

Session Schedule

Session	Topic	Date
Session A1	Advanced Technology in Carbonation	12 Dec, AM
Session A2	Theory of Carbonation	12 Dec, AM
Session A3	CO ₂ Activation of Recycled Concrete Fines	12 Dec, AM
Session A4	Clinkering of Carbonatable Binder	12 Dec, AM
Session B1	CO ₂ Activation of Recycled Concrete Aggregates	12 Dec, PM
Session B2	CO ₂ Activation of Fresh and Hardening Concrete	12 Dec, PM
Session B3	CO ₂ Activation of Ashes	12 Dec, PM
Session B4	Carbonation Modelling	12 Dec, PM
Session C1	CO ₂ Activation of Metallurgical Slag	13 Dec, AM
Session C2	CO ₂ Activation of Magnesium-Containing Materials	13 Dec, AM
Session C3	Carbonation Additives	13 Dec, AM
Session C4	Integration of Waste and CO ₂ for Construction	13 Dec, AM
Session D1	Advanced Low-Carbon Technologies	13 Dec, PM
Session D2	Mineral Carbonation Materials as SCMs	13 Dec, PM
Session D3	Durability of CO ₂ Enabled Concrete	13 Dec, PM
Session D4	Life Cycle Analyses and Quantification of CO ₂ Uptake	13 Dec, PM

Day 1: 12 December 2024 (Thursday)					
Session A1		Advanced Technology in Carbonation			Room Z205
Chairmen		Miren Etxeberria (Universitat Politècnica de Catalunya) Pan Feng (Southeast University)			10:50 – 12:30
Invited Speech: Next Generation “Green Construction Materials” Developed by Mineral Carbonation of Steel Slags Mieke Quaghebeur, Vlaamse Instelling voor Technologisch Onderzoek (VITO)					10:50 – 11:10
1	Accelerated Carbonation through High Temperature of Cement-based Materials towards Low Carbon Construction	Dianchao Wang	The University of Tokyo	Oral	11:10– 11:25
2	Effects of Polymorphs of Calcium Carbonate on Compressive Strength of Calcium Carbonate Concrete	Masahito Tada	Taiheiyo Cement Corporation	Oral	11:25 – 11:40
3	Ex-situ Monitoring of Carbonation of Cement Paste Using Raman Microspectroscopy	Jiseul Park	Seoul National University	Oral	11:40 – 11:55
4	A Mild Strategy to In-situ Synthesize Strong Bulk CO ₂ Mineralized Material Controlled by Organic Template	Jingze Chen	Wuhan University of Technology	Flash	11:55 – 12:00
5	Prolonged In-situ CO ₂ Mixing for Enhancing Direct CO ₂ Absorption and Compressive Strength of Cementitious Composite	Won Kyung Kim	Seoul National University	Flash	12:00 – 12:05
6	Study on the Mechanism of NaHCO ₃ -Promoted CaSiO ₃ Carbonation Kinetics and Mechanical Property Enhancement	Chengbo Wei	Southeast University	Flash	12:05 – 12:10
7	Carbonation Mechanism of BOFS under High-Gravity Conditions and Optimization of the Carbon Removal Process	Qifeng Song	Hunan University	Flash	12:10 – 12:15
8	A Novel Approach for Improving Aqueous Carbonation Kinetics with CO ₂ Micro- and Nano- Bubbles	Yi Jiang	The Hong Kong Polytechnic University	Flash	12:15 – 12:20
9	Role of Partial Limestone Calcination in Carbonated Lime-based Binders	Xiong Qian	The Hong Kong Polytechnic University	Flash	12:20 – 12:25

Day 1: 12 December 2024 (Thursday)					
Session A2		Theory of Carbonation			Room Z207
Chairmen		Jun Chang (Hainan University) Carlos Thomas (University of Cantabria)			10:50 – 12:30
Invited Speech: Critical Phenomena on the Acceleration of Carbonation of Cementitious Materials Ipppei Maruyama, The University of Tokyo					10:50 – 11:10
1	Phase Evolution and Microstructure Changes Induced by Accelerated Carbonation in Natural Hydraulic Lime Paste with GGBFS Addition	Dongmin Wang	China University of Mining and Technology (Beijing)	Oral	11:10 – 11:25
2	Carbonation Degree of C-S-H in Wet-dry Cycle	Dayoung Oh	Hokkaido University	Oral	11:25 – 11:40
3	Study on the Heat Conditions for Appropriate CO ₂ Quantification Method in Cementitious Materials	Hayato Takahashi	Tohoku University	Oral	11:40 – 11:55
4	Impact of Ca/Si and Al/Si Ratios on the Alumina-Silica Gel Formed by Wet Carbonation of Synthesized C-S-H Phases and Ettringite	Jiayi Song	Aarhus University	Oral	11:55 – 12:10
5	Study on the Hardening Mechanism of Natural Hydraulic Lime (NHL) under Hydration and Carbonation	Guodong Qi	China University of Mining and Technology (Beijing)	Flash	12:10 – 12:15
6	Insights into the Simultaneous Formation and Carbonation of C-S-H: The Effect of Initial pH	Yuxi Cai	Southeast University	Flash	12:15 – 12:20
7	Comparison of the C ₃ S, C ₂ S, and Cement Dissolutions in Water and CO ₂ Solutions	Wei Tang	Shenzhen University	Flash	12:20 – 12:25
8	Cold Sintering of CaCO ₃ Polymorphs: Exploring the Strength Origin in Calcium Carbonate Matrix	Jinzewei Nie	Southeast University	Flash	12:25 – 12:30

