

ACF2022_ETSL

The 4th Asian Concrete Federation Symposium on Emerging Technologies for Structural Longevity



CONFERENCE MANUAL

Shenzhen, CHINA 27~29 November, 2022

ACF2022_ETSL

Emerging Technologies for Structural Longevity

4th Asian Concrete Federation Symposium on

Introduction	1
Program at a glance	2
Registration & Accommodation	3
International Scientific Committee	4
International Organizing Committee	6
Keynote Speakers	7
Keynote Session	9
<i>fib</i> MC2020 Workshop	10
Program of <i>fib</i> MC2020 Workshop	11
Parallel Sessions	12



Organizer



Asian Concrete Federation

Co-Organizers





Supporting Organizations

- China Civil Engineering Society
- Japan Society of Civil Engineers
- The International Federation for Structural Concrete
- International Union of Laboratories and Experts in Construction Material Systems and Structures
- American Concrete Institute
- Japan Concrete Institute
- Korea Concrete Institute
- Guangdong Key Laboratory of Durability in Marine Civil Engineering
- Shenzhen Key Laboratory of Durability in Civil Engineering

Introduction

Between 27 and 29 November 2022, the 4th Asian Concrete Federation Symposium on Emerging Technologies for Structural Longevity (ACF2022_ETSL) will be held in Shenzhen, China. On behalf of the International Scientific Committee and the International Organizing Committee of this symposium, we would like to thank you for your active participation and valuable contribution.

As one of the largest concrete symposiums in Asia, it is our great privilege to jointly host this event with the College of Civil and Transportation of Shenzhen University and the Department of Civil and Environmental Engineering of Hong Kong and Polytechnic University. We are honored to announce that there are 10 distinguished academic professors and industry professionals will present as keynote speakers at this symposium. The International Scientific Committee has received more than 200 submissions from 10 countries. Among these, over 150 submissions have been accepted and will present at this symposium. 14 parallel special sessions with different topics will be hosted simultaneously during the conference. In addition to this symposium, *fib* MC2020 workshop will be held online and free for all participants.

We sincerely hope that the successful hosting of this symposium could contribute to the sustainable development of concrete structures and promote the international collaboration of all aspects in this field. The organizers of the 4th Asian Concrete Federation Symposium look forward to welcoming you in Shenzhen, China!





Program at a glance

Nov.26 2022	13:00-22:00	Registration
Nov.27 2022	08:20-08:35	Opening Ceremony
	08:35-09:45	Keynote Session 1
	09:45-10:15	Group Photo
	10:15-12:00	Keynote Session 2
	12:00-14:00	Buffet Lunch
	14:00-18:00	Parallel Sessions
	19:00-20:00	Banquet
Nov.28 2022	08:00-12:30	Parallel Sessions
	12:30-14:00	Buffet Lunch
	14:00-17:15	Keynote Session 3&4 (Online Group Photo Scheduled)
	17:15-17:30	Closing Session
Nov.29 2022	15:00-20:10	fib MC2020 Workshop

Guidelines for Speakers

- The presentation document should be prepared in English.
- For keynote session speakers, presentation slots will be 35 minutes, with 3-5 minutes for questions and answers. Please prepare the slides in 16:9 format.
- For parallel session speakers, presentation slots will be 15 minutes, with 2-3 minutes for questions and answers. Please prepare the slides in 4:3 format.



Registration & Accommodation

Registration

Туре	Full Registration	Student Registration*
Fee	\$400 or ¥2500	\$200 or ¥1250

Full Registration includes: Participation in the symposium, Welcome reception, Banquet, Lunches, Coffee breaks

Student Registration includes: *Participation in the symposium, Lunches, Coffee breaks

All Speakers should register by the due date to have their accepted abstracts included in the online proceedings and scheduled for presentation.

ACCOMMODATION

Shenzhen Hyde Hotel (深圳海德酒店)

Address: China, Guangdong, Shenzhen, Nanshan District, No. 3368 Hou Binhai Road,

East Block 13F, Peng Runda Plaza

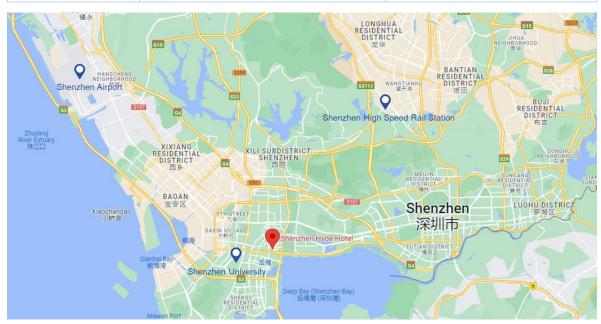
Contact: Ms. Qian Wang

Booking Hotline: +86 18938092228/+86 13414462256

Reception: +86 755 86929999

Please indicate the Special Code (ACF2022) when you make your reservation.

