1st INTERNATIONAL CONFERENCE ON

INNOVATION IN LOW-CARBON CEMENT & CONCRETE TECHNOLOGY

LONDON 24-26 JUNE 2019

The construction industry has been under pressure to cut its CO_2 emission. This conference aims at reporting on the latest scientific and technical achievements in the field of low-carbon cement and concrete technology with a view to promote its wider industrial applications. The conference has received 150 abstracts from more than 25 countries, 70 of which are accepted for oral presentation based on a double-blind review process.

Registration Fees

	Regular*	On-site	Banquet dinner
Regular	£550	£650	£100
Student	£450	£550	£100

* note that regular registration closes on 21st of June 2019.
Visit www.aim-ilccc2019.com/registration for more information.

Organiser

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Keynote Speakers

Fredrik Glasser
University of Aberdeen
United Kingdom

Karen Scrivener
EPFL
Switzerland

Changwen Miao
Southeast University
China

Johann Plank
Technische Universität München
Germany

Barbara Lothenbach
EMPA
Switzerland

Caijun Shi
Hunan University
China

Mark Tyrer
Coventry University
United Kingdom

Muhammed Basheer
University of Leeds
United Kingdom

Thomas Matschei
University of Applied Sciences
Dresden (HTW Dresden)
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Sunday 23rd June 2019

18:00 - 20:00	**Registration and Drinks Reception**

Monday, 24th June 2019

08:00 - 09:00	**Registration & Coffee**
09:00 - 09:30	**Opening Ceremony**
09:30 - 10:00	**Fredrik P. Glasser -** *The cement industry and its relation to energy and carbon dioxide*
10:00 - 10:30	**Karen Scrivener -** *Lowering CO_2 emissions from cement production, practical realities and research needs*
10:30 - 11:00	**Changwen Miao -** *Durability improvement of reinforced concrete and its engineering application in China*
11:00 - 11:30	**Tea and Coffee Break**
11:30 - 12:00	**Johann Plank -** *Chemical admixtures for low carbon cement systems*
12:00 - 12:30	**Barbara Lothenbach -** *Hydrates in blended and non-Portland cements*
12:30 - 13:00	***TBC***
13:00 - 14:00	**Lunch Break**

	Parallel Session 1: Alkali activated materials	Parallel Session 2: Durability
14:00 - 14:15	**Alkali-activated cements based on metakaolin - Science and applications** *Provis J.*	**How to combine CO2 performance with service life durability parameters of concrete** *Müller C.*
14:15 - 14:30	**Investigation of chemically- and mechanically-based aeration techniques on alkali-activated MIDAR® cements** *Rodriguez-Sanchez J., Fedorciuc-Onisa M., Kinoshita H., Provis J.L. and MacLachlan S.*	**Durability and sustainability implications of concrete reinforced with aluminium metal** *Justnes H.*
14:30 - 14:45	**Nanoscale Ca-structure and its Relation to the Property Development of Various One-part Activated Slag Materials** *Jeong Y., Kang S. and Moon J.*	**The challenge of determining carbonation resistance of modern concretes** *Bernal S.A.*
14:45 - 15:00	**Resistance of fiber-reinforced fly ash-steel slag based geopolymer to sulfate corrosion and dry-wet alternate cycle process** *Guo X., Pan X., Huang J. and Zhang H.*	**Impedance Study of Steel Corrosion Induced by Chloride in Simulated Concrete Pore Solution** *Liu G., Liu C., Pang B., Wu M. and Zhang Y.*
15:00 - 15:15	**Development of alkali activated cementitious binder synthesised from metakaolin, volcanic tuff and lime waste** *Kadhim A., Sadique M., Atherton W. and Kot P.*	**TBC** *TBC*
15:15 - 15:30	**Applied mineralogy of Cemfree in comparison to OPC** *Elfmarkova V.*	**Effect of zeolite on the sulfuric acid resistance of CSH decomposed** *Oshita H. and Dong W.*