Day 1: 12 December 2024 (Thursday)					
Session A3		CO₂ Activation of Recycled Concrete Fines			Room Z209
Chairmen		Xiaojian Gao (Harbin Institute of Technology) Juhyuk Moon (Seoul National University)			10:50 – 12:30
Invited Speech: Reactivity of Aqueous Carbonated Blended Portland Cement Pastes Jørgen Skibsted, Aarhus University					10:50 – 11:10
1	Re-CEM: Applicability of Recycled Concrete Paste as SCM through CCU – Elucidating the Correlation between Chemical Composition, Amorphous Gel Structure, and Pozzolanic Reactivity	Fabian Niewöhner	Technical University of Munich	Oral	11:10 – 11:25
2	Exploring the Use of Concrete Waste Fines in Lightweight Porous Cement-based Blocks through Carbonation	Leila Nobrega Sousa	Eindhoven University of Technology	Oral	11:25 – 11:40
3	Carbonation of RCF with Additional Additive: The Effect on Crystallinity of Carbonates	Yilu Chen	Eindhoven University of Technology	Oral	11:40 – 11:55
4	Unlocking the Carbonation Process of Recycled Concrete: Insights from Industrial Recycled Concrete Fines	Yan Luo	Eindhoven University of Technology	Oral	11:55 – 12:10
5	Mineral Carbonation of Recycled Concrete Paste	Namgyu Park	Seoul National University	Flash	12:10– 12:15
6	Rapid Carbonation Process of Recycled Concrete Powders in a High-Gravity Rotating Packed Bed	Zhenjiang Gu	The Hong Kong Polytechnic University	Flash	12:15 – 12:20
7	Connection between Carbonation Regimes and Early Pozzolanic Reactivity of Recycled Concrete Powder: Impact of Composition and Microstructure	Zihan Ma	The Hong Kong Polytechnic University	Flash	12:20 – 12:25
8	Vaterite CaCO ₃ Binder from Indirect Carbonation of Waste Concrete Fines	Tiejun Ding	Imperial College London	Flash	12:25 – 12:30

Day 1: 12 December 2024 (Thursday)					
Session A4	Clinkering of Carbonatable Binder				Room Z211
Chairmen	Luc Courard (University of Liege) Liwu Mo (Nanjing Tech University)				10:50 – 12:30
Invited Speech: Elucidating the Role of Different Phases in Carbonatable Binders Zhichao Liu, Wuhan University of Technology					10:50 – 11:10
1	Transforming Ferronickel Slag in Magnesium Silicate Binder after a Carbonation/Decarbonation Process	Martin Cyr	Toulouse University	Oral	11:10 – 11:25
2	Durability of Calcium Phosphate Modified Portland Cement Exposed to Supercritical CO ₂ Environment	Chul-Woo Chung	Pukyong National University	Oral	11:25 – 11:40
3	The Utilization of Red Mud for Uranium Mineralization by a Low-Temperature Sintering Process	Minhua Su	Guangzhou University	Oral	11:40 – 11:55
4	Novel Insight to Preparing High Carbonation Reactivity Wollastonite Fibers through Phase Transformation Treatment	Donglin Li	Henan Polytechnic University	Flash	11:55 – 12:00
5	Feasibility, Performance and Carbonation Mechanism of Ternesite as an Ultra-low Lime CO ₂ Sequestration Binder	Xiaoyun Du	Dalian University of Technology	Flash	12:00 – 12:05
6	Design of C ₂ S-CS Low-calcium Phase System for Synergistic Improvement of CO ₂ Sequestration Capacity and Mechanical Properties	Ning Tan	Southeast University	Flash	12:05 – 12:10
7	Revisiting the Carbonation Behavior of C ₃ S ₂ to Elucidate the Role of Silica Gel in the Mechanical Strength of Carbonated Matrix	Zhipeng Zhang	Wuhan University of Technology	Flash	12:10 – 12:15
8	Production of MSWI-Based Belite-Ternesite Cement with Enhanced CO ₂ Reactivity	Xiaoli Wang	Hunan University	Flash	12:15 – 12:20
9	Chlorellestadite: An Apt Binder or an SCM with Carbonation Reactivity	Hanxiong Lyu	The Hong Kong Polytechnic University	Flash	12:20 – 12:25
10	Development of Highly Carbonation-Effective Calcium Silicates (β -C ₂ S): Phase Evolution, Microstructure, and Carbonation Mechanisms	Miao Ren	The Hong Kong Polytechnic University	Flash	12:25 – 12:30