Type	Before 16 th November 2022	After 16 th November 2022
King Bed Room	¥558	¥618
Twin Bed Room	¥588	¥648







International Scientific Committee

Chairs

- Prof. Jian-Guo NIE, Tsinghua University
- Prof. Tamon UEDA, Shenzhen University
- Prof. Chang-Wen MIAO, Southeast University

Members

- Prof. Narantuya BATMUNKH, Mongolian Concrete Association
- Prof. Yin-Wen CHAN, Taiwan Concrete Institute Taiwan National University
- Prof. Dong-Uk CHOI, Korea Concrete Institute Hankyong National University
- Prof. Bahador Sabet DIVSHOLI, Singapore Concrete Institute
- Prof. Bi-Qin DONG, Shenzhen University
- Prof. Vyatcheslav R. FALIKMAN, Association for Structural Concrete (Russia)
- Prof. Xiang-Lin GU, Tongji University
- Prof. Vinay GUPTA, Indian Concrete Institute
- Prof. Le-Quang HUNG, Vietnam Concrete Association
- Prof. Jin-Yang JIANG, Southeast University
- Prof. Zheng-Wu JIANG, Tongji University
- Prof. Thomas KANG, Seoul National University
- Prof. Jin-Man KIM, Kongju National University
- Prof. Shi-Cong KOU, Shenzhen University
- Prof. Christopher LEUNG, Hong Kong University of Science and Technology
- Prof. Hui LI, Harbin Institute of Technology
- Prof. Ke-Fei LI, Tsinghua University
- Prof. Yue LI, Beijing University of Technology
- Prof. Zong-Jin LI, University of Macau
- Prof. Wu-Jian LONG, Shenzhen University
- Prof. Benjamin LUMANTARNA, Indonesian Society of Civil and Structural Engineers
- Prof. Guo-Wei MA, Hebei University of Technology
- Prof. David MILLAR, Concrete Institute of Australia
- Prof. Di-Tao NIU, Xi'an University of Architecture and Technology
- Prof. Takafumi NOGUCHI, Japan Concrete Institute, The University of Tokyo
- Prof. Thanakorn PHEERAPHAN, Thailand Concrete Association
- Prof. Chi Sun POON, Hong Kong Polytechnic University





- Prof. Chun-Xiang QIAN, Southeast University
- Prof. Jue-Shi QIAN, Chongqing University
- Prof. R. RADHAKRISHNAN, Indian Concrete Institute
- Prof. Cai-Jun SHI, Hunan University
- Prof. Somnuk TANGTERMSIRIKUL, Thailand Concrete Association
- Prof. Tavio TAVIO, Institut Teknologi Sepuluh Nopember
- Prof. Le Trung THANH, Vietnam Concrete Association Vietnam Institute for Building

Materials

- Prof. Fa-Zhou WANG, Wuhan University of Technology
- Prof. Bo WU, Guangzhou University
- Prof. Jian-Zhuang XIAO, Tongji University
- Prof. Feng XING, Shenzhen University
- Prof. Li-Hua XU, Wuhan University
- Prof. Duinkherjav YAGAANBUYANT, Mongolian Concrete Association
- Prof. Hiroshi YOKOTA, Japan Concrete Institute Hokkaido University
- Prof. Qi-Jun YU, Hefei University of Technology
- Prof. Zhi-Wu YU, Central South University
- Prof. Yun-Sheng ZHANG, Lanzhou University of Technology
- Prof. Yu-Xi ZHAO, Zhejiang University
- Prof. Ying-Wu ZHOU, Shenzhen University
- Prof. Ji-Hua ZHU, Shenzhen University





International Organizing Committee

Chair

Prof. Feng XING, Shenzhen University

Co-chairs

Prof. Jian-Guo DAI, The Hong Kong Polytechnic University

Prof. Ji-Hua ZHU, Shenzhen University

Members

Ms. Di CUI, Shenzhen University

Dr. Bo-Tao HUANG, The Hong Kong Polytechnic University

Dr. Ming-Feng KAI, The Hong Kong Polytechnic University

Dr. Mehran KHAN, The Hong Kong Polytechnic University

Dr. Le-Yang LV, Shenzhen University

Dr. Chun PEI, Shenzhen University

Dr. Jun WANG, Shenzhen University

Dr. Ling-Yu XU, The Hong Kong Polytechnic University

Ms. Yi-Hua YANG, Shenzhen University



Keynote Speakers

(Listed by name initials)



Dr. Akio Kasuga

President of The International
Federation for Structural Concrete(*fib*)
Executive Vice President, CTO,
Sumitomo Mitsui Construction, Japan



Prof. Sylvia Keßler

Helmut Schmidt University,
Germany



Prof. Jie LI

Academician of Chinese Academy of Sciences Tongji University, China



Prof. Zong-Jin LI

Institute of Applied Physics and Materials
Engineering
University of Macau, China



Prof. Chang-Wen MIAO

Academician of Chinese Academy of Engineering Southeast University, China



Prof. Jin-Ping OU

Academician of Chinese Academy of
Engineering
Harbin Institute of Technology
(Shenzhen), China



Prof. Hong-Gun PARK

President of Korea Concrete Institute, Korea



Prof. Jin-Guang TENG

Academician of Chinese Academy of Sciences The Hong Kong Polytechnic University, Hong Kong, China



Prof. Shi-Lang XU

Academician of Chinese Academy of Sciences Zhejiang University, China



Prof. Feng XING

Shenzhen University, China





keynote Session

(Listed by name initials)

Evolution of fib Model Code 2020

Akio Kasuga, Federation for Structural Concrete (fib)

Reliability assessment of NDT in Civil Engineering

Sylvia Keßler, *Helmut Schmidt University*

• Stochastic Damage Mechanics: Developments and Recent Progress

Jie LI, Tongji University

Topic to be confirmed

Zon-Jin LI, University of Macau

Green and Low-Carbon Construction Materials

Chang-Wen MIAO, Southeast University

Self-sensing FRP Products, Seawater Sea-sand /Nano Concrete and Corrosion-

free Smart Structures

Jin-Ping OU, Harbin Institute of Technology (Shenzhen)

Performance-Based Earthquake Design of Building Structure in Korea

Hong-Gun PARK, Korea Concrete Institute

• Structural Engineering Innovations with Emerging Materials for a Carbon-Neutral

