

2nd MC3 Conference

MAIN CONFERENCE PROGRAM(TENTATIVE)

Notes:

Full oral: 15 minutes (10-minute presentation + 5-minute Q&A)

Short oral: 7 minutes (5-minute presentation + 2-minute Q&A)

The program is tentative and may be revised depending on the registration status of the presenters.

Monday, 28 September 2026

9:00-11:00	Welcome address 3 Plenary Lectures
11:00-11:30	Coffee break
11:30-12:30	Full oral session
12:30-14:00	Lunch
14:00-16:00	Full oral session
16:00-16:30	Coffee break
16:30-18:00	Short oral session
18:00-19:00	Poster session

Tuesday, 29 September 2026

8:30-10:15	Full oral session
10:15-10:45	Coffee break
10:45-12:30	Short oral session
12:30-14:00	Lunch
14:00-15:00	2 Plenary Lectures
15:00-17:00	Full oral session
19:00	Banquet

Wednesday, 30 September 2026

8:30-10:15	Full oral session
10:15-10:45	Coffee break
10:45-12:30	Short oral session
12:30-14:00	Lunch
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Monday, 28 September 2026

9:00-11:00	Welcome address 3 Plenary Lectures		
11:00-11:30	Coffee break		
Full oral session			
11:30-12:30	Carbonatable binders	Mineral carbonation in MgO-based cements	Ellina Bernard
		Effect of C2S Phase Composition on Carbonation Performance of CO2-Fixing Admixtures	Masataka Ushiro
		Volume Change of β-C2S Particles during Carbonation	Taiki Watanabe
		Carbon-negative upcycling of extremely acidic wastewater via bioinspired mineralization	Kaiyun Huang
12:30-14:00	Lunch		
Full oral session			
14:00-16:00	Carbonation hardening of concrete products/ Utilization of CO2-treated materials as concrete components	The Development and Actual Application of Carbonated Glass Fiber Reinforced Stay-in-place Formwork	Kengo Seki
		Study the Effect of Carbonation Curing on Bending Strength and CO2 Footprint of Low-OPC Clinker Reinforced Stay-in-place Formwork	Kumar Avadh
		Mechanical properties and carbonation behavior of concrete using CO2-absorbing/cured cementitious material	Yoji Omorai
		Effect of Different Sulfate Sources on the Early Rheology and Hydration Kinetics of Carbonated Cement Pastes in OPC Systems	Lukas Deffner
		Synergistic effects of carbonated recycled concrete aggregates, delithiated β-spodumene and GGBFS	Diego Aceituno Aceituno
		High-Purity CaCO3 Recovery from Concrete Waste via Temperature- and Pressure-Controlled CO2 Mineralization	Nami Hasegawa
		Effect of carbonated magnesium on magnesium-based binders	Labeed Ahmad Ahmad
	Synthesis of Precipitated Calcium Carbonate via CO2 Mineralization using By-Product Calcium Sources and Flue Gas	Kanako Matsuse	
16:00-16:30	Coffee break		
Short oral session			
16:30-18:00	CO2 activation of waste powders/ CO2 treatment of solid wastes	Enhanced hydration of steel slag through internal carbonation induced by sodium bicarbonate	Ahyeon Lim
		Surface activation of granite waste powder with carbon dioxide for sustainable concrete	Adrian Chajec Chajec
		Carbonation of Recycled Cement Paste to Produce Supplementary Cementitious Materials	Kingshuk Mukherjee
		Sonochemistry-driven Accelerated Carbonation of Solid Wastes: Structural Alteration and Mass Transfer Boost	Zhenjiang GU
		CO2 treatment for construction and demolition waste	Vladislava Kokhno
		Amino acid salts for enhanced CO2 capture and mineral carbonation of BOF slag	Luka Ceyssens
		Influence of water addition on process control and CO2 uptake during the hydrothermal carbonation of RCA	Lisa Frankenhauser
		Unlocking the carbonation reactivity in Ca-Fe phase of steel slag through high-gravity carbonation	Qifeng Song
		Effect of Al/Si Ratio on the Reactivity of Waste- and Two-step Carbonation-Derived Alumina-Silica Gel	Shunmin Xiao
		Assessing amine-based accelerated carbonation of mechanically activated recycled concrete aggregate: A techno-economic study.	Oliver James Beecroft
		Properties of concrete using carbonated sludge water as mixing water	Emika Kuroiwa
		Effect of Relative Humidity on Carbonation of Aqueous Amine-mixed Hydrated Cement Paste	Harshani Iresha
18:00-19:00	Poster session		