Day 1: 12 December 2024 (Thursday)					
Session B1		CO₂ Activation of Recycled Concrete Aggregates			Room Z205
Chairmen		Mieke Quaghebeur (Vlaamse Instelling voor Technologisch Onderzoek) Baojian Zhan (Shenzhen University)			14:00 – 15:30
1	Impact of Carbonated Recycled Aggregates on the Carbonation Resistance of Concrete	Miren Etxeberria	Universitat Politècnica de Catalunya. BarcelonaTECH	Oral	14:00 – 14:15
2	Wet-Carbonation of RCAs for Improved Carbonation Efficiency and Mechanical Properties of Carbonated RCAs and RCA Concrete	Zhanping You	Michigan Technological University	Oral	14:15 – 14:30
3	CO ₂ Fixed by Recycled Aggregate in a Medium-Scale Carbonation Facility	Takahiro Iwafuchi	Hazama Ando Corporation	Oral	14:30 – 14:45
4	Study of CO ₂ Fixation in Recycled Aggregate Using Potassium Carbonate Solution	Rei Yoshino	Hazama Ando Corporation	Oral	14:45 – 15:00
5	Mechanical Properties of Recycled Concrete with Carbonated Recycled Sand	Kyung Chan Hong	CECM Co. Ltd.	Oral	15:00 – 15:15
6	Characterization of the Interfacial Transition Zone between Carbonated Recycled Aggregates and New Cementitious Matrix: The Interactions between Different Cements and Carbonation Products	Karen Midori Masunaga	Shibaura Institute of Technology	Flash	15:15 – 15:20
7	Fully Recycled Aggregate Concrete (RAC) with Recycled Concrete Powder (RCP): Enhancement Using CO ₂ Mineralization	Ligang Peng	The Hong Kong Polytechnic University	Flash	15:20 – 15:25
8	Activated Biochar Saturated with CO ₂ as Internal Carbonation Curing Activator for Enhancing Mechanical Property of Cement Paste	Renming Wu	The Hong Kong Polytechnic University	Flash	15:25 – 15:30

Day 1: 12 December 2024 (Thursday)					
Session B2		CO₂ Activation of Fresh and Hardening Concrete			Room Z207
Chairmen		Zhichao Liu (Wuhan University of Technology) Ippei Maruyama (The University of Tokyo)			14:00 – 15:30
1	High-Temperature Performance of SCMs Blended Cementitious Materials Subject to CO ₂ Curing	Ming-Zhi Guo	Shaoxing University	Oral	14:00 – 14:15
2	Development of Advanced Carbonation Technologies for Concrete and Solid Waste	Peiliang Shen	The Hong Kong Polytechnic University	Oral	14:15 – 14:30
3	The Reaction Mechanisms of Cement incorporating FA and GGBS during CO ₂ Curing and Further Hydration	Pingping He	Changsha University of Science and Technology	Oral	14:30 – 14:45
4	Effect of Pre-Treatment Method on Accelerated Carbonation of Hardened Cement Paste	Luge Cheng	The University of Tokyo	Oral	14:45 – 15:00
5	Microwave-CO ₂ Combined Curing Technology for Low-Carbon Development of Ultra-High-Performance Concrete (UHPC)	Yuan Feng	Wuhan University of Technology	Flash	15:00 – 15:05
6	Use of Carbonated Water for Carbon Sequestration in OPC and Low-Carbon Cement Systems	Aswathy Rajendran	University of Cambridge	Flash	15:05 – 15:10
7	Rapid Demolding of Precast Cement Mortar for CO ₂ Curing: A Custom Mold Design	Jinxin Wei	Hunan University	Flash	15:10 – 15:15
8	Insights into the Synergetic Action of Hydration and Carbonation of Portland Cement	Jionghuang He	The Hong Kong Polytechnic University	Flash	15:15 – 15:20
9	Damage Characterization of Carbonated Cement Pastes with a Gradient Structure	Qinglong Qin	The Hong Kong Polytechnic University	Flash	15:20 – 15:25
10	Unveiling the CO ₂ Intake in C-S-H Effected by Surface Property	Gen Li	The Hong Kong Polytechnic University	Flash	15:25 – 15:30