Future

Jin-Guang TENG, *The Hong Kong Polytechnic University*

• Ultra-high Toughness Cementitious Composites (UHTCC) for Resilient and

Sustainable Infrastructures

Shi-Lang XU, Zhejiang University

Self-healing Materials and Technology for Marine Concrete

Feng XING, Shenzhen University



fib MC2020 Workshop

(Listed by name initials)



Prof. Carmen
ANDRADE
Instituto Eduardo
Torroja,
Spain



Dr. Gerrie
DIETEREN
TNO,
Netherland



Dr. Akio Kasuga fib President, Japan



Prof. Ke-Fei LI
Tsinghua
University,
China



Prof. Xi-Lin LVTongji University,
China



Dr. Stuart MATTHEWS

Chair of TG10.1

Model Code 2020,

Britain



Prof. Tamon UEDAShenzhen University,
China

The International Federation of Structural Concrete (*fib*) publishes the International Code for Structural Concrete, a model for national/regional code and a document that provides advanced information to engineers and researchers worldwide. *fib* MC2020 Workshop is co-hosted by ACF-Shenzhen University-The Hong Kong Polytechnic University and *fib*, and seven prestigious scholars are specially invited to serve as lecturers for this event.





Program of fib MC2020 Workshop

29th, Nov, 2022

Host: To be confirmed (Fully online, via zoom)		
15:00-15:30	Sign-in	
15:30-15:40	Welcome/Opening remarks	
	Akio Kasuga, Federation for Structural Concrete(fib)	
	Introduction+overview of MC2020, Sustainability and Life	
15:40-16:15	Cycle Management	
	Stuart MATTHEWS, Federation for Structural Concrete(fib)	
16:15-16:50	Durability and Service Life Design	
	Carmen ANDRADE, Instituto Eduardo Torroja	
16:50-17:25	Assessment of existing structures	
10.30-17.23	Gerrie DIETEREN, TNO	
17:25-17:40	Questions & Answers	
17:40-18:00	Break	
18:00-18:35	Seismic design of structures in China	
18:00-18:55	Xi-Lin LV, Tongji University	
18:35-19:10	Durability design of structures in China	
18:55-19:10	Ke-Fei LI, <i>Tsinghua University</i>	
	Conservation and interventions-A comparison of fib and	
19:10-19:45	Chinese perspectives	
	Tamon UEDA, Shenzhen University	
19:45-20:00	Questions & Answers	
20:00-20:10	Closing remarks-Round up of Workshop	
20.00-20.10	Xi-Lin LV, Tongji University	





Parallel Sessions

(Listed by the initial letter)

Durability and whole life performance of concrete structures

Organizer: Yao-Cheng Wang

- FRP/fibre textile-reinforced cementitious composites
 Organizer: Guang-Ming Chen, Yu Zheng, Ran Feng, Jun-Jie Zeng
- High/ultra-high performance fiber-reinforced cementitious composites
 Organizer: Wei-Wen Li, Jing Yu, Bo-Tao Huang, Ling-Yu Xu
- High-performance hybrid/composite structures combining concrete with various constructional materials

Organizer: Ju Chen, Fei Xu, Fang-Ying Wang

- Ionic Transport and Electrochemical Rehabilitation: Mechanisms & Techniques
 Organizer: Qing-feng Liu, Jie Hu, Jin Xia, Hongqiang Chu
- Improvement on the strengthening efficiency of concrete structures with advanced composite materials

Organizer: Da-Wei Zhang, Yi Wang

- Issues and measure for concrete structures in hot weather conditions
 Organizer: Shingo Asamoto, Yao Luan, Kohei Nagai, Somnuk Tangtermsirikul
- Limestone Calcined Clay Cement Concrete: Material Development, Physical Properties, Structural Implementation and Durability

Organizer: Yingwu Zhou, Zhenyu Huang, Pengkun Hou, Hongjian Du, Tiao Wang, Menghuan Guo

Low-Carbon and Sustainable Concrete

Organizer: Wu-Jian Long, Ganlin Feng, Chuang He, Hui Rong, Jin-Rui Zhang

 Novel & High-performance materials for sensing and improving the serviceability of transportation infrastructure

Organizer: Haijun Zhou; Jianzhong Liu; Bing Chen; Qiang Yuan; Cong Ma; Rui Zhou

Properties of seawater and sea-sand concrete (SSC)

Organizer: Xianfeng Wang, Jun Liu, Zhilu Jiang, Fang Yuan





Protection, restoration and reinforcement of concrete structures

Organizer: Cheng Chen

• Self-healing/self-immune concrete

Organizer: Zheng-Wu Jiang, Le-Yang Lv, Hong-Zhi Zhang, Hao-Liang Huang,

Du-Jian Zou

Sustainable construction materials towards carbon neutrality

Organizer: Ming-Zhi Guo

 The First Greater Bay Area Forum on Low Carbon Construction Materials and Technologies (LCCMT)

Organizer: Jian-Guo Dai, Biqin Dong, Guoxing Sun

Valorization of waste FRP composites for use in civil engineering

Organizer: Jian-Fei Chen, Chun Pei, Bing Fu, Rong-Qi Zhang





Parallel session: Durability and whole life performance of concrete structures

- Multiscale Modelling of Chloride Diffusivity in Unsaturated Concrete Cheng Liu, Southeast University
- Evaluation of bending load bearing capacity of RC beam subjected to partial heated and water cooling

Daiki Maehara, Gunma University

- Performance of Precast Concrete Joints in Cyclic Shear by using Prepacked Concrete. Edom Zewdie, *Yokohama National University*
- Determination of wind pressure tap location for high-frequency pressure integration test of concrete building

