## 3rd International Workshop on Calcium Sulfoaluminate Cements Monday 23 – Wednesday 25 June 2025 University of Leeds, UK

## **PROGRAMME SUMMARY**

(subject to change)

**N.B.** Only presenting authors and affiliations are shown, for full details please see the Book of Abstracts. Keynote lectures are 45 minutes (40 minutes talk + 5 minutes for questions). Oral presentations are 15 minutes (12 minutes talk + 3 minutes for questions). Flash presentations are 2 minutes (1-2 slides and no questions).

## Monday 23 June

08:45-09.30	Registration	
09:30-12:00	RILEM TC CSA General Meeting (hybrid)	
12:00-13:00	Lunch and registration	
13:00-13:10	Welcome to the University of Leeds	Prof. Barbara Evans
		Deputy Head of School of Civil Engineering, University of Leeds, UK
13:10-13:20	Conference opening (and H&S)	Theodore Hanein
		Chairman, University of Leeds, UK
13:20-13:30	RILEM presentation	Frank Winnefeld
		Empa, Switzerland
	SESSION 1: RAW MATERIALS AND CLINKERING	
	Session Chair: Eric Bescher	
13:30-14:15	KEYNOTE: Fundamentals of CSA-based clinkers - thermodynamic aspects and	Alexander Pisch
	process implications	CNRS France - Laboratoire SIMaP, France
14:15-14:45	Tea and posters	
14:45-15:00	Recycling of Moroccan phosphogypsum and clay in the production of belite-calcium	Wafaa Borja
	sulfoaluminate cement: mineralogical investigation	Mohammed VI Polytechnic University, Morocco
15:00-15:15	Suitability of alternative raw materials for calcium sulfoaluminate-belite cement: raw meal	Bipina Thaivalappil
	optimization and clinker characterization	Indian Institute of Technology Madras, India
15:15-15:30	Ternary waste system optimization to produce CSA cement: phosphogypsum, waste	Mohamed El Amal
	water sludge and limestone rich waste rock	Mohammed VI Polytechnic University (UM6P), Morocco
15:30-15:45	Phases compositions of calcium sulfoaluminate-belite clinkers made from coal ashes	Maneerat Thala
	using a hydrothermal-calcination method	Chiang Mai University, Thailand
15:45-16:00	Production of belite-calcium sulfoaluminate cements from various waste materials to	Antonio Telesca
	boost their environmentally friendly features	Università degli Studi della Basilicata, Italy
16:00-16:15	Pilot-scale production of low-cost belite-ye'elimite clinker using existing raw materials in	Wahab Abdul
	Qatar	Gulf Organization for Research and Development, Qatar
16:15-16:30	Pilot-scale synthesis of belitic calcium sulfoaluminate cement using locally sourced	Vaishnav Kumar Shenbagam
	materials in the UK	University of Leeds, UK
16:30-17:00	Flash poster presentations	
17:00-18:00	Poster session and reception	