Day 1: 12 December 2024 (Thursday)					
Session B3		CO ₂ Activation of Ashes			Room Z209
Chairmen		Jørgen Skibsted (Aarhus University) Wei Wang (Southeast University)			14:00 – 15:30
Invited Speech: Modification of Carbonation Mineralization on Supplementary Cementitious Materials Xiaojian Gao, Harbin Institute of Technology					14:00 – 14:20
1	Efficiency of Processes for the Carbonation of Municipal Solid Wastes Bottom Ash	Luc Courard	University of Liege	Oral	14:20 – 14:35
2	Mineral Carbonation and Stabilization of Converter Slag Using Supercritical CO ₂	Chul-Woo Chung	Pukyong National University	Oral	14:35 – 14:50
3	Effect of Carbonated Sludge Powder on Compressive Strength of Mortar	Lett Wai Nwe	Tokyo Metropolitan University	Oral	14:50 – 15:05
4	Preparation of In-situ Grown Nano-Silica Based on Fly Ash by Carbonization Method: Improving Nano-Silica Dispersity and Sequestering CO ₂	Hailong Sun	Southeast University	Flash	15:05 – 15:10
5	Utilization of Carbonated Steel Slag as Supplementary Cementitious Material: A Review of Mechanism, Methods and Applications	Xingtong Yue	University of Science and Technology Beijing	Flash	15:10 – 15:15
6	Mechanical Properties and Microscopic Characteristics of Ternary Composite Carbonated Cementitious Materials of S95 Grade Blast Furnace Slag-Steel Slag-Calcium Carbide Slag	Wene Ma	Southeast University	Flash	15:15 – 15:20
7	Impact and Mechanism of Ultrasonic Carbonated MSWI Fly Ash on CO ₂ Mineralization Curing of Cement	Jie Chen	Zhejiang University	Flash	15:20 – 15:25
8	High-Temperature Carbonation Behavior, Reaction Kinetics and Microstructural Change of Hydraulic and Non-Hydraulic Calcium Silicates	Hao Yu	Hunan University	Flash	15:25 – 15:30

Day 1: 12 December 2024 (Thursday)					
Session B4		Carbonation Modelling			Room Z211
Chairmen		Qiang Wang (Tsinghua University) Hongyu Zhou (University of Tennessee Knoxville)			14:00 – 15:30
Invited Speech: Comprehensive Molecular-Scale Insights on the Interfacial CO ₂ Mineralization of Portlandite Roland Pellenq, CNRS and University of Montpellier					14:00 – 14:20
1	Study of Carbonation Kinetics of a Recycled Sand	Rachid Cherif	University of La Rochelle	Oral	14:20 – 14:35
2	Nanoscale Mechanisms of CO ₂ Docking in Mineral Mesopores at Different Relative Humidities	Yong Tao	The Hong Kong Polytechnic University	Oral	14:35 – 14:50
3	Hygro-Thermo-Chemical Modeling of Accelerated Carbonation Curing of Cementitious Materials at Early Age	Lifu Yang	City University of Hong Kong	Oral	14:50 – 15:05
4	Probing Al Uptake in C-S-H Gels via DFT and Molecular Dynamics Simulations: Towards Maximizing Al/Si Ratios and Chloride Ion Adsorption	Li Zhang	Henan Polytechnic University	Flash	15:05 – 15:10
5	Impact of Fe Doping on the Reactivity of γ -Dicalcium Silicate: Insights from DFT Calculations	Meicheng Zhao	Wuhan University of Technology	Flash	15:10 – 15:15
6	The Carbonation and Hardening Properties of Larnite, Åkermanite and Merwinite in Steel Slag: A Study from Experiments and DFT Calculations	Xinyu Zhang	Henan Polytechnic University	Flash	15:15 – 15:20
7	Numerical Study of Limestone Particles Calcination in a Drop Tube Furnace	Sumin Song	Korea Institute of Industrial Technology	Flash	15:20 – 15:25
8	Numerical Analysis of CaO Particles Carbonation	Heesung Choi	Korea Institute of Industrial Technology	Flash	15:25 – 15:30