Tuesday, 29 September 2026

Full oral session			
8:30-10:15	CO2 activation of waste powders/ CO2 treatment of solid wastes	Phase assemblage, structure and reactivity of wet-carbonated blended cements with CAS glass as model SCMs	Fabian Niewöhner
		Rheology of Carbonated Demolition and Industrial Wastes: Time-dependence and Superplasticizer Compatibility	Sruthi Sreeram
		Mineral carbonation using waste concrete powder with NH4NO3	Namgyu Park
		Direct and indirect wet carbonation of industrial residues and their use as supplementary cementitious materials	Frank Winnefeld
		Comparison of Carbonation Pathways Toward Enhancing the Cementitious Potential of Non-Ferrous Metallurgy Slags	Ekin Türkü Van Vlaenderen
		Effect of Carbonation on Activation of BOF Slag: Role of C2S and Brownmillerite	Sahar keshavarz
		Carbonation-relevant phase development in recycled concrete-derived materials for circular clinker and CO2 mineralisation	DIEGO JESUS DE SOUZA
10:15-10:45	Coffee break		
Short oral session			
10:45-12:30	Durability and properties of carbonated or CO2-treated cementitious materials/ Utilization of CO2-treated materials as concrete components	Effect of Carbonated Concrete Slurry Residuals on Strength Development of Blast-furnace Slag Cement Mortar	Shuichi Ando
		Effect of Calcium Carbonate Morphology on the Sulfate Resistance of Mortar in Low-Temperature Environment	Yuki Yokokawa
		Carbonation-Induced Phase Evolution and Environmental Performance of DRI-EAF Slags as SCM	Morteza Tayebi
		Phase evolution of magnesium carbonate cement under hydrothermal aging	Hoang Nguyen
		MICROSTRUCTURAL DENSIFICATION AND CHLORIDE RESISTANCE OF GGBFS CONCRETE UNDER CO2 MIXING AND CO2 CURING	Kartik Saini
		Enhanced durability of UHPFRC under aqueous carbonation attack: Composition-driven thermo-/kinetic synergy of carbonation resistance and crack self-healing	Qiaomu Zheng
		Moisture Transport in Carbonated Cementitious Materials – A Review	Hendrik Schulz
		CO2 Seeding Admixtures for Enhanced Concrete Activation	Shipeng Zhang
		Utilization of CCU-Derived Calcium Carbonate in Concrete: Material Properties and Field Applications	Shigeyoshi Miyahara
		Study on Reactions of Cement and Ground Granulated Blast-Furnace Slag Mixed with Carbonated Cement-based Material	Yusuke Ishii
		Properties of concrete made with cement containing artificial limestone derived from waste gypsum as minor additional constituents	Kazuya Honda
		Assessment of the pozzolanic reactivity of silicates from mineral carbonation as a novel SCM	Dushadhi Athapaththu
12:30-14:00	Lunch		
14:00-15:00	2 Plenary Lectures		
Full oral session			
15:00-17:00	Carbonation enhancement of supplementary cementitious materials	Effect of Carbonation on the Mineralogy and Early Hydration Kinetics of Magnesium-Rich Mine Tailings as Supplementary Cementitious Materials	Mengfan Yu
		Hydration and Strength of Slag-Blended Cement Paste with Amines under Carbonation	Jiali Tu
		Use of BOF Steel Slags as carbonated SCMs - Part 1: Carbonation behavior	Christian Felten
		Use of BOF Steel Slags as carbonated SCMs - Part 2: Environmental behavior in free and cementitious systems	Katharina Franken
		Role of Gel Formation and Carbonated Products Induced by Carbonation and Sodium Carbonate in FA-GGBS One-Part Geopolymers	Patharapong Supparanon
		Scaling Novel SCMs via Carbonation of Magnesium and Calcium Silicates to Industrial Scale	Lena Müller
		Microstructural Characterisation of Carbonation Hardened Foam Concretes	Mustafa Cem Usta
		Steel corrosion implications of carbonation of concrete using low-clinker binders – A reactive-transport modeling study	Burkan Isgor
19:00	Banquet		