Hansol Lee, Department of Architecture and Architectural Engineering

- Calcium leaching from cement hydrates exposed to aggressive environments
 Ming Zhang, Harbin institute of technology (shenzhen)
- Influence of Cover depth and mortar quality on Rebar corrosion under aggressive chloride environment

Muhammad Afaq Khalid, Kanazawa Institute of Technology (KIT)

 Establishment of a prediction model of the failure thickness of concrete under sulfate attack

Shanshan Qin, Shenzhen Polytechnic

 Ultimate strength determination of reinforced concrete dapped end beams based on a physical model

Takeru Kanazawa, Hokkai Gakuen University

- Flexural behavior of RC one-way slabs strengthened by carbon FRCM system Tuvshin Ochirbud, *Hankyong National University*
- Thermo-hydro-mechanical Analysis of Saturation-dependent Creep Behavior for RC Beam under Sustained Load and Wet-dry Cycles

Yiping Yang, *Zhejiang university*

 Optimal Design of Precast UHPC Utility Tunnel based on Life Cycle Cost Analysis Zhanghua Xia, Fuzhou University





Parallel session: FRP/fibre textile-reinforced cementitious composites

- Development of 3D printable ECC and its bio-mimetic flexural members
 Jiangtao Yu, Tongji University
- Axial Behavior of CFRP Grid Confined Concrete
 Yi Tao, Xi'an University of Architecture and Technology
- Bending Tests of Corroded RC Continuous Beams Strengthened with ICCP-SS Dual-Function Retrofitting System

Ran Feng, Harbin Institute of Technology (HIT, Shenzhen)

- Development and Behavior of Novel FRP-UHPC Tubular Members
 Junjie Zeng, Guangdong University of Technology
- Local compressive behavior and seismic performance of ECC ring beam connection Bingqing Dong, *Shandong Jianzhu University*
- Fire resistance performance of concrete-filled steel tubular column protected by FRCR-ECC

Yan Xiong, *South China University of Technology*

 Bonding mechanism between FRP rebar and self-compacting concrete: a multiscale investigation

Qin Renyuan, *Dongguan University of Technology*

 Flexural Behaviour of Corroded RC Continuous Beams with C-FRCM Strengthening System

Panpan Liu, Harbin Institute of Technology, Shenzhen

 Shear performance of FRP and rubber cushion combination reinforced concrete beams

Meizhong Wu, Shenzhen University

 Seismic behavior of engineered cementitious composites coupling beams with low aspect ratio

Zuanfeng Pan, *Tongji University*

 Experimental and numerical investigation on the dynamic behavior of RC bridge columns confined with CFRP/ECC subjected to truck collision

Wenwei Wang, Southeast University

 Creep behavior of hybrid FRP-concrete-steel double-skin tubular columns under sustained loading

Guangming Chen, South China University of Technology





- Structural behavior of ECC link slabs strengthened with GFRP reinforcement Zheng Yu, *Dongguan University of Technology*
- Compressive behavior of UHPC under active confinement
 Shishun Zhang, Huazhong University of Science and Technology
- Experimental and numerical investigation of reinforced concrete beams strengthened with internal CFRP meshes in shear
 Bo Di, Dongguan University of Technology
- Interfacial approaches for toughness enhancement in fiber reinforced cementitious composite from nano to macroscale
 Huinan Wei, Harbin Institute of Technology
- Experimental study on mechanical properties of FRP-ECC super tough composite material





Parallel session: High/ultra-high performance fiber-reinforced cementitious composites

 Characterization and modification of interface transition zone in high performance fiber-reinforced concrete

Enhua Yang, Nanyang Technological University

- Sustainable Engineering Cementitious Composites (ECC) with granite fine as fine filler Shunzhi Qian, Nanyang Technological University
- Shear Failure Mechanism and Loading-Capacity Model of Reinforced ECC Beams
 Jinlong Pan, Southeast University
- Effect of waste clay brick powder on key performance of UHS-UHDCC Liping Guo, Southeast University
- Development of Basalt-fiber ECC
 Jian Zhou, Hebei University of Technology
- Effect of uniform and non-uniform corrosion on cracking propagation and bonding performance of mortar and ECC specimens
 Chuanging Fu, Zhejiang University of Technology
- Experimental and numerical investigation on the long-term performance of Engineered Cementitious Composites (ECC) with high-volume fly ash Cong Lu, Southeast University
- Advances of ECC micromechanics
 Junxia Li, Nanyang Technological University
- Numerical simulation of the tensile strain hardening and multiple cracking behavior of ECC/SHCC

Chang Wu, Southeast University

 Engineered/Strain-Hardening Cementitious Composites (ECC/SHCC) with an Ultra-High Compressive Strength over 210 MPa

Botao Huang, *The Hong Kong Polytechnic University*

 Mechanical Performance of Geopolymer Aggregate Engineered Cementitious Composites: Influence of Aggregate Sizes

Botao Huang, *The Hong Kong Polytechnic University*

 Recent Advances in self-healing performance of Engineered/Strain-Hardening Cementitious Composite (ECC/SHCC)

Feng Hu, Sun Yat-Sen University

 Finite element analysis of heavily-corroded reinforced concrete beam strengthened by high-strength Engineered Cementitious Composites

Zihao Song, Sun Yat-Sen University





 Strain-Hardening Behavior of Ultra-High Performance Concrete Based on Silane Modification of Polyethylene (PE) Fiber