Tuesday 24	June	
	SESSION 2: HYDRATION AND CHARACTERISATION	
	Session Chair: Angeles De la Torre	
09:30-09:45	Characterisation of ye'elimite by SEM-EBSD-EDX	Christiane Rößler
		Bauhas-University Wiemar, Germany
09:45-10:00	Influence of w/c ratio on the hydration of CSA clinker with varying percentages of	David Torrens-Martin
	calcium sulfate	Universitat Politècnica de Catalunya-Barcelona TECH, Barcelona
10:00-10:15	<sup>7</sup> Li MAS NMR spectroscopy: An advanced tool to approach early hydration of CSA	Geo Paul
	cements	Università del Piemonte Orientale, Italy
10:15-10:30	Temperature-dependent phase assemblage and pore solution evolution during early	Sabina Dolenec
	hydration of belite-ye'elimite-ferrite cement	Slovenian National Building and Civil Engineering Institute, Slovenia
10:30-11:15	Coffee and posters	
11:15-11:30	CSA hydration mechanisms: the effect of w/c ratios on the hydration kinetics of silicious	Qiao Wang
	phases and the contribution of hydrates to mechanical strength	RWTH Aachen University, Germany
11:30-11:45	Interaction of calcium sulfoaluminate belite cements with alkanolamine admixtures:	Tu-Nam Nguyen
	Insights from hydration and structural build-up at early ages	Georgia Tech, USA
11:45-12:00	The influence of polycarboxylate ether (PCE) superplasticizers on the early ettringite	Jakob Schreiber
	formation in pure ye'elimite-calcium sulfate systems	GeoZentrum Nordbayern, Germany
12:00-12:15	Early hydration reactions of calcium sulfoaluminate cement in water and alkaline media	Luís Urbano Durlo Tambara
		Bundesanstalt für Materialforschung Undprüfung (BAM), Germany
12:15-12:30	Effects of excess sulphate on the synthesis and hydration of belite-alite-ye'elimite	Zhi Li
	cements	Imperial College London, UK
12:30-13:30	Lunch and posters	
	SESSION 3: PERFORMANCE AND DURABILITY	
	Session Chair: Vaishnav Kumar Shenbagam	
13:30-14:15	KEYNOTE: The role of risk in engineering: Lessons from the past applied to CSA	Cameron Murray
	cements	University of Arkansas, USA
14:15-14:30	Self-healing repair mortar based on calcium sulfoaluminate-expansive agent	Berrabeh Safae
		INSA Rennes, France
14:30-14:45	Hydration, microstructure, and mechanical performance of seawater-mixed	Ye Li
	CSA/OPC/SF blended cement systems	Harbin Institute of Technology, China
14:45-15:00	Hydration and physical properties of BCSA mixtures with PLC, LC3 and alternative	Visa Isteri
	SCMs	CTS Cement Manufacturing Corporation, USA
15:00-15:30	Tea and posters	
15:30-15:45	Early-Age Properties of Calcium Sulfoaluminate-Fly Ash Portland Cement Systems	Sergio Ruiz
		Luleå University of Technology, Sweden
15:45-16:00	Hydration of calcium sulfoaluminate cement in the presence of carbonated	Frank Winnefeld
	supplementary cementitious materials	Empa, Laboratory for Concrete and Asphalt, Switzerland
16:00-16:15	Sustainable rapid setting concrete with desert sand and recycled aggregates	Padmaja Krishnan
		New York University Abu Dhabi, UAE
16:15-16:30	Evaluating the performance of calcium aluminate and calcium sulfoaluminate cement	Daniel D. Akerele
	mortars incorporating fly ash and limestone powder	University of Washington, USA
16:30-17:00	Group photo	
17:00 onwards	BBQ (off campus at Weeetwood Hall Estate)	