Wednesday, 30 September 2026

Full oral session			
8:30-10:15	Durability and properties of carbonated or CO2-treated cementitious materials	Low-Carbon Pervious Concrete as a Durable and Efficient CO2 Storage Material	Zhidong Zhang
		Utilization of carbonic anhydrase-treated recycled concrete aggregates in concrete: CO2 uptake and mechanical performance	Xiulin Chen
		Effect of Lightweight Aggregate Size on Chloride Migration Resistance in Internal CO2 Curing System	Jisu Han
		Effect of Specimen Size of Cementitious Materials on CO2 Uptake Amount	Luge Cheng
		Gypsum formation from ettringite in carbonated recycled concrete aggregates: relevance for sulfate behavior in fresh concrete	Leila Nobrega Sousa
		Leaching Characteristics of Amine-Modified Cement Pastes	Zhijian Li
		Carbonation Curing of Low-Carbon Engineered Cementitious Composites (ECC) with Portland Limestone Cement and GGBFS	Wei-Hsiu Hu
10:15-10:45	Coffee break		
Short oral session			
10:45-12:30	Mechanism of mineralization process/ Carbonatable binders	Carbonation of C-S-H Immersed in Potassium Carbonate Solution	Keisuke Mitome
		Thermodynamic Stability and Formation Mechanisms of Siderite in CO2 Mineralization Pathways	MOHAMMAD REZAEI
		A Mechanistic Understanding of Olivine Dissolution for Carbon Sequestration	Binglu Wang
		Unlocking the ITZ: How Enforced Carbonation Could Redefine Concrete Demolition Waste Separation	Tobias Bader
		Atomistic Mechanism of Silicate Leaching from Calcium Silicate Hydrate (C-S-H)	JESWIN JIJI
		Decomposition of the Layered Tobermorite into Silica Gel during Carbonation Revealed by Water Vapor Sorption Isotherms	Ryusei Igami
		Carbonation of Blended Cements: Microstructural comparison between natural and accelerated carbonation	Sudharsan Rathna Kumar
		Time-resolved slurry carbonation of PC- and LC3-based binders with calcite and vaterite: mineralization kinetics, phase evolution, and retained reactivity	Aron Berhanu Degefa
		Reactive Vaterite Cement: Phase Transformation and Hardening Mechanism	Yi Jiang
		Development of a High-Strength Cementless Steel Slag Binder via Glycine Activation and Carbonation Curing	Seohyun Kim
		Understanding the Role of PVA fibers and Stain Rate on the Dynamic Damage Mechanism of γ-C2S Carbonated Compacts	Ping Li
		Can Siderite Stability Be Engineered for Its Use as a Binder in Mineral Carbonation Systems?	Vineet Shah
12:30-14:00	Lunch		
14:00-15:00	2 Plenary Lectures		
Full oral session			
15:00-16:00	Mechanism of mineralization process	Atomic scale investigation of the CaCO3 prenucleation clusters in cements	Aden RANA
		Carbonation-induced evolution of steel slag compacts revealed by in-situ synchrotron X-ray microtomography	Mingyu Wang
		Understanding the Carbonation Kinetics and Mechanisms of Pure-Phase Tricalcium Aluminate (C3A)	Omnya Abdalla
		Structural stability of Calcium Carbonate polymorphs and Substitution Effects from First-Principles Modeling	Batoul Assi
16:00-16:30	Coffee break		
Short oral session			
16:30-18:15	Carbonation enhancement of supplementary cementitious materials/ Life cycle assessment and CO2 uptake quantification/ Carbonation hardening of concrete products	Carbonation-Based Valorisation of Basic Oxygen Furnace Slag for Partial Sand and Cement Replacement: Methods and Physical Property Evaluation	Sota Yamada
		The Significance of Water Content in the Porosity Assessment of Hardened Cementitious Materials under Accelerated Carbonation	Karen Midori Masunaga
		Reaction-Regulated Carbonation: a transferable platform technology CO2 Mineralization and Binder-Efficiency Enhancement in Cementitious Materials	Jialai Wang Wang
		Concurrent milling and carbonation of various industrial by-products and wastes for use as supplementary cementitious materials	Claudia Burbano Burbano
		Additives for Selective Enhancement of MgCO3 Solubility under Alkaline Conditions	Fangyuan Ren
		Integrated Numerical and Experimental Study on CO2 Mineralization of Hydrated Cement-Free Binder Made of Slag-Calcite	Krishnya Siventhirarajah
		Seawater-based dissolved inorganic carbon-mediated carbonation of recycled concrete fines for morphology tuning	Slyvester Yew Wang Chai
		Development and Application of Carbon-Negative wave-breaking blocks	Mio Sakai
		Comprehensive Assessment of Multi-Recycled Aggregate Concrete under CO2 Curing	Xin Shao
		Quantitative Analysis of CO2 Uptake in Concrete Cylinders Based on Bulk Grinding and Depth-Resolved Sampling Techniques	Kazuya Yamashita
		A framework for accounting for CO2 management services provided by mineral carbonation products	Fernanda Belizario-Silva
		CO2 uptake and mineral carbonation quantification in MgO-based binders	Vincent Hallet
		Development of Carbon Capture and Storage Foamed Concrete Towards Higher Performance	Dingqiang FAN
		Delayed Strengthening and High-Strength Development in Subzero Carbonation of a Dicalcium-silicate-Rich Binder	Yicheng Tan
		European Innovation Council X-SeeO2 project: “Real-time X-ray diffraction and microstructure imaging of cement curing”	Miguel A.G. Aranda

