabatabaei, Abolfazl Eslami, Hamdy M. Mohamed, Brahim Benmokrane (Canada) – 071</i>	C
	11:50 – 12:10	Performance Evaluation of High-Strength Concrete Circular Columns Reinforced with GFRP Bars and Spirals <i>Mu'taz M. Almomani, Ehab El-Salakawy (Canada) – 064</i>	
	12:10 – 12:30	Torsional Behavior of Concrete Box Girders Reinforced with Longitudinal GFRP Bars and Without Stirrups <i>Ibrahim Mostafa, Salaheldin Mousa, Hamdy M. Mohamed, Brahim Benmokrane (Canada) 165</i>	

Lunch Break

12:30 – 14:00

COMMEMORATION OF THE FIRST ACMBS CONFERENCE (ACMBS-I) ORGANIZED IN SHERBROOKE IN 1992

A

Friday, August 6, 2021

14:00 – 14:30	Keynote Lecture 5: Steven Nolan Florida DOT Progress in Deploying FRP Materials for New Bridges & Structures		A
14:30 – 15:30	Session 9.A: Practical Applications 2 - Session Chair: Steven Nolan		A
	14:30 – 14:50	Flagler Beach GFRP-RC Secant Pile Seawall for Hurricane Resilience, Durability and Efficiency <i>Christian Steputat, Steven Nolan, Marco Rossini, Antonio Nanni (USA) – 026</i>	
	14:50 – 15:10	Application of GFRP Bars in Precast Concrete Tunnel Lining Segments <i>Seyed Mohammad Hosseini, Salaheldin Mousa, Hamdy M. Mohamed, Brahim Benmokrane (Canada) 16</i>	
	15:10 – 15:30	Critical Review of the Design and Performance of GFRP Reinforced Bridge Decks in Nova Scotia <i>David Idemudia, John Newhook, Fadi Oudah (Canada) – 150</i>	
	Session 9.B: Strengthening of Structures 2 - Session Chair: Riyad Aboutaha		B
	14:30 – 14:50	Experimental Investigation of Bridge Widening Through Pier Cap Beam Extension Using CFRP Composites <i>Jia Xu, Cheng Tan, Riyad Aboutaha (USA) – 002</i>	
	14:50 – 15:10	Finite Element Modeling and Verification of a Wedge Anchorage for CFRP Plates <i>Mustafa Alhusain, Adil Al-Mayah (Canada) - 152</i>	
	15:10 – 15:30	Repair of Damaged Reinforced Concrete Pipes with Layered Sandwich Fiber Composites <i>Thomas Goill, Pedram Sadeghian (Canada) - 034</i>	
	Session 9.C: Internally Reinforced Concrete Members 6 - Session Chair: Doug Gremel		C
	14:30 – 14:50	Effect of Longitudinal GFRP Reinforcement Ratio on the Axial-Flexural Performance of Lightweight Self-Consolidating Concrete Columns <i>Abdoulaye Sanni Bakouregui, Hamdy M. Mohamed, Ammar Yahia, Brahim Benmokrane (Canada) – 070</i>	
14:50 – 15:10	Pull-Out Behaviour of Headed-End GFRP Bars Embedded in Basalt Fiber Cementitious Composites <i>A.G. Bediwy, E. El-Salakawy (Canada) - 068</i>		
15:10 – 15:30	Mechanical Properties of Newly Developed Glass Fiber Reinforced Polymer Bars <i>Ahmed E. Salama, Wenxue Chen, Brahim Benmokrane (Canada) – 147</i>		
15:30 – 16:00	Afternoon Break		