15:30 - 16:00	**Tea and Coffee Break**	
	Parallel Session 3: Alternative Clinkers	**Parallel Session 4: Waste Utilisation**
16:00 - 16:15	**Belitic Calcium Sulfoaluminate Cement: History, Chemistry, Performance, and Use in the United States** *Bescher E. and Kim J.*	**Early hydration of dry-mix sprayed concrete** *Galan I.*
16:15 - 16:30	**Alternative raw materials for the production of calcium sulfoaluminate cement ladle slag and phosphogypsum** *Isteri V., Ohenoja K., Hanein T., Tankanen P., Kinoshita H., Illikainen M. and Fabritius T.*	**Using oil shales for production of low-carbon Portland cement** *Goncharov A. and Zhutovsky S.*
16:30 - 16:45	**Belite formation and polymorphic trasformation in Belite-Calcium Sulfo-Aluminate clinker** *Koumpouri D., Katsiotis M.S., Karatasios I., Pistofidis N., Giannakopoulos J., Psycharis V. and Kilikoglou V.*	**From waste to structures: mechanical and durability properties of bottom ash concrete** *Alderete N.M., Joseph A.M., Matthys S. and De Belie N.*
16:45 - 17:00	**Calcium sulfoaluminate cement incorporating calcined clay and limestone – effect on hydrate phase assemblage and hydration kinetics** *Pedersen M.T., Lothenbach B., Winnefeld F. and Skibsted J.*	**Experimental study of slag gypsum cement concrete to recycle waste gypsum board** *Suzuki R., Shimura K. and Sugiyama T.*
17:00 - 17:15	**Ultra-fast calcium aluminate cements as a way to reduce environmental footprint of Portland cement rich formulations** *Stéphane B., Emmanuelle H. and Tomasz O.*	**Low-CO_2 binders for restoring a Pb-contaminated soil: improvements and drawbacks with respect to ordinary Portland cement** *Contessi S., Bellotto M., Dalconi M.C., Calgaro L., Secco M., Bonetto A., Ferrari G., Marcomini A., and Artioli G.*
17:15 - 17:30	**Water-to-cement ratio influence on low-carbon cements performances** *Santacruz I., Zea-Garcia J.D., Londono-Zuluaga D., Cuesta A., Aranda M.A.G. and De la Torre A.G.*	**Test research on effects of ceramic powder on cement hydration and compressive strength of concrete** *Li L. and Liu W.*

Tuesday, 25th June 2019

	Parallel Session 5: Emerging Technologies	Parallel Session 6: Waste Utilisation
09:00 - 09:15	**3D X-Ray micro-tomography as a tool to formulate geopolymer-oil emulsions** *Lambertin D., Davy C.A., Hauss G., Planel B., Marchand B. and Cantarel V.*	**Arsenic Speciation and pH-dependent Leaching from Cement Paste from Industrial Waste Co-processing** *Karakas F., Roy A., Solpuker U., Bogush A. and Stegemann J.*
09:15 - 09:30	**Manufacturing equivalent clinker by indirect mechanosynthesis process** *Bouchenafa O., Hamzaoui R., Azem L., Bennabi A. and Colin J.*	**Changes in particle morphology and property of recycled fine aggregates modified by microbial carbonate precipitation** *Feng Z., Zhao Y., Zeng W., Lv Z., Shah S., Lv Q. and Wang C.*
09:30 - 09:45	**In situ nanoscale observations of tricalcium aluminate dissolution in water** *Feng P., Ye S. and Liu Y.*	**Review of rapid assessment of fly ash reactivity for low-carbon concrete manufacture** *Csetenyi L.J., McCarthy M.J. and Jones M.R.*
09:45 - 10:00	**Mechanical Property of Ecological High Ductility Cementitious Composites for Bridge Deck Link Slab under Variable Temperature Conditions** *Chai L., Guo L., Cao Y. and Wu J.*	**Paraffin/red mud phase change storage energy composites incorporated cement-based materials** *Liu Z., Hu D., Zhang Y. and Zang C.*
10:00 - 10:15	**Upcycling carbon dioxide to improve mechanical strength of $Ca(OH)_2$ based binder system with PVA** *Gu Y., Wei Z., Ran Q., Jiang L. and Xia K.*	**Influence of pozzolanic activity of clay brick powder on the properties of mortar** *Zhao Y., Gao J., Chen C., Liu C. and Chen X.*
10:15 - 10:30	**Bond Behaviour of Basalt FRP bars in Geopolymer Concrete** *Trabacchin G., D'Ayala D., Stegemann J. and Zhang M.*	**Influence of preparation method on the performance of ternary blended cements** *Zhang T., Liu X., Wei J. and Yu Q.*
10:30 - 10:45	**Matrix Superhydrophobic Foam Cement via Physical and Chemical Modification of Interfaces** *Zheng Z., She W. and Miao C.*	**Application of AFm-like Layered Double Hydroxide in the Purification of Environmental Pollutants** *Qian G., Zhang J., Zhou J., Chen H. and Xu Y.*
10:45 - 11:00	**Void spacing factor characterization via X-ray CT from aspects of void-void proximity and paste-void proximity** *Lyu, K. and She W.*	**Enhancement of the environmentally friendly features of belite-calcium sulfoaluminate cements through the use of industrial by-products** *Telesca A., Marroccoli M. and Matschei T.*