Gaifei Peng, Beijing Jiaotong University

- Flow-induced steel fiber alignment for improving mechanical performance of UHPC Xiaojian Gao, Harbin Institute of Technology
- Multifunctional stainless steel wires reinforced ultra-high performance concrete for upgrading structural longevity

Baoguo Han, *Dalian University of Technology*

 Research on the effect of basalt fiber on physical and mechanical properties and microstructure of white silicate cement

Yue Li, Beijing University of Technology

 Material design and mechanical performance of Ultra-High Performance Geopolymer Concrete

Zuhua Zhang, *Hunan University*

 Study on mechanism of basic tensile creep of recycled fine aggregate ultra-high performance concrete

Tao Ji, *Fuzhou University*

New design approaches for Ultra-High Performance Concrete (UHPC)

Rui Yu & Zhonghe Shui, Wuhan University of Technology

 Preventive effect of fire spalling of the prestressed concrete beam with natural jute fiber

Michika Hashida, *Gunma University*

Fracture toughness of fiber reinforced geopolymer

Li Li, Northwest A&F University

 Effect of post-fire curing on strength recovery of thermally damaged ultra-high performance concrete

Ye Li, Harbin Institute of Technology, Shenzhen

 Strain-hardening cementitious composites with high volume fly ash and non-oiled PVA fibers

Chang Lin, *Hainan University*

Deep learning potential for predicting C-S-H/PVA/graphene interfaces

Xiaoye Zhou, Shenzhen University

 Conductive and Mechanical Performance of HyFRCC under Combining ICCP and Structural Strengthening Technology

Liangliang Wei, Shenzhen University

 Multi-Functional Performance of Hybrid Fiber Reinforced Cementitious Composite Containing PE and Carbon Fiber

Haowei Shen, Shenzhen University





Parallel session: High-performance hybrid/composite structures combining concrete with various constructional materials

 Load Distribution Factors in Curved Composite Multi-Box Girder Bridges with Corrugated Steel Web

Liyan Xu, *Beihang University*

- Comparison of Two Wind Turbine Hybrid Tower Transition Pieces: Reinforced Concrete Configuration, and Concrete-Filled Steel Tube Configuration Xiaogang Huang, Yuhang Wang, Chongqing University
- Experimental study on seismic performance of composite beam with laminated slabs using comprehensive anti-cracking technology

Juan Chen, Nanjing University of Aeronautics and Astronautics

 Compound Concrete Filled FRP Tubular Columns Containing Recycled Concrete Lumps

Guan Lin, Southern University of Science and Technology

 Lateral cyclic loading tests of precast recycled fine aggregate concrete shear wall with pressed sleeve connections

An He, South China University of Technology

 Eccentric Compressive Behavior of Circular Concrete-filled Steel Tubes with Internal Latticed Steel Angles

Ju Chen, *Zhejiang University*





Parallel session: Ionic Transport and Electrochemical Rehabilitation: Mechanisms & Techniques

• Effect of conductive coating on the cathodic protection and prevention of steel reinforcement in concrete

Luping Tang, Chalmers University of Technology

- Healing of concrete cracks by in-situ synthesis of ettringite induced by electric field
 Qing Chen, Tongji University
- Chloride Penetration into Steam Cured Concrete at Tidal Zone Penggang Wang, Qingdao University of Technology
- Reactive-transport numerical model in reinforced concrete structures with chloride attack and the active electric field corrosion control
 Bingbing Guo, Xi'an University of Architecture and Technology
- A novel method for assessing C-S-H chloride adsorption in cement pastes Honglei Chang, Shandong University
- Chloride transport in fiber reinforced mortars under unsaturated and saturated conditions

Lin Yang & Zhudi Cao, *Zhengzhou University*

- Effect of Stress on Corrosion Behavior of Steel Bars Embedded in Concrete
 Jiejing Chen & Jin Xia, Zhejiang University
- Numerical study on electrochemical rehabilitation methods for reinforced concrete damaged by various factors

Zhaozheng Meng & Qingfeng Liu, Shanghai Jiao Tong University

 Oxygen transportation into non-saturated concrete and induced corrosion of steel bar

Zuquan Jin, *Qingdao University of Technology*

 Integrated technology of electrochemical chloride extraction and reinforcement of corroded reinforced concrete

Yue Li, Beijing University of Technology

 Mechanical performance of concrete structure component after Electrochemical Rehabilitation

Jianghong Mao, Sichuan University

 Case studies of cathodic prevention and cathodic protection for reinforced concrete structures and steel-framed masonry structures

Yuyou Wu, Foshan University





 Experimental Study on the Repair Effect of Electrochemical Chloride Extraction for Corroded Reinforced Concrete

Kazuhide Nakayama, *Tokyo Institute of Technology*

- The influence of lightweight functional aggregates on the acidification damage in the external anode mortar during cathodic protection for reinforced concrete
 Wenhao Guo & Jie Hu, Foshan University & South China University of Technology
- Improvement in the microbially induced corrosion resistance of concrete sewers using Cu₂O electrode position

Hongqiang Chu, *Hohai University*

 Electrochemical Realization of High-Performance Carbon Fiber as Electrode Materials for Cement-Based Systems

Hongtao Yu, Shenzhen University

- Numerical Evaluation of Space Averaging of Electric Field, Macro-cell Corrosion of Reinforcement and Anti-corrosion with Verification
 - Zhao Wang, Yokohama National University
- Study of the anode degradation behavior of various CFRP materials in ICCP system Bao Zhong, Shenzhen University





Parallel session: Improvement on the strengthening efficiency of concrete structures with advanced composite materials

- Bond behavior of UHPC-based TRC plate under freeze-thaw cycles
 Yi Wang, Central South University
- Hybrid strengthening of concrete beams with shape memory alloy and carbon fiber reinforced polymer plates

Jun Deng, Guangzhou University

 Bond properties of deformed steel bar with geopolymer incorporating multi-walled carbon nanotubes under monotonic load.

