

PROGRAM CONCREEP12

June 5-7, 2024
Lijm & Cultuur
Rotterdamseweg 272
2628 AT Delft
The Netherlands



Day1			Day2			Day3				
Session1	Session2	Session3		Session 4	Session 5	Session 6		Session 7	Session 8	
08:00-09:00 Registration & Coffee										
09:00-09:15 Opening (Erik Schlangen)										
09:15-10:00 Plenary session by Z.P. Bazant: Why Is Hydration of Cement as a Porous Solid Always Expansive? Consequences for Drying and Autogenous Shrinkage, Drying Creep and Swelling In Water			09:00-9:50	09:00-9:50 Debate 2: Yamei Zhang vs Pietro Lura, Moderator: Branko Šavija, Early age properties in 3D-printing and regular concrete production			09:00-9:50	09:00-9:50 Debate 4: Ya Wei vs Stéphanie Staquet Moderator: Bernhard Pichler Micro-scale versus Macro-scale approach; what shall we do?		
10:00-11:00	S1.1 Testing (Wen Zhou)	S2.1 Modelling (Guang Ye)	S3.1 Structural Application (Geert de Schutter)	10:00-11:00	S4.1 Testing (Yamei Zhang)	S5.1 Modelling (Branko Šavija)	S6.1 Structural Application (Eric Landis)	10:00-11:00	S7.1 Testing (Muhammad Fotouhi)	S8.1 Modelling (Go IGARASHI)
11:00-11:20 Coffee			11:00-11:20	11:00-11:20 Coffee			11:00-11:20	11:00-11:20 Coffee		
11:20-12:40	S1.2 Testing (Pietro Lura)	S2.2 Modelling (Giovanni Di Luzio)	S3.2 Low-carbon Materials (Hongzhi Zhang)	11:20-12:40	S4.2 Testing (Mateusz Wyrzykowski)	S5.2 Modelling (Roman Wan-Wendner)	S6.2 Views& Discussion (Leyang Lyu)	11:20-12:40	S7.2 Testing (Stéphanie Staquet)	S8.2 Testing (Michael Haist)
12:40-13:30 Lunch			12:40-13:30	12:40-13:30 Lunch			12:40-13:30	12:40-13:30 Lunch		
13:30-14:20 Debate 1: Geert de Schutter vs Ye Guang Moderator: Erik Schlangen Similarities and differences between cement based concretes and other binders			13:30-14:20	13:30-14:20 Debate 3: Matthew D'Ambrosia vs Agnieszka Bigaj Moderator: Mladena Luković Creep, Shrinkage and Durability; the path from research to codes in the US and EU.			13:30-14:20	13:30-14:20 Debate 5: Klaas van Breugel vs Benoît Hilloulin Moderator: Gianluca Cusatis Conceptual, Numerical or Machine Learning Models; What gives us better and safer structures?		
14:20-15:20	S1.3 Testing (Benoît Hilloulin)	S2.3 Modelling (Bernhard Pichler)	S3.3 Views& Discussion (Shan He)	14:20-15:20	S4.3 Testing (Mladena Lukovic)	S5.3 Modelling (Ya Wei)	S6.3 ASR (Yu Chen)	14:20-15:40	S7.3 Testing (Jishen Qiu)	S8.3 Views& Discussions (Gianluca Cusatis)
15:20-15:40 Coffee			15:20-15:40	15:20-15:40 Coffee						
15:40-16:00 Shan He: Self-healing SHCC for Tram Line 19 in TU Delft Campus										
16:00-17:20 Visit Tram-projects and Labs at TU-Delft			15:40-17:20	S4.4 Testing (Matthew D'Ambrosia)	S5.4 Modelling (Yidong Gan)	S6.4 Testing (Agnieszka Bigaj)	15:40	15:40 Farewell Drinks		
17:20 Drinks & bites at CEG			17:20-18:30							
			18:30	18:30 Dinner in the city center						