Poster session(TENTATIVE)

Monday 28 September 2026

18:00-19:00

Analysis of Rebar Corrosion in CO ₂ -Mineralized Cementitious Composite	Sanghyeon Cho
Carbonation and Strength Characteristics of CO ₂ -Cured Concrete Using Biochar-Coated Recycled Coarse Aggregates	KIM MINJE
Effect of particle size distribution of basic oxygen furnace slag on CO ₂ uptake and pozzolanic reactivity	Dong-Wook Lee
Status Analysis of Certification Acquisition to Promote the Use of Low-Carbon Concrete and Recycled Aggregates in Korea	Sungmo Seo
CO ₂ Fixation in Concrete Fines Generated during the Production of Recycled Concrete Aggregate	Masaaki Matsushima
Development of Limestone Calcined Clay Cement (LC3) binder through Mineral Carbonizing Chlorine Bypass Dust (CBPD)	Sumin Jeong
Molecular Dynamics Simulation of pH-Dependent Carbonation of Tricalcium Aluminate Using the Interface Force Field	AMAL MATHYAS mathyas PUTHENPURAYIL SHOBY
Atomistic Insights into the Role of Water in CaCO ₃ Crystallization via Metadynamics Molecular Dynamics Simulations	Takumi Saito
Carbonation in Graphene–Carbon Black Modified Cement Pastes	Nghia Phuc Tran
Unraveling MDEA and HEPZ Enhanced CO ₂ Activation on C-S-H Surfaces: A First-Principles Study	Long Luo
Experimental study on CO ₂ capture during concrete mixing	Osamu Hashimoto
Effect of printing-induced fiber alignment on CO ₂ sequestration of reactive MgO cement	Yanchen He
Organofunctional Silane Engineering of Steel Slag Slurry for Enhanced CO ₂ Mineralization in High-Gravity Carbonation	Zambaga Otgonbayar
Development of Low-Carbon Engineered Cementitious Composites (ECC) Using Carbonated Construction Waste	Zhenghao LI
Carbonation Pathways of C–S–H at an Early Stage Revealed by Solid-State ¹³ C/ ²⁹ Si NMR	Sayuri Mochizuki
A Simplified Method for Estimating Chemical Admixture Dosage Based on the Bulk Density of Precipitated Calcium Carbonate	Yosuke Mitsumori
Sustainable Cement Composites with Improved CO ₂ Sequestration Using Rice Husk Ash and In-Situ CO ₂ Mixing	Donggue Lee
Development of a Life Cycle Decision-Making Platform for Construction Materials Incorporating CO ₂ Sequestration Technologies	Hyun Mi Cho
Enhancement of the microstructure of adhered mortar of returned concrete aggregate by wet carbonation treatment	Aojoy Kumar Shuvo
Calcium aluminate in carbonated matrices: passivation induced by carbonation and reactivation via carboaluminate reaction	Canyu Lv
Lime cement mortars with CDW and quarry dust as fine aggregates: a screening study for carbonation oriented design	Arnaldo Manoel Pereira Carneiro
Effect of Natural Fiber in Reactive Magnesia Volume Change	Pauline Rose Quiatchon
Analysis of Strength and Pore Morphology in Carbonated Ordinary Portland Cement Pastes using X-ray Nanoimaging	Minjae Han
Pressurized CO ₂ -Enhanced Carbonation of Fly Ash under Different L/S Ratios	Qi XU