Day 2: 13 December 2024 (Friday)					
Session C1		CO₂ Activation of Metallurgical Slag			Room Z205
Chairmen		Rachid Cherif (University of La Rochelle) Bo Li (University of Nottingham Ningbo China)			10:30 – 12:30
Invited Speech: Co-carbonation Behaviors of Metallurgical Slag-cement in Aqueous Conditions Qiang Wang, Tsinghua University					10:30 – 10:50
1	Hydration and Carbonation Reactions of Natural Hydraulic Lime under Different CO ₂ Concentrations	Ze Liu	China University of Mining and Technology (Beijing)	Oral	10:50 – 11:05
2	Utilization of Local Raw Materials and Mine Waste to Manufacture Cement in the Northwest Territories, Canada	Guangping Huang	Chinese Academy of Sciences	Oral	11:05 – 11:20
3	In-situ Wet Carbonation of Steel Slag Powder Paste Made with Carbonated Water: Interaction Mechanism between Carbonation and Hydration	Wei Wang	Southeast University	Oral	11:20 – 11:35
4	Transform AOD Slag toward a High- Reactive Mineral Admixture with Appreciable CO ₂ Sequestration	Peng Liu	Nanjing Tech University	Oral	11:35 – 11:50
5	Application of Carbonation-Based Treatments to Valorise Residues from EAF Steel Production	Alessandra Masi	University of Rome Tor Vergata	Oral	11:50 – 12:05
6	Decoding Carbonated Steel Slag: A Visualization Study of the Barrier Layer	Linshan Li	Harbin Institute of Technology	Flash	12:05 – 12:10
7	Preparation of Carbon-negative Artificial Lightweight Aggregates by Carbonating Sintered Red Mud (SRM): CO ₂ Sequestration, Microstructure and Performance	Maochun Xu	Nanjing Tech University	Flash	12:10 – 12:15
8	Microstructural Study on the Carbonation of Glycine-Activated Steel Slag	Seohyun Kim	Seoul National University	Flash	12:15 – 12:20
9	In-situ Carbonation of BOFS Blended Cement Paste via 13X Zeolite	Zhikai Wang	Hunan University	Flash	12:20 – 12:25
10	The Balance between Hydration and Carbonation within Carbonation-enhanced Aerated Concrete: Comparative Study on Curing Regimes and Carbonation Binder	Rui Sun	The Hong Kong Polytechnic University	Flash	12:25 – 12:30

Day 2: 13 December 2024 (Friday)					
Session C2		CO₂ Activation of Magnesium-Containing Materials			Room Z207
Chairmen		Warda Ashraf (The University of Texas at Arlington) Rui Yu (Wuhan University of Technology)			10:30 – 12:30
Invited Speech: Understanding the Influence Mechanism of MgO Doping on the Sintering and Performance of Ternesite-based CO₂ Sequestration Binder					10:30 – 10:50
Jun Chang, Hainan University					
1	Mechanical and Microscopic Properties of Organic Soil Carbonated and Solidified by Reactive MgO Combined with ISSA	Guanghua Cai	Nanjing Forestry University	Oral	10:50 – 11:05
2	Tailoring High-Magnesium Cements for Enhanced Carbonation Hardening and CO ₂ Sequestration	Songhui Liu	Henan Polytechnic University	Oral	11:05 – 11:20
3	Effect of Temperature and CO ₂ Pressure on the Carbonation Efficiency and Products of Magnesium Slag	Zhibin Ma	Shanxi University	Oral	11:20 – 11:35
4	The Role of Internal Moisture Content (IMC) in the Carbonation Efficiency of Natural Fibers Reinforced Reactive Magnesia Cement (NFs-RMC)	Bo Wu	The Hong Kong University of Science and Technology	Oral	11:35 – 11:50
5	Preparation of Mg-modified CO ₂ Sequestration Binder and its Carbonation Behaviors	Yajuan Peng	University of Jinan	Flash	11:50 – 11:55
6	Characterising Reaction Processes of Sodium Sulphate-activated Slag Paste with MgO	Zhanhui Lu	University of Nottingham Ningbo China	Flash	11:55 – 12:00
7	Investigating the Carbonation-Induced Volume Change in Reactive Magnesia Cement	Pauline Rose Quiatchon	The Hong Kong University of Science and Technology	Flash	12:00 – 12:05
8	Effects of CO ₂ Carbonation on the Properties of CSA-Steel Slag Composite Cementitious Materials	Jialin Song	Shandong University	Flash	12:05 – 12:10
9	Enhanced Aqueous Carbonation of BOFS Fine Aggregates Efficiency Using Na ₂ CO ₃	Haodong Lin	Hunan University	Flash	12:10 – 12:15
10	Bonding and Micro-Mechanical Properties of Steel Slag Carbonation	Jie Li	Hunan University	Flash	12:15 – 12:20