Weitao Li, Wuhan University

• Fatigue Performance of Superimposed T-girders under Cyclic Overloading: an Experimental Study

Zhiyu Xie, Zhejiang University

 How to improve the mechanical performance of FRCM and FRCM-strengthening: a review

Zhiyu Xie, Zhejiang University

Factors Affecting the Ductility of CFRP-to-concrete Bonded Joints with End Anchors:
 A Theoretical Study

Hao Zhou, Central South University

- Detection of CFRP-concrete bond defects by using electrical measurements Jianyan He, *Guangdong university of technology*
- Toughness Enhancement of Equivalent Self-Compacting Concrete Mortar Through Synergistic Effects of Multi-component

Zhuo Tang, Central South University

 Flexural behavior and design methods of concrete beams reinforced with a combination of FRP and steel bars

Shui Liu, Southeast University

 Axial Compressive Performance of Rectangular Short Concrete Column Strengthened with CFRP Grid Reinforced ECC Matrix

Hailong Wang, Zhejiang University





Parallel session: Issues and measure for concrete structures in hot weather conditions

 Activity of ACF Technical Committee 2 (TC2): Concrete practices and feasible measures for construction and design in hot weather conditions based on material characteristics

Shingo Asamoto, Saitama University

 Risk of thermal cracking in mass concrete footing construction under hot weather condition

Thiyagaraja Prasanthan, Shingo Asamoto, Saitama university

 Study on chloride binding property of slag blended cement considering different slag blending ratios

Yao Luan, Saitama University

 The application of newly developed test methods to prevent the damages caused by oxidation of iron sulfide in aggregates

Thuraisingam Jeyakaran, *Thammasat University*

 Study on effect of internal swelling reaction in concrete on structural performance of prestressed concrete beams

Shingo Asamoto, Saitama University

 Investigation on the effect of reinforcement confinement on the mechanical property of ASR damaged concrete by 3D RBSM

Yi Wang, Central South University

 3D Finite Element Analysis of Steel Fiber Reinforced Ultra-high Strength Concrete Beam-column Joints

Hiroto Takatsu, Takenaka Corporation





Parallel session: Limestone Calcined Clay Cement Concrete: Material Development, Physical Properties, Structural Implementation and Durability

 Limestone calcined clay cement (LC3) concrete and LC3 concrete structure: research status in Shenzhen University

Yingwu Zhou, Shenzhen University

 Development and structural implementation of LC3 concrete using raw materials in South China

Zhenyu Huang, *Shenzhen University*

 The Rheological Characteristics and mechanism of the Limestone Calcined Clay Cement

Pengkun Hou & Xin Cheng, University of Jinan

 Use of LC3 for Sustainable Urban Development Hongjian Du, National University of Singapore

Multiscale modelling of LC3 concrete performance

Tiao Wang, *The University of Tokyo*

 Performance assessment of LC3 concrete structures considering life-cycle cost and environmental impacts

Xiaoxu Huang, Shenzhen University

 Performance evaluation of recycled aggregate concrete incorporating limestone calcined clay cement (LC3)

Menghuan Guo, Shenzhen University

 Multiscale Investigation on the Performance of Engineered Cementitious Composites Incorporating PE Fiber and Limestone Calcined Clay Cement (LC3)

Guoqiang Gong, Shenzhen University

 Using limestone calcined clay cement and recycle fine aggregate to make eco-friend ultra-high performance concrete: properties and environmental impact

Dingcong Guo, Shenzhen University

 Study on hydration mechanism of limestone calcined clay cement (LC3) blended with seawater

Ruyin Zhang, Shenzhen University

 Quantification Assessment on Chemicals and Pore Structures of Limestone Calcined Clay Cement under Carbonation

Zuhua Xu, Shenzhen University





Parallel session: Low-Carbon and Sustainable Concrete

- Green and low-carbon cement with sintered sludge: Microstructure and performance Jinrui Zhang, Tianjin University
- Green carbon dot-based nanomaterials to improve the chloride-binding ability of cement-based materials

Chuang He, Shenzhen University

 A general approach to exfoliate and disperse 2D nanomaterials for improving cement hydration and chloride binding

Wujian Long, Shenzhen University

- Development of green RPC using experimental packing density methodology
 Undram Naidanjav, Hankyong National University
- Utilization of Red Mud for Low-carbon Cementitious Material in Semi-flexible pavement (SFP)

Dawei Wang, Harbin Institute of Technology; RWTH Aachen University

 Effect of Carya Cathayensis Peels Biochar on Basic Properties of Cementitious Material

Wen Xue, Zhejiang University of Science and Technology

 Proportioning Study for Low-carbon Sulfate-resistant Concrete by Microbial Corrosion Testing

Tao Wang, Penta-Ocean Construction Co., Ltd.