TIME	Day 1- Session 1	Day 1- Session 2	Day 1- Session 3
09:15-10:00	Plenary session by Z.P. Bazant: Why Is Hydration of Cement as a Porous Solid Always Expansive? Consequences for Drying and Autogenous Shrinkage, Drying Creep and Swelling In Water		
	Session 1.1- Testing (Chair: Wen Zhou)	Session 2.1- Modelling (Chair: Guang Ye)	Session 3.1- Structural Application (Chair: Geert de Schutter)
10:00-11:00	<p>Jiří Němeček Micro-scale creep of C-S-H quantified by nanoindentation and different evaluation methods</p> <p>Pietro Lura Basic creep of cement paste: effects of hydration and aging</p> <p>Giedrius Žirgulis Early age autogenous shrinkage of cement paste and concrete: experimental study of test methods and effect of binder type</p>	<p>Hongzhi Zhang Mesoscale modelling of size effect on the uniaxial compression behavior in foamed concrete</p> <p>Ruiko TORIUMI Study on estimation formula for simple evaluation method for thermal cracking in concrete structures</p> <p>Jiajia Wang Efficient Computational Cost Reduction of LDPM-Based Modeling Approaches</p>	<p>Watanabe Ken Management of Long-term Deflection of Prestressed Concrete Ridged-frame Bridges for Railway</p> <p>Ehab Hamed Creep response of high-strength precast concrete sandwich panels</p> <p>Natsuki Ohashi Parametric Study on Excessive Deflection in π-Shaped Rigid Frame Bridge with PC Diagonal Members</p>
11:00-11:20	Coffee		
	Session 1.2- Testing (Chair: Pietro Lura)	Session 2.2- Modelling (Chair: Giovanni Di Luzio)	Session 3.2- Low Carbon Materials (Chair: Hongzhi Zhang)
11:20-12:40	<p>Rita Tabchoury New creep device for experimentation on the effect of biaxial prestressing on concrete creep</p> <p>Ominda Nanayakkara Shrinkage characteristics of repair mortar with organic corrosion inhibitors</p> <p>Renan Rocha Ribeiro Determination of test parameters for viscoelastic characterization of hardened cement pastes with stress-controlled dynamic shear rheometry</p> <p>Benoît Hilloulin Investigation of the Creep properties of Blended Cement Pastes using Combined Nanoindentation and SEM Imaging</p>	<p>Bernhard Pichler Universal description of hydration characteristics of white cement pastes by means of the precipitation degree</p> <p>Vit Smilauer Creep and shrinkage benchmarking for normal strength concretes using standard and micromechanical models</p> <p>Minfei Liang Stress Evolution in Early-Age Cementitious Materials Considering Autogenous Deformation and Creep: New experimental and modelling techniques</p> <p>Maxime PIERRE Multi-physics modelling for extrusion-based 3D-printing: material, process and applications</p>	<p>Leyang Lyu Development of novel cenosphere-based artificial aggregate for large-scale application in self-healing concrete</p> <p>Yu Chen Rheology of limestone-calcined clay-slag cement pastes</p> <p>Zhenxu Qian Time-dependent flexural behavior of prestressed Alkali-activated concrete (AAC) girder with cast-in-situ AAC topping: role of time-dependent deformation</p> <p>Christa Winterman The drying shrinkage mechanism in blended alkali-activated slag and fly ash binders</p>
12:40-13:30	Lunch		
13:30-14:20	Debate 1: Geert de Schutter vs Ye Guang: Similarities and differences between cement based concretes and other binders Moderator: Erik Schlangen		
	Session 1.3- Testing (Chair: Benoît Hilloulin)	Session 2.3- Modelling (Chair: Bernhard Pichler)	Session 3.3- Views& Discussion (Chair: Shan He)
14:20-15:20	<p>Ömer Behçet Creep and shrinkage testing of low-carbon Limestone Calcined Clay Cement (LC3) concrete</p> <p>Katsufumi Hashimoto Influence of compressive stress and ultrasonic vibration frequency on fatigue damage of cementitious materials</p> <p>Wen Zhou Low-Carbon, Expansive Engineered Cementitious Composites (ECC) in the Context of 3D Printing</p>	<p>Giovanni Di Luzio A Flow Lattice Model to simulate transport phenomena in cementitious materials</p> <p>Julien Sanahuja Developing a micromechanics-based creep model: assumptions, identification and benchmarking</p> <p>Fabian Michael Weber Quantification of damage induced deformations in non-linear creep and cyclic-creep</p>	<p>Tulio Honorio Creep and subdiffusion in C-S-H: same origins?</p> <p>Guilherme da Silva Munhoz Creep in carbonatable binders: A discussion on non-hydraulic lime mortars</p> <p>Wen-Cheng Liao Introduction to Shrinkage and Creep Database in Taiwan, SCDT</p>
15:20-15:40	Coffee		
15:40-16:00	Shan He: Self-healing SHCC for Tram Line 19 in TU Delft Campus		
16:00-17:20	Visit Tram-projects and Labs at TU-Delft		
17:20-21:30	Drinks & bites at CEG		