Day 2: 13 December 2024 (Friday)					
Session C2		CO₂ Activation of Magnesium-Containing Materials			Room Z207
Chairmen		Warda Ashraf (The University of Texas at Arlington) Rui Yu (Wuhan University of Technology)			10:30 – 12:30
11	Functional Biochar for Permanent Capture of CO ₂ and Its Use in Mortar Block: A Step Towards CO ₂ Emission to Capture	Razia Sultana	The Hong Kong Polytechnic University	Flash	12:20 – 12:25
12	Study the Pozzolanic Reactivity of Si-Al Gel with Different Si/Al Ratio	Shunmin Xiao	The Hong Kong Polytechnic University	Flash	12:25 – 12:30

Day 2: 13 December 2024 (Friday)					
Session C3		Carbonation Additives			Room Z209
Chairmen		Sze-dai Pang (National University of Singapore) Liwei Zhang (Chinese Academy of Sciences)			10:30 – 12:30
Invited Speech: Appropriate Technologies to Stimulate Hydration or Carbonation of Industrial By-products					10:30 – 10:50
Juhyuk Moon, Seoul National University					
1	Enhancing Effect of β -cyclodextrin on Carbonation Properties of Steel Slag	Yunhua Zhang	Hubei University of Technology	Oral	10:50 – 11:05
2	Biomolecular Regulated Carbonation to Process Calcium-Rich Alkaline Industrial Wastes into Supplementary Cementitious Materials	Hongyu Zhou	University of Tennessee Knoxville	Oral	11:05 – 11:20
3	Innovative Use of Amines to Enhance CO ₂ Mineralisation in Steel Slag for Eco-Friendly Construction Materials	Yogarajah Elakneswaran	Hokkaido University	Oral	11:20 – 11:35
4	Internal-external Synergistic CO ₂ Sequestration of Cement-Based Materials Using Amino Acid Salts	Tiefeng Chen	Harbin Institute of Technology	Oral	11:35 – 11:50
5	Improving Carbon Dioxide Sequestration in Concrete Waste through Polymer Modification	Ekaterina Kravchenko	Southern Federal University	Oral	11:50 – 12:05
6	The Role of Additive on Carbonation Behavior and Mechanical Properties of Low Calcium Silicate Materials	Junil Pae	Seoul National University	Flash	12:05 – 12:10
7	Enhanced Hydration of Ground Steel Slag with Chemical Activator	Ahyeon Lim	Seoul National University	Flash	12:10 – 12:15
8	Controllable CaCO ₃ Synthesis from Solid Waste by an “All-in-one” Amino Acid-in Strategy	Xuan Zheng	Huazhong Agricultural University	Flash	12:15 – 12:20
9	Improvement in the Carbon Capture of Cementitious Materials Using Hydrogel	Tao Wang	Hunan University	Flash	12:20 – 12:25
10	Mechanism of Organic Additives-induced Carbonation Activators on Affecting Cement Mortars	Shuangshuang Liu	The Hong Kong Polytechnic University	Flash	12:25 – 12:30

Day 2: 13 December 2024 (Friday)					
Session C4		Integration of Waste and CO ₂ for Construction			Room Z211
Chairmen		Roland Pellenq (CNRS and University of Montpellier) Zhanping You (Michigan Technological University)			10:30 – 12:30
Invited Speech: CO ₂ Beneficiation of German Lignite Fly Ash under Different Reaction Conditions and its Reactivity as SCM Thomas Matschei, RWTH Aachen University					10:30 – 10:50
1	Marine Structures with Recycled Concrete and Non-Metallic Reinforcements	Carlos Thomas	University of Cantabria	Oral	10:50 – 11:05
2	Mechanisms and Advancements in Microwave-Enhanced CO ₂ Mineralization of Lightweight Porous Concrete	Shuqiong Luo	Henan Polytechnic University	Oral	11:05 – 11:20
3	CO ₂ -driven 3D Concrete Printing Technologies	Shipeng Zhang	The Hong Kong Polytechnic University	Oral	11:20 – 11:35
4	Valorization of Wasted-Derived Biochar in Ultra-High-Performance Concrete (UHPC): Pretreatment, Characterization, and Environmental Benefits	Jiang Du	Chongqing Jiaotong University	Oral	11:35 – 11:50
5	Different Approaches of CO ₂ Sequestration in Cementitious Materials Manufacturing	Zhuo Liu	Wuhan Institute of Technology	Oral	11:50 – 12:05
6	Upcycling of Baghouse Fines into Artificial Aggregate for Permeable Paving Bricks	Yuguang Wang	University of Nottingham Ningbo China	Flash	12:05 – 12:10
7	Direct Ink Writing of Non-Sintered Ceramic with Biomimetic Cellular Structure	Kaiyun Huang	Wuhan University of Technology	Flash	12:10 – 12:15
8	Elucidating how CO ₂ Influences Rheological Time-Varying Behavior of Cementitious System Based on Improved Particle Linkage (IPL) Theory	Hengrui Liu	The Hong Kong Polytechnic University	Flash	12:15 – 12:20
9	Evaluation of Viscoelastic Properties in Fresh Cement Paste with CO ₂ Mixing	Kaiyin Zhao	The Hong Kong Polytechnic University	Flash	12:20 – 12:25
10	Innovative Development of Carbon-Sink High-Strength Foam Concrete for Carbon Neutral Applications	Dingqiang Fan	The Hong Kong Polytechnic University	Flash	12:25 – 12:30