SESSION 4: PERFORMANCE AND DURABILITY cont. Session Chair: Frank Winnefeld        09:00-09:15      Recent Advances in Low-Carbon Belitic Calcium Sulfoaluminate (BCSA) Cement and Concrete      Eric Bescher University of California Los Angeles, USA        09:15-09:30      Time dependence of chloride transport properties and corrosion resistance in BCSA cement composites      Robert J. Thomas California Los Angeles, USA        09:30-09:45      Role of pore structure on resistance to physical crystallization damage of calcium sulfoaluminate (CSA) cement blends      Lisa Burris The Ohio State University, USA        09:45:-01:00      Effects of steel fibres on the performance of BCSA mortars cured at different temperatures      Jack Ambrose University of Shefield, UK        10:00-10:15      Evaluating early-age properties and volume change in polymer modified belitic calcium suffoaluminate (BCSA) cements: field and lab testing      Daniel D. Akerele University of Washington, USA        10:00-10:15      Evaluating early-age properties and volume change in polymer modified belitic calcium suffoaluminate (BCSA) cements: field and lab testing      University of Shefield, UK        10:01:15:10:45      Coffee and posters      Session Chair: Lisa Burris        10:45:11:30      KEVNOTE: Green by design: a critical examination of CSA cement's environmental footprint      Jose-Luis Galvez-Martos Tecnalia Research and Innovation, Spain        11:30-11:45      Digital concrete application with CSA cement CO2 full-sized concrete slabs <td< th=""><th>Wednesday</th><th>7 25 June</th><th></th></td<>	Wednesday	7 25 June	
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environmental footprint    Tecnalia Research and Innovation, Spain      11:30-11:45    Digital concrete application with CSA cement    Fulvio Canonico Buzzi SpA, Italy      11:45-12:00    Design, construction, and early-age response of high early strength, low-embodied CO2 full-sized concrete slabs    Fabian Paniagua CTS Cement Manufacturing Corporation, USA      12:00-12:15    Mineral foams with CSA cement as binder material    Lukas Koch MBCC Investments GmbH, Germany      12:15-12:30    The use of organic-inorganic hybrids to decrease the permeability of BCSA concrete used for bridge repairs and rehabilitation.    Julio Paniagua CTS Cement Manufacturing Corp., USA      12:01-12:45    Recycling of SCM-containing Concrete: A Unique Opportunity for BCSA    Aniruddha Baral University of Texas at Austin, USA      12:45-13:00    Prizes and close    Junicersity of Texas at Austin, USA      13:00-14:00    Lunch    Tece time	10:45-11:30	KEYNOTE: Green by design: a critical examination of CSA cement's	Jose-Luis Galvez-Martos
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Buzzi SpA, Italy      11:45-12:00    Design, construction, and early-age response of high early strength, low-embodied CO2 full-sized concrete slabs    Fabian Paniagua CTS Cement Manufacturing Corporation, USA      12:00-12:15    Mineral foams with CSA cement as binder material    Lukas Koch MBCC Investments GmbH, Germany      12:15-12:30    The use of organic-inorganic hybrids to decrease the permeability of BCSA concrete used for bridge repairs and rehabilitation.    Julio Paniagua CTS Cement Manufacturing Corp., USA      12:30-12:45    Recycling of SCM-containing Concrete: A Unique Opportunity for BCSA    Aniruddha Baral University of Texas at Austin, USA      12:45-13:00    Prizes and close	11:30-11:45	Digital concrete application with CSA cement	Fulvio Canonico
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CO2 full-sized concrete slabsCTS Cement Manufacturing Corporation, USA12:00-12:15Mineral foams with CSA cement as binder materialLukas Koch MBCC Investments GmbH, Germany12:15-12:30The use of organic-inorganic hybrids to decrease the permeability of BCSA concrete used for bridge repairs and rehabilitation.Julio Paniagua CTS Cement Manufacturing Corp., USA12:30-12:45Recycling of SCM-containing Concrete: A Unique Opportunity for BCSAAniruddha Baral University of Texas at Austin, USA12:45-13:00Prizes and close13:00-14:0014:00 onwardsFree timeFree time	11:45-12:00	Design, construction, and early-age response of high early strength, low-embodied	Fabian Paniagua
12:00-12:15    Mineral foams with CSA cement as binder material    Lukas Koch      12:15-12:30    The use of organic-inorganic hybrids to decrease the permeability of BCSA concrete used for bridge repairs and rehabilitation.    Julio Paniagua      12:30-12:45    Recycling of SCM-containing Concrete: A Unique Opportunity for BCSA    Aniruddha Baral      12:45-13:00    Prizes and close    Julio Paniagua      12:45-13:00    Free time    Free time		CO2 full-sized concrete slabs	CTS Cement Manufacturing Corporation, USA
MBCC Investments GmbH, Germany12:15-12:30The use of organic-inorganic hybrids to decrease the permeability of BCSA concrete used for bridge repairs and rehabilitation.Julio Paniagua CTS Cement Manufacturing Corp., USA12:30-12:45Recycling of SCM-containing Concrete: A Unique Opportunity for BCSA University of Texas at Austin, USAAniruddha Baral University of Texas at Austin, USA12:45-13:00Prizes and closeTere time13:00-14:00LunchTere time	12:00-12:15	Mineral foams with CSA cement as binder material	Lukas Koch
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used for bridge repairs and rehabilitation.CTS Cement Manufacturing Corp., USA12:30-12:45Recycling of SCM-containing Concrete: A Unique Opportunity for BCSAAniruddha Baral University of Texas at Austin, USA12:45-13:00Prizes and closeTexas at Austin, USA13:00-14:00LunchFree time	12:15-12:30	The use of organic-inorganic hybrids to decrease the permeability of BCSA concrete	Julio Paniagua
12:30-12:45    Recycling of SCM-containing Concrete: A Unique Opportunity for BCSA    Aniruddha Baral      12:45-13:00    Prizes and close    University of Texas at Austin, USA      13:00-14:00    Lunch    See time		used for bridge repairs and rehabilitation.	CTS Cement Manufacturing Corp., USA
Inversity of Texas at Austin, USA    12:45-13:00  Prizes and close    13:00-14:00  Lunch    14:00 onwards  Free time	12:30-12:45	Recycling of SCM-containing Concrete: A Unique Opportunity for BCSA	Aniruddha Baral
12:45-13:00    Prizes and close      13:00-14:00    Lunch      14:00 onwards    Free time			University of Texas at Austin, USA
13:00-14:00      Lunch        14:00 onwards      Free time	12:45-13:00	Prizes and close	
14:00 onwards Free time	13:00-14:00	Lunch	
	14:00 onwards	Free time	