TIME Day 2- Session 4

Day 2- Session 5

Day 2- Session 6



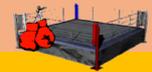
09:00-09:50	Debate 2: Yamei Zhang vs Pietro Lura, Moderator: Branko Šavija , Early age properties in 3D-printing and regular concrete production		
	Session 4.1- Testing (Chair: Yamei Zhang)	Session 5.1- Modelling (Chair: Branko Šavija)	Session 6.1 Structural Application (Chair: Eric Landis)
10:00-11:00	<p>Mateusz Wyrzykowski Role of microstructural water redistribution in creep of cement paste</p> <p>Hyuga Imukai Experimental Study on the Time-Dependent Tension Stiffness of RC Members under Sustained Tensile Loads and Drying Actions</p> <p>Yoon In-Seok Chloride Adsorption of Cement Hydrates in Aqueous Phase with Various pH Values</p>	<p>Enrico Masoero Particle-Based Simulations of Chemo-Mechanical Creep and Stress Relaxation in the Microstructure of Cement Hydrates</p> <p>Tong-Seok Han Water fracture interaction simulation of wedge splitting concrete specimen</p> <p>Roman Wan-Wendner A numerical parametric study for the self-healing of cracks in concrete under sustained loads</p>	<p>Jose Pacheco Rheology and volumetric properties of internally cured concrete for pavement and bridge deck construction</p> <p>Ronald Zollo Excessive Creep Deflection a Major Contributing Factor in the Champlain Towers South (CTS) Collapse: A Case Study</p> <p>Anton Schindler Concrete Compliance and Shrinkage in the I-59/I-20 Segmental Bridge in Birmingham, Alabama</p>
11:00-11:20	Coffee		
	Session 4.2- Testing (Chair: Mateusz Wyrzykowski)	Session 5.2- Modelling (Chair: Roman Wan-Wendner)	Session 6.2 Views& Discussion (Chair: Leyang Lyu)
11:20-12:40	<p>Mladena Lukovic The role of eigen-stresses in mechanical testing of concrete</p> <p>Emmanuel Roziere How to use free and restrained shrinkage tests to assess delayed elastic properties of concrete?</p> <p>Eric Landis Short Term Creep & Compaction and Their Role in Fracture of Ultra-High Performance Concrete</p> <p>Jishen Qiu Reactive magnesia cement (RMC)-based mortar with high-dosage biomass-mechanical properties and ambient CO2 sequestration ability</p>	<p>Ab van den Bos Differences explained between 2D and 3D numeric modelling of Early Age Concrete (EAC).</p> <p>Ya Wei Discrete Element Method for Modeling the Creep Behavior of Calcium Silicate Hydrate (C-S-H) at the Microscale</p> <p>Yidong Gan Microscopic simulation of fiber pulling-out process</p> <p>Pradeep SARAVANAN Early age Creep behavior of 3D printable Mortar: Hydration and Viscoelasticity Coupling Model</p>	<p>Nynke ter Heide Data analysis of an autogenous shrinkage database of concrete with ground granulated blast-furnace slag</p> <p>Katarina Didulica Autogenous Shrinkage in Cementitious Materials: Testing Procedures and Prediction Models – State of the Art</p> <p>Anna-Lena Podhajecky Wake-up call for creep prediction – Cyclic changes in ambient humidity cannot be neglected</p> <p>Wenjuan Lyu Another perspective towards a reliable prediction of long-term creep of concrete: interaction between creep, on-going hydration, micro-cracking and self-healing</p>
12:40-13:30	Lunch		