Day 2: 13 December 2024 (Friday)					
Session D1		Advanced Low-Carbon Technologies			Room Z205
Chairmen		Yogarajah Elakneswaran (Hokkaido University) Ze Liu (China University of Mining and Technology (Beijing))			14:00 – 15:30
1	Application of "Wastes" in Green Ultra-High Performance Concrete: Mechanism and Prospect	Rui Yu	Wuhan University of Technology	Oral	14:00 – 14:15
2	Morphologic Control of Graphitic Carbon Nitride for Photocatalytic Hydrogen Production	Huiqing Fan	Northwestern Polytechnical University	Oral	14:15 – 14:30
3	Carbon Reduction Strategies for High-Performance Lightweight Concrete towards Modular Integrated Construction Applications	Jianxin Lu	The Hong Kong Polytechnic University	Oral	14:30 – 14:45
4	Rheological Behavior and Structural Evolution of Blast Furnace Slag-Based Alkali-Activated Paste with SAP	Dengwu Jiao	City University of Hong Kong	Oral	14:45 – 15:00
5	A Brief Talk on the Inorganic Nanoparticle Additives in Sulphoaluminate Cement from Solid Waste-Taking TiO ₂ and CaCO ₃ as Examples	Fangjie Pang	Southeast University	Flash	15:00 – 15:05
6	Particle Packing Model of High Content Phosphogypsum Cementitious Materials with Dense Structure and High Surface Active Reaction	Zhengkang Yu	Wuhan University of Technology	Flash	15:05 – 15:10
7	Preparation of In Situ Nano-Silica with Controlled Yield Percent for Improving Cement Pastes Performance	Saqib Iqbal	Southeast University	Flash	15:10 – 15:15
8	The Solidification of Pb, Zn and Cd by Spontaneous Combustion Gangue Geopolymer and the Depolymerization and Reconstruction Mechanism	Xiao Han	Dalian University of Technology	Flash	15:15 – 15:20
9	Synthesis of Vaterite via Wind-Suspended Carbonation	Kuizhou Liu	Hunan University	Flash	15:20 – 15:25
10	Development of Value-added Aerogel from Waste Glass by CO ₂ Extraction for Lightweight Insulating Concrete: Towards Energy Conservation in Buildings	Xudong Zhao	The Hong Kong Polytechnic University	Flash	15:25 – 15:30

Day 2: 13 December 2024 (Friday)					
Session D2		Mineral Carbonation Materials as SCMs			Room Z207
Chairmen		Martin Cyr (Toulouse University) Jiangshan Li (Chinese Academy of Sciences)			14:00 – 15:30
1	Enhancing Internal Curing in Alkali-Activated Slag with Superabsorbent Polymer and Limestone Powder	Bo Li	University of Nottingham Ningbo China	Oral	14:00 – 14:15
2	Development of Low-Carbon Concrete Materials by Reusing the Fine Fraction of Concrete Waste	Xiaoliang Fang	Ningbo University	Oral	14:15 – 14:30
3	Hydration Behavior of Carbonated Waste Paste Calcined Clay Cement	Qing Liu	National University of Singapore	Oral	14:30 – 14:45
4	Correlation between Strength and Non-Destructive Ultrasonic Measurements on Early Age Carbonated BOF Slag	Winnie Franco Santos	Eindhoven University of Technology	Oral	14:45 – 15:00
5	Turning MSWI Bottom Ash into Valuable SCM via a Combination of Alkaline Activation and Early-age Ambient-Pressure Carbonation Curing	Zhe Yu	City University of Hong Kong	Flash	15:00 – 15:05
6	Comparison of Evaluation Methods for Pozzolanic Reactivity of Steel Slag with and without Carbonation	Yuanyuan Shen	Hunan University	Flash	15:05 – 15:10
7	A Novel Internal Carbonation Method for Utilization of Steel Slag-Based Binder: Strength, Microstructure, and In-Situ Carbon Migration	Weiwei Chen	The Hong Kong Polytechnic University	Flash	15:10 – 15:15
8	Development of Reactive Carbonate-Calcined Clay-Cement (C4) Composites through Synchronizing Aluminate-Carbonate Reaction: Toward High Compressive Strength and Low Carbon Emission	Yingliang Zhao	The Hong Kong Polytechnic University	Flash	15:15 – 15:20
9	Development of Highly Active Calcium Carbonate through Anhydrous Carbonation: Influence on the Performance and Hydration of Sulfoaluminate Cement-based Materials	Kai Cui	The Hong Kong Polytechnic University	Flash	15:20 – 15:25
10	Synergistic Effect of Pozzolanic Activity of Recycled Red Brick Fines and Carbonated Recycled Concrete Fines as Highly Active Supplementary Cementitious Material	Yong Zheng	The Hong Kong Polytechnic University	Flash	15:25 – 15:30