## **POSTER SESSION**

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MONDAY 23 JUNE 2025 (17:00 – 18:00) School of Mechanical Engineering Level 5 Study Space (room 5.34)			
POSTERS WITH FLASH PRESENTATION			
F1	Sulfidic Copper Tailings Challenge	Kaci Jenkins	
		Rio Tinto, USA	
F2.	Towards Green Construction: Slag and Phosphogypsum as a Key Components in eco-	Laila Boumahdi	
	Cement manufacturing	Mohamed 6 Polytechnic University, Morocco	
E2	Chemical, Mineralogical, Morphological, and Thermal characterizations of Secondary and	Rand Farhan	
гэ.	Tertiary aluminium recycling by-products, and their application in CSA cement	University of Leeds, UK	
F4.	Crystal Growth Mechanism of Hydrogrossular	Boyang Zhan	
		University of Leeds, UK	
F5.	Rapid-Setting Low Embodied Carbon UHPC based on BCSA cement	Fabian Paniagua	
		CTS Cement Manufacturing Corp., USA	

F6.	Low carbon footprint binders based on CSA cements and calcined argillaceous waste material	Antonio Telesca Basilicata University, Italy
F7.	Testing CSA – Enhanced Concrete for Applications with Chemical Pres-stressing	Vita Mikutaite Kingston University, UK
POSTERS WITHOUT FLASH PRESENTATION		
P1.	A review: The effect of minor elements on CSA clinker production	Zhili Ren University of Sheffield, UK
P2.	Investigating thermodynamic properties of fluor-chlorellestadite	Ri Cao University of Leeds, UK
P3.	Mechanism of citric acid retardation in BCSA cements	Imane Koufany Souhail University of Málaga, Spain
P4.	Phase Evolution in Hydrating Belitic Calcium Sulfoaluminate cements: Insights from Raman Imaging	Momina Rauf University of Illinois Urbana-Champaign, USA
P5.	3D printing blends composed of Portland cement and sulfoaluminate cement	Agathe Dujardin Université de Lorraine, France
P6.	Potential of Calcium Sulphoaluminate Cement for Accelerating Infrastructure Development in Africa: An Overview	Kolawole Olonade University of Lagos, Nigeria