- Basic Properties of Cement Mortar used Carbonated Water as Mixing Water Sangchul Shin, Kongju National University
- Self-healing of inorganic porous aggregate in concrete: Methods, Characterization and Application

Heming Sun, Shenzhen University

 A Study on the Performance-Based Wind Design of Tall RC Buildings Using Wind Response Modification Factor

Byeonguk Ahn, Seoul National University

 Improvements in probe arrangement and interpretation for non-invasive polarization resistance method

Toshinori Kanemitsu, Central Research Institute of Electric Power Industry





Parallel session: Novel & High-performance materials for sensing and improving the serviceability of transportation infrastructure

 Bond performance and mechanisms of sulphoaluminate cement-based UHPC for reinforcing old concrete substrate

Yeting Li, ShenZhen University

 Application of Deflection Dynamic Load Allowance Test Method of Simply Supported Girder Bridge Based on Suspension Hammer System

Yongjun Zhou, *Chang'an University*

- A TFM method for the detection of internal defects in concrete using ultrasound array
 Lifan Rong, Shijiazhuang Tiedao University
- Temperature effects of CRTS II slab track under various field meteorological conditions

Rui Zhou, Shenzhen University

 Rheological Properties of Ultra High Performance Concrete and its Viscosity Control for Application

Jianzhong Liu, *Jiangsu Sobute New Materials Co., Ltd*

 The role of supplementary materials on micro/macro properties and water stability of magnesium phosphate cement

Chaofan Wang, Shanghai Jiao Tong University

 Preparation and mechanism of high early strength sulphoaluminate cement-based UHPC

Xuan Qi, ShenZhen University

 Moisture diffusion behavior in cementitious materials with carboxylic acid hydrophobic agent

Hao Zhang, State key laboratory of high performenace civil engineering materials

 Comparative study of different molecular structures of diluents on the curing of epoxy adhesives and the bonding properties with concrete

Yao Hao, Central South University

 Theoretical and experimental studies on accurate cable tension identification of short cables

Changzhao Li, *State Key Laboratory of Safety and Health for In-service Long Span Bridge*





Parallel session: Properties of seawater and sea-sand concrete (SSC)

 Development of low-alkalinity seawater sea sand concrete for BFRP bar reinforced marine infrastructure

Deju Zhu, Hunan University

 Degradation process of coated seawater and sea sand cementitious mortars exposed to sulfuric acid combined with wetting-drying cycle

Wengui Li, *University of Technology Sydney*

• Experimental study on mechanical properties of seawater sea-sand concrete with sea-sands from different regions

Shuaicheng Guo, Hunan University

 Study on carbonation resistance and water permeability resistance of seawater and sea-sand concrete

Fan Xu, Shenzhen University

• Study on the durability of seawater and sea-sand concrete Zhilu Jiang, *Zhejiang University of Technology*

 Flexural behaviour of seawater sea-sand coral aggregate concrete beams reinforced with FRP bars

Fang Yuan, Shenzhen University

 Durability study of sea-sand concrete under the combined effects of carbonation and chloride redistribution

Yongqiang Li, Shenzhen University

 Effect of seawater sea-sand concrete on tensile strength reduction of GFRP rebars and corresponding degradation mechanism

Peng Wang, Hong Kong University of Science and Technology

 Performance and characterization of seawater blended cement-based material incorporated with polycarboxylate superplasticizer

Shengye Xu, Shenzhen University

- The Mechanism of Performance Difference Between Seawater Sea-sand and Freshwater River-sand Ultra High Performance Concrete Based on X-CT Technology Tianyu Li, *Hohai University*
- Chloride diffusion resistance of Sulphoaluminate cement based composite characterized by alternating current section method

Shuging Zheng baby, Shenzhen University

 Effects of gypsum and premixed chlorides on hydration and binding mechanism for CSA cement

Jiansheng Huang, Shenzhen University





Parallel session: Protection, restoration and reinforcement of concrete structures

• The study on the pretreatment of Cathodic Protection applied to concrete structures cracked due to corrosion

Akira Hekizono, Tokyo Institute of Technology

 Piezoresistive Effect of Carbon Fabric Reinforced Cement Matrix (CFRCM) under Cyclic Loading

Bo Yi, ShenZhen University

- Evaluation of UAV-based Data Acquisition for Building Damage Inspection
 Jiehui Wang, Shenzhen University
- Influence of silica fume with pcm as a repair material on the pcm-concrete interfacial bond

Mahmudul Hasan Mizan, Hokkaido University

 Steel fiber mix rate and crack model impact on RC slab analysis model reinforced by top thickening

Masaki Hasegawa, Iwate University

 Protection against deterioration of reinforced bar in concrete with phosphate cement based composite coating

Yue Hu, Shenzhen University

 Fire Spalling Behavior of RC Beams Repaired with Polymer Cement Mortar under Fire condition

Yuta Goto, Gunma University

 Fire spalling behavior of heat-resistant repair materials with ring restrained heating test

Yuya Takei, Gunma University





Parallel session: Self-healing/self-immune concrete

 Application of zeolitic imidazolate framework (ZIF-8) as high-efficient corrosion inhibitor for the reinforcement in cement extract

Jie Hu, South China University of Technology

 Experimental and numerical study of crack behavior for capsule-based self-healing cementitious materials

Hongzhi Zhang, *Shandong University*

 Development of a pH-responsive hydrogel with high moisture absorption for bacteriabased self-healing concrete

Jianyun Wang, *Xi'an Jiaotong University*

 Self-healing of Cracks Based on Aggressive-ion-bonding Agent in Cement-based Materials in Sea Water

Haoliang Huang, South China University of Technology

- Mechanical property and durability of mortar containing double-layers capsules
 Honglei Chang, Shandong University
- Freeform embedded printing of vasculature in cementitious materials for healingagent transport

Yuanyuan Zhang, Shenzhen University

 An analysis on shear damage cracking of self-healing cementitious materials with microcapsule on peridynamic constitution model