13:30-14:20	Debate 3: Matthew D'Ambrosia vs Agnieszka Bigaj, Moderator: Mladena Luković , Creep, Shrinkage and Durability; the path from research to codes in the US and EU.		
	Session 4.3- Testing (Chair: Mladena Lukovic)	Session 5.3- Modelling (Chair: Ya Wei)	Session 6.3 ASR (Chair: Yu Chen)
14:20-15:20	<p>Abdo Shamseldin Effect of temperature on the time-dependent behaviour of blended concrete used for nuclear waste disposal</p> <p>Yanchen He Indentation splitting test of cement paste micro-cubes containing single microfibre</p> <p>Math Lecomte Strength retrogression in high-temperature oil-well cements: Microstructural origins.</p>	<p>Yilin Wang Mesoscale modelling of concrete shrinkage in a discrete multi-physics framework</p> <p>Lin Wan-Wendner Methods and multiphysics modeling for temperature control of mass concrete at early age</p> <p>Sheng Liu Creep simulation of cement paste under micro-indentation considering C-S-H composition</p>	<p>Patrick Holthuisen Evaluation of the residual expansion of a concrete structure affected by Alkali Silica Reaction</p> <p>Misato FUJISHIMA Influence of creep on the crack development in composition phase of concrete due to alkali-silica reaction evaluated by a mesoscale discrete model</p> <p>Lifu Yang Numerical modeling of temperature, relative humidity, and triaxial effects on concrete expansion caused by alkali-silica reaction</p>
15:20-15:40	Coffee		
	Session 4.4- Testing (Chair: Matthew D'Ambrosia)	Session 5.4- Modelling (Chair: Yidong Gan)	Session 6.4 Testing (Chair: Angieszka Bigaj)
15:40-17:00	<p>Yunus Ballim The effects of geological characteristics of basalt aggregate and dosage of shrinkage reducing admixture on the creep and shrinkage deformation of concrete</p> <p>Huibert Jilles (Jelle) Bezemer Shrinkage induced strain in reinforced slag-based alkali activated and conventional concrete measured by distributed optical fibers</p> <p>Martyna Nieświcz The effect of cement fragmentation on the selected properties of cementitious composites</p> <p>Han Gao Creep behaviour of alkali activated slag and fly ash paste</p>	<p>Jean-Luc Adia Modelling of biaxial creep test in drying and non-drying conditions over 5 years on VERCORS concrete</p> <p>Thittarashmi Mallick Analysis of prestressed concrete beams: A comparative study of modulus methods and exact solutions</p> <p>Nobuhiro Chijiwa Assessment of the Influence of Joint Characteristics on Long-Term Time-Dependent Deformation in Steel-Concrete Hybrid Girders Using Numerical Analysis</p> <p>Xuan Zhang Multi-scale Analysis of Damage Creep of Concrete</p>	<p>Viktor Gribniak Optimizing the Bond Performance of Stainless-Steel Bars in CAC-Based Refractory Castables under Elevated Temperatures</p> <p>Jinbao Xie Elliptical shaped auxetic cementitious cellular composites (ACCs) incorporating SHCC: mechanical insights</p> <p>Yushi Kato Experimental study on mechanical properties and autogenous shrinkage of ultra-high strength concrete with electric arc furnace oxidizing slag aggregate</p> <p>Kailun Xia Plastic deformation of 3D printed concrete: mechanical response and analytical modeling based on viscoelastic creep behavior</p>