Day 2: 13 December 2024 (Friday)					
Session D3		Durability of CO ₂ Enabled Concrete			Room Z209
Chairmen		Chul-Woo Chung (Pukyong National University) Yunhua Zhang (Hubei University of Technology)			14:00 – 15:30
1	CO ₂ -Induced Corrosion and Bonding Strength Evolution of the Steel-Concrete Interface Exposed to CO ₂ up to 1000 kPa Partial Pressure	Liwei Zhang	Chinese Academy of Sciences	Oral	14:00 – 14:15
2	The Improvement of Corrosion Resistance of Wet-cast Concrete subjected to Early-age Ambient Pressure Carbonation Curing	Xiangping Xian	City University of Hong Kong	Oral	14:15 – 14:30
3	Effect of Carbonated Fine Recycled Concrete Aggregate on Durability	Chao Qun Lye	National University of Singapore	Oral	14:30 – 14:45
4	Durability Investigation of Concrete Containing Carbon Capture and Utilization (CCU) Materials	Kumar Avadh	Kajima Corporation	Oral	14:45 – 15:00
5	Damage Evolution and Fracture Mechanism of Concrete with Full Carbonated Recycled Aggregates	Yuxiang Tang	Changsha University of Science and Technology	Oral	15:00 – 15:15
6	Study on Dynamic Mechanical Behavior and Damage Evolution Mechanism of Fiber Reinforced Cemented Tailings Backfill	Shizhuo Zou	University of Science and Technology Beijing	Flash	15:15 – 15:20
7	Prediction and Optimization Design of Concrete Chloride Diffusion Coefficient based on Machine Learning Approach	Yiwei Zhang	Southeast University	Flash	15:20 – 15:25
8	Impregnate Carbonation: CO ₂ -Guided In Situ Growth of Robust Superhydrophobic Structures on Concrete Surfaces	Long Jiang	The Hong Kong Polytechnic University	Flash	15:25 – 15:30

Day 2: 13 December 2024 (Friday)					
Session D4		Life Cycle Analyses and Quantification of CO₂ Uptake			Room Z211
Chairmen		Shin-ichi Igarashi (Kanazawa University) Maciej Zajac (Heidelberg Materials AG)			14:00 – 15:30
Invited Speech: Carbon Sequestration through Concrete Carbonation: Enhancing Low-Carbon and High-Performance Concrete for a Sustainable Built Environment Sze-dai Pang, National University of Singapore					14:00 – 14:20
1	Carbon Dioxide Emission Reduction Benefits and Cost Savings Calculation for the Utilization of Recycled Aggregate from Highway Demolition	Ming Yang	China Communications Construction Co., Ltd.	Oral	14:20 – 14:35
2	The Negative Emission Potential of Industrial Solid Wastes: Carbonation Efficiency Evaluation and Constraints in CO ₂ Reduction	Yikai Liu	University of Grenoble Alpes and University of Savoie Mont Blanc	Oral	14:35 – 14:50
3	Carbon Neutral Potential of the Concrete Recycling Process through CO ₂ Sequestration from Flue Gases	Svetlana Besklubova	The University of Hong Kong	Oral	14:50 – 15:05
4	A Potential Carbon Sink: Recycled Aggregate Stockpiles	Yunlu Hou	Chinese Academy of Sciences	Oral	15:05 – 15:20
5	Carbonated Recycled Concrete Powder as an Alkali-Activated Binder: Performance Optimization and Environmental Evaluation	Wenjing Zhao	Tongji University	Flash	15:20 – 15:25
6	Estimation of CO ₂ Capture through Concrete Weathering Carbonation in Mainland China in the Past 30 Years	Xin Shao	Hunan University	Flash	15:25 – 15:30