Jun Ren, Yunnan University

- Analytical models on the influence of crack geometrical pattern on capsule dosage
 Huisu Chen, Southeast University
- Study on preparation and self-healing properties of cement-based materials using prepared autolytic clinker microsphere

Jun Li, *Tongji University*

 Preparation and properties study of expansive mineral-based artificial aggregates for self-healing concrete

Jinglu Li, *Harbin Institute of Technology*

• Use of recycled concrete aggregates as carriers for concrete self-healing by high urease activity bacteria

Jing Xu, *Tongji University*





 Novel mineral-based capsule that using SAP as an expansion agent for self-healing concrete

Leyang Lv, *Shenzhen University*

 Mechanical properties of microcapsule-based self-healing concrete interface: a molecular dynamics study

Wei Xie, Shenzhen University

• Effect of superabsorbent polymer on self-healing performance of fly ash-cement systems

Jingjing Lyu, *Harbin Institute of Technology*

• Effect of grain size on the prehydration and hydration kinetics of calcium sulfoaluminate clinker

Luo Shitao, *Shenzhen University*





Parallel session: Sustainable construction materials towards carbon neutrality

 Use of luminescent-glass aggregates and CO₂ curing treatment for the production of decorative concrete products

Chailing Tung, Hunan University

 Surface treatment of cement-based materials by anti-ultraviolet aging hybrid nanoparticles

Yue Gu, *Hohai university*

 Utilization of dredged sediment in magnesium oxychloride cement to improve water resistance

Zijian Song, *Hohai University*

 High-temperature performance of SCMs blended cementitious materials subject to CO₂ curing

Mingzhi Guo, *Hohai University*

 Carbon Footprint Analysis of Graphene Nanofluid Additive Modified Cement Materials Based on LCA Evaluation

Zhijian Yao, Shenzhen University

 Application of Cement-based Inorganic Cementitious Coating Modified by Graphenetitanium dioxide Composite Fibers

Xiangfei Wang, *Shenzhen University*

 Mitigating shrinkage of alkali-activated slag pastes by cellulose fibre Xinyan Liu, Univeristy of Nottingham Ningbo China

 Development of lightweight engineered geopolymer composite with fly ash cenospheres

Jiaqi Wu, *University of Nottingham Ningbo China*

Nano/micro structure of C-S-H and its application

Pan Feng, Southeast University

- Investigation on the recycled aggregate from worn ballast in heavy haul railways Wenjun Zhu, *Tongji University*
- Formulation and properties of municipal solid waste incineration fly ash for cement solidification using orthogonal tests

Kai Lyu, *Hohai University*

 Comparative study on the effect of fiber type on the abrasion resistance of recycled aggregate concrete

Qi Deng, *Tongji University*





Parallel session: The First Greater Bay Area Forum on Low Carbon Construction Materials and Technologies (LCCMT)

• Development of low-carbon concrete for improving durability of composite foundation with plain concrete piles under marine environment Weipeng Chen, Sun Yat-Sen University

Manufacture and characterization of sand-washing slurry based cold-bonded ceramsite

Guohao Fang, Shenzhen University

 Alkali-activated Artificial Aggregates Made from Red mud Kaige Tian, Shenzhen University

 Extrusion-based 3D printing of Ultra-High Performance Strain-Hardening Cementitious Composites (UHP-SHCC)

Ye Qian, The University of Hong Kong

 Use of Biochar and Dioxide Curing for Production of Low-Carbon Cement-Based Composites

Lei Wang, *Zhejiang University*

- Application of molecular dynamics simulation in green building materials
 Dongshuai Hou, Qingdao University of Technology
- Development of artificial geopolymer aggregates with thermal energy storage capacity

Yi Fang, Hohai University

 Geopolymer-based sub-ambient daytime radiative cooling coating Ning Yang, The Hong Kong Polytechnic University





Parallel session: Valorization of waste FRP composites for use in civil engineering

• Influence of recycling and treatment technology of fiber reinforced composite waste on high value application in civil engineering

Rongqi Zhang, The China National Resources Recycling Association

 Mechanical properties of ultra-high performance concrete with macro fibres recycled from waste GFRP composites

Bing Fu, *Jinan University*

 Performance Evaluation of Waste GFRP Powder/GGBS-Based Geopolymer Mortars for Rapid Repair of Concrete

Jun Wang, NanJing Tech University

 Impact behavior of waste polyethylene terephthalate fiber reinforced concrete with recycled aggregate

Yulei Bai, Beijing University of Technology

 Study on phase reconfiguration and alkali-aggregate reaction of regenerated glass fibers based on GFRP

Peng Longgui, Xi'an University of Science and Technology

 Mechanical properties of concrete containing macro fibers recycled from GFRP waste: Effects of fiber length and volume fraction

Qiqi Zou, Southern University of Science and Technology

 Recycling, regeneration and reuse of carbon fibers in carbon fiber reinforced cementitious composites

Chun Pei, Shenzhen University

 Mechanical properties of recycled carbon fiber reinforced cementitious matrix composites

Piyu Chen, Harbin Institute of Technology (Shenzhen)

Improved interfacial strength of carbon fiber in cement matrix by electrophoretic deposition

Ziqi Li, *Shenzhen University*

Organizer:



Co-organizers:





Supporting Organizations:



















Contact Us

For more information about ACF2022_ETSL, please visit the websites:

https://acf2022.aconf.org

General Affairs

Academic Affairs

Sponsorship Consulting

Ms. Melody CUI

Dr. Le-Yang LV

Ms. Nana

Email: acf2022@szu.edu.cn

Email: l.lv@szu.edu.cn

Cell phone: 18627754146

E-mail: nana@chytey.com