18:30-21:30 **CONCREEP12 Dinner in town Delft**

Day 3- Session 7

Day 3- Session 8

09:00-9:50 **Debate 4: Ya Wei vs Stéphanie Staquet, Moderator: Bernhard Pichler, Micro-scale versus Macro-scale approach; what shall we do?**



Session 7.1- Testing (Chair: Muhammad Fotouhi)

Session 8.1- Modelling (Chair: Go IGARASHI)

10:00-11:00 Albina Kostiuchenko Creep behaviour and mechanical properties of slag- and fly ash-based alkali-activated concrete
 Marija Docevska Jovanova Creep experiments on reinforced concrete elements under time-varying load histories
 Chakib EL FAQIR Investigation of cement paste carbonation using simultaneous X-rays and Neutrons tomography.

Gianluca Gusatis A Multiphysics-Lattice Discrete Particle Model (M-LDPM) framework for fully coupled fracture-fluid interactions
 Wei Chen A Non-linear Building Rate Prediction Model Concerning Filament Compression Deformation for 3D Printed Geopolymer Concrete
 Amit Kumar Micromechanical modelling of creep in blended cement pastes: Effect of shape of hydrates

11:00-11:20 Coffee

Session 7.2- Testing (Chair: Stéphanie Staquet)

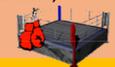
Session 8.2- Testing& Modelling (Chair: Michael Haist)

11:20-12:40 Petr Havlasek Shrinkage-induced reduction in bending stiffness of concrete beams under symmetric and non-symmetric drying conditions
 Mohammad Fotouhi Flexural Performance of Damaged Concrete Prisms Retrofitted Using Mechanochromic Glass/Carbon Hybrid Composites
 Go IGARASHI Drying shrinkage of FA cement paste under the first drying
 RAJEEV KUMAR Ranjan Effects of relative humidity on the drying shrinkage of fly ash-slag geopolymer and OPC-based mortar cured at ambient conditions.

Andrius Kudžma The Curing Temperature Effect on Physical Properties and Mechanical Resistance of CAC-Based Refractory Castables
 Pauline Rose Quiatchon The setting and early-age volume change of hydrated reactive magnesia cement
 Barbara Kucharczykova Creep of alkali-activated slag materials
 Jan Cervenka Time dependent modelling and simulation of digital concrete

12:40-13:30 Lunch

13:30-14:20 **Debate 5: Klaas van Breugel vs Benoît Hilloulin, Moderator: Gianluca Cusatis, Conceptual, Numerical or Machine Learning Models; What gives us better and safer structures?**



Session 7.3- Testing (Chair: Jishen Qiu)

Session 8.3- Views& Discussions (Chair: Gianluca Cusatis)

14:20-15:40 Manu Mohan Drying shrinkage-induced cracking in 3D printable concrete mixtures and shrinkage mitigation strategies
 Zijian Jia Micromechanical and Microstructure Characteristics of Alkali-activated Slag: a Comparison With Portland Cement
 Bianca Kern Effect of creep and cyclic loading on the long-term deformations of concrete
 Renan Rocha Ribeiro Effects of expansive additive on stress development of

Michael Haist Creep of concrete -from microscopic mechanisms to macroscopic effects
 Raul Marrero-Rosa Concrete Printability is not a Material Property
 SHEHNAZDEEP S Assessing durability properties of fly ash – GGBS geopolymer binders in aggressive environments: A systematic review
 Juan Garzon Creep behavior of Recycled Aggregate Concrete – A critical review
 Amortegui

15:40-17:00 **FAREWELL DRINKS & BITES**

Schleibinger Geräte
Building Materials Testing Systems



 **ATENA**
Reinforced Concrete Modeling



 **TU Delft**

 **aci**


rilem