Poster session(TENTATIVE)

Monday 28 September 2026

18:00-19:00

Effect of Carbonation on the Mechanical Properties of Calcium-Activated Slag System Evaluated by Non-Destructive Testing	Jiyeon Park
Influence of Cement Type and Hydration Curing Period on CaCO ₃ Polymorph Selectivity during Carbonation Curing	Hayato Takahashi Takahashi
Carbonation hardening of recycled mortar cast with recycled concrete fine aggregates	Henrique Comba Gomes
Impact of Pre-Curing Strategy on the Mechanical Performance of Steel Slag-Based Carbon-Cured Concrete	Marie-Laure Heyndrickx
Amine-regulated hydration pathways and carbonation coupling in cement system	Xiaobo Niu
Effect of Early-Age Carbonation Curing on Subsequent Hydration of OPC Paste under Varying Pre-Curing Durations	Charitha Vootukuri
A Study on Characteristics of Concrete Using Carbonated Dried Sludge Powder	Hiroki Sugimoto
Basic Study of Analytical Method for Inorganic Carbonate Using Thermogravimetry	Tetsunari Mizuno
Advanced Carbon Mineralization Theory and Technology for Solid Waste	Peiliang Shen
Mineralization of Industrial Residues for CO ₂ Sequestration and Circular Construction Applications	Jan Suchorzewski
Acetic acid in aqueous carbonation of BOF steel slag: influence on carbon capture and reactivity.	Giuseppe Ferrara
Multiphase pore structure in recycled concrete: How carbonated fines and aggregates optimize durability through pore refinement?	Diana Gomez,
Development of a Fast and Cost-Effective Laboratory Method for Carbonating Recycled Infra-Lightweight Concrete Powder	Johannes Maria Berger
Mechanisms of coupled carbonation-compaction in non hydraulic C ₂ S rich slag-based hybrid cement incorporating industrial brines	Fatima ELHAFIDI
Evaluation on the reactivity of wet carbonated basic oxygen furnace slag caused by the addition of diethanol-isopropanolamine	Yunkyung Lee
Effect of Carbonation Curing Regimes on Compressive Strength and Nanoscale Pore Structure of Ordinary Portland Cement Paste	do hyun kim
Proposal of Quantification Models for CO ₂ Fixation in Mineral Carbonated Cement Composites.	hyangsun Lee
Sustainability & Carbon Capture in 3D Concrete Printing	Ming-Jen Tan
Roles of Biochar in Improving Carbon Sequestration in Cement-based Materials	ZHAOCHENG LI
Thermophysical Properties of Carbon-Negative Concrete -Specific Heat Capacity and Thermal Conductivity-	Haruka Abe
Carbonation mechanism of synthetic calcium silicatehydrates	Aslam Kunhi Mohamed
Pore Structure Transformation of Cement Paste due toAccelerated Carbonation	Muhammad Haseeb Zaheer