11:00 - 11:30	**Tea and Coffee Break**	
	Parallel Session 7: Carbonation	**Parallel Session 8: Alkali activated materials**
11:30 - 11:45	**Capacity for CO_2 mineralization of natural and industrial alkaline solids** *La Plante E.C., Mehdipour I. and Sant G.*	**Using Alkali-activated Smart Concrete for Enhanced Performance of Structures** *Jones G., Lambert P., Mangat P. and O'Flaharty F.*
11:45 - 12:00	**Elucidating how air-filled porosity controls CO_2 uptake and carbonation strengthening in Portlandite-based cementing Systems** *Mehdipour I., La Plante E.C., Falzone G., Pilon L., Neithalath N. and Sant G.*	**Formulation, performance, hydration and rheological behavior of 'just add water' slag-based binders** *Bellotto M., Dalconi M.C., Contessi S., Garbin E. and Artioli G.*
12:00 - 12:15	**Properties of Solidia Cement and Concrete** *Meyer V., Sahu S. and Dunster A.*	**Effect of Si and Ca on the reaction products, microstructure and strength of microwave-cured alkali-activated fly ash** *Shi S., Abiad A.K., Zheng Y., Pei K., Li H. and Bai Y.*
12:15 - 12:30	**Accelerated carbonation of Portland cement and thermal process residues for low-carbon concrete** *Maries A., Hills C.D. and Carey P.*	**Preparation of geopolymer using electrolytic manganese residue and fly ash by alkaline activation** *Wang Y., Han F., Chen Y., Li Y. and Qu Y.*
12:30 - 12:45	**Revealing the microstructure evolution and carbonation hardening mechanism of β-C_2S pastes by backscattered electron** *Liu S., Guan X., Zhang H. and Wang Y.*	**Effect of unconventional thermal curing on early hydration and mechanical properties of alkali-activated fly ash cementitous materials** *Li H.*
12:45 - 13:00	**TBC** *TBC*	**Effects of micro silica sand on the mechanical properties of strain-hardening geopolymer composites** *Wang Y. and Zhang M.*
13:00 - 14:00	**Lunch Break**	
	Parallel Session 9: Magnesium based systems	**Parallel Session 10: Emerging Technologies**
14:00 - 14:15	**New insights into the hydration of cementitious materials based on magnesium carbonates** *Winnefeld F., Epifania E., Montagnaro F. and Gartner E.M.*	**Effects of Plastic Expansion Agent on the Mechanical and Deformation Properties of Concrete** *Wang Y., Liu J., Xie Y., Zhu Z. and Xu W.*
14:15 - 14:30	**Preparation and mechanical properties of ultra-high strength magnesium phosphate cement composites** *Qin J., Qian J., Dai X. and Yue Y.*	**Effects of Expansive Materials on Cracking Resistance of Sprayed Concrete** *Wang W., Lu A., Zeng L., Qiao M., Liu J. and Miao C.*