Friday, August 6, 2021

Friday, August 6, 2021		
16:00 – 17:10	Session 10.A: Confinement of Concrete 3 - Session Chair: Amir Mofidi	
	16:00 – 16:20	Effect of Natural FRP Confinement on Axial Compressive Strength of Concrete <i>Junaid Ahmad, Tao Yu, Muhammad N. S. Hadi (Australia) – 027</i>
	16:20 – 16:40	System-Based Reliability Approach to Design Existing Columns Strengthened Using FRP <i>Koosha Khorramian, Fadi Oudah, Pedram Sadeghian (USA) – 040</i>
	16:40 – 17:00	Flexural Behavior and Ultimate Strength of Post-Tensioned Rectangular CFFT Beams <i>Asmaa Abdeldaim Ahmed, Mohamed Hassan, Radhouane Masmoudi (Canada) – 058</i>
	Session 10.B: Innovative Structural Systems 1 - Session Chair: Allan Manalo	
	16:00 – 16:20	Novel Prefabricated Composites Jacket for Structures Repair <i>Ali Mohammed, Allan Manalo, Omar Alajarmeh, Yan Zhuge, John Pettigre (Australia) – 082</i>
	16:20 – 16:40	Evaluation of Different CFRP Sandwich Deck Cores of Deployable Treadway Bridge Beam <i>Ashraf Osman, Khaled Galal (Egypt/Canada) – 125</i>
	16:40 – 17:00	Two-Way Flexural Behaviour of Sandwich Panels with Flax FRP Faces and Foam Cores Under Monotonic Loads <i>Dillon Betts, Pedram Sadeghian, Amir Fam (Canada) – 012</i>
	Session 10.C: Strengthening of Structures 3 & Design of FRP-RC Members - Session Chair: Raafat El-Hacha	
	16:00 – 16:20	Flexural Strengthening of Reinforced Concrete Structures using Iron-based Shape Memory Alloy: Case Studies <i>Benjamin Forrest, Raafat El-Hacha, Julien Michels (Canada/ Switzerland) - 161</i>
	16:20 – 16:40	Nondestructive and Structural Response Monitoring for Risk-Informed Maintenance Management of Bridges <i>Wael A. Megid, Joel Hay, D. Robert Hay (Canada/Egypt) – 028</i>
	16:40 – 17:10	Flexural and Shear Design Software for Concrete Members Reinforced with FRP Internal Bars <i>Hayder A. Rasheed, and Alaaeldin Abouelleil</i>
		A
		B
		C

Saturday, August 7, 2021		
Time	Event	Platform
9:00 – 9:30	Keynote Lecture 6: Emmanuel Ferrier Seismic Retrofitting of RC Structures Using Externally Bonded FRPs: Research Overview and Case Studies in Europe	A
Session 11.A: Strengthening of Structures 4 - Session Chair: Douglas Tomlinson		
9:30 – 9:50	RC Wall-Slab Connection Reinforced by FRP: Mechanical Behaviour Under Cycling Loading <i>Antoine Chalot, Laurent Michel, Emmanuel Ferrier, Nathalie Roy (France/Canada) - 117</i>	A
9:50 – 10:10	Preventive Fatigue Strengthening of Steel Structures with Bonded CFRPs – Efficiency Demonstration on a Real Bridge <i>K. Benzarti, S. Chataigner, M. Wabeh, R. Boundouki, E. Martin, L. Sopena, M. Zalbide, D. Garcia-Sanchez, V. Birtel, F. Lehmann, G. Gemignani (France/USA/Spain/Italy) -121</i>	
10:10 – 10:30	Bond Behavior of FRP Shear Reinforcement on I-Sections <i>Muhammad Arslan Yaqub, Stijn Matthys, Christoph Czaderski (Belgium/Switzerland) - 157</i>	
Session 11.B: Performance under Seismic, Dynamic and Impact Loading 4 - Session Chair: Nathalie Roy		
9:30 – 10:30	9:30 – 9:50 Seismic Fragility Assessment of an Existing Multi-Span Isolated Bridge in Eastern Canada <i>Saber A. S. Fosoul, Michael J. Tait (Canada) – 100</i>	B
	9:50 – 10:10 Rocking Response of AFRP Reinforced Concrete Columns with Unbonded Energy Dissipaters <i>Muritala Adegoke, Mehdi Shokouhian, Monique Head, Steve Efe, (USA) – 106</i>	
	10:10 – 10:30 Dynamic Response Calibration of Hybrid Floating Bridge System Using Rayleigh Damping <i>Ahmed S. Elareshy, M. M. Abdel Wahab, Sherif A. Mazek, and Ashraf Osman (Egypt) – 140</i>	
Session 11.C: Durability, Fatigue and Long-Term Performance 3 - Session Chair: Marc Quiertant		
9:30 – 10:30	9:30 – 9:50 Experimental Analysis and Modeling of Nonlinear Shear Creep Behaviour at the Concrete–FRP Interface <i>François Soleilhet, Nouredine Houhou, Karim Benzarti, Sylvain Chataigner, Marc Quiertant (France) – 104</i>	C
	9:50 – 10:10 Fatigue Behavior of FRP Bars Reinforced UHPC Beams <i>E. Ferrier, L. Michel (France) – 116</i>	
	10:10 – 10:30 Assessment of the Flexure Stiffness of Slender Concrete Columns Reinforced with Glass Fiber-Reinforced Polymers <i>Waseem Abdelazim, Hamdy M. Mohamed, Brahim Benmokrane (Canada) – 078</i>	
10:30 – 10:45	Closing Ceremony - Session Chair: Brahim Benmokrane	



FOR MORE INFORMATION, PLEASE FEEL FREE TO CONTACT:

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JULY 28, 2021