14:30 - 14:45	**Influence of carbonation on the performance of reactive MgO cement-based concrete mixes** *Ruan S. and Unluer C.*	**Effects of temperature history on expansion properties of CaO- and MgO- bearing expansive agent for Concrete** *Anqun L., Hua L., Yujiang W. and Qian T.*
14:45 - 15:00	**The effect of fly ash on the hydration behavior and properties of basic magnesium oxysulfate cement** *Tan Y., Yu H. and Wu C.*	**Effect of vibration frequency and temperature on the dynamic mechanical properties of cement asphalt mortar** *Liu Z. and Bai Y.*
15:00 - 15:15	**Ultra-fine fly ash modified bischofite-based magnesium oxysulfate hydrate cement** *Fang L., Wang Q., Li X., Zhou D., Guo Y., Du Z. and Cheng F.*	**Properties and hydration of ternary Portland cements containing limestone powder and diethanol-isopropanolamine** *Lu X., Du P., Zhang X., Tchekwagep J., Ye Z. and Cheng X.*
15:15 - 15:30	**Passivation behaviour of mild steel in magnesium phosphate cement** *McCague C. and Bai Y.*	**Sulfate resistance of cement paste exposed to sodium sulfate solution by X-ray computed tomography** *Yang Y. and Zhang Y.*
15:30 - 16:00	**Tea and Coffee Break**	
	Parallel Session 11: Alternative Clinkers	**Parallel Session 12: Durability**
16:00 - 16:15	**Reproducibility of new low clinker concrete from the laboratory scale to the concrete plant** *Boscaro F., Juilland P., Frunz L., Kruspan P. and Flatt R.J.*	**Characterisation of passivation process of mild steel with in-situ Raman Spectroscopy** *Mi T., Wang J. and Bai Y.*
16:15 - 16:30	**Research on Volume Stability and Microstructure of Portland and Calcium sulfoaluminate composite cement** *Zheng Y., Cui S. and Scrivener K.*	**Temperature — a key mechanism for the physical sulfate attack** *Jiang X., Mu S. and Liu J.*
16:30 - 16:45	**Influence of reduced CO_2 emission clinker production process on superplasticizer interactions** *Schwesig P.*	**Durability and sustainability consideration for structural use of reactive MgO cement** *Hay R., Khalil A. and Celik K.*
16:45 - 17:00	**Passivation of ordinary black steel reinforcement embedded in BYF mortars: effect of water to cement ratio, fly ash and chlorides** *Koga G., Albert B. and Nogueira R.P.*	**Effect of activators on the passivation of steel reinforcement in alkali-activated slag** *Yang S., Jin Z. and Bai Y.*
20:00 - 23:00	**Conference Dinner**	

Wednesday, 26th June 2019	
09:00 - 09:30	**Caijun Shi -** *Geopolymer concrete: Importance of mixture design*
09:30 - 10:00	**Mark Tyrer -** *Modelling of cement chemistry*
10:00 - 10:30	**Muhammed Basheer -** *Comparison of chloride-induced corrosion between alkali-activated slag and Portland cement concretes*
10:30 - 11:00	**Tea and Coffee**
11:00 - 11:30	**Thomas Matschei -** *Engineering phase assemblages for sustainable cement design*
11:30 - 12:00	**Tongbo Sui -** *Industrial Effort on Low Carbon Cements and Application in China*
12:00 - 12:30	**Mohsen Ben Haha -** *Advances in understanding belite ye'elimite ferrite (BYF) cements*
12:30 - 13:00	**Awards and Closing Ceremony**