

Programme at a glance

SIF 24 – Structures in Fire 2024							
Department of Civil Engineering, Polo II – University of Coimbra							
	18/06/2024 (Tuesday)	19/06/2024 (Wednesday)	20/06/2024 (Thursday)		21/06/2024 (Friday)		
8:00-9:00		Participant Registration Reception of DEC					
9:00-9:30		Opening Session (Room A)					
9:30-9:35		Session A.1.1 Room A	Session A.1.2 Room A	Session B.1.2 Room B	Session A.1.3 Room A	Session B.1.3 Room B	
9:35-10:00							
10:30-11:00		Coffee Break (at 4th floor of DEC)					
11:00-12:30		Session A.2.1 Room A	Session B.2.1 Room B	Session A.2.2 Room A	Session B.2.2 Room B	Session A.2.3 Room A	Session B.2.3 Room B
12:30-13:45		Lunch Time (at 4th floor of DEC)					
13:45-15:15		Session A.3.1 Room A	Session B.3.1 Room B	Session A.3.2 Room A	Session B.3.2 Room B	Session A.3.3 Room A	Session B.3.3 Room B
15:15-15:45		Coffee Break (at 4th floor of DEC)					
15:45-17:00		Session A.4.1 Room A	Session B.4.1 Room B	Session A.4.2 Room A	Session B.4.2 Room B	Session A.4.3 Room A	
17:00-17:30		Group Picture Front of DEC				Closing Session Awards Ceremony Room A	
18:30-19:00	Welcome Drink and Registration Beer's Coimbra, Parque Verde Mondego						
19:00-20:00							
21:30-23:30		Social Program UC by Night Polo I of UC		Conference Dinner São Marcos Palace			

Room A - Auditorium Laginha Serafim

Room B - Amphitheater S.A 2.5

Conference – Final Programme

19th June 2024

08:00

Reception

Reception of DEC

Participants Registration

08:00

Participants registration

09:00

Opening Session

Room A – Auditorium Laginha Serafim

09:00

Opening Session

09:30

Session A.1.1 | Applications of Structural Fire Engineering 1

Room A – Auditorium Laginha Serafim

09:30

Numerical calculation on frame at elevated temperatures

Batuhan Der, František Wald, Petr Cervinka, Martin Vild, Jiri Vanek | Presented by František Wald

09:45

Application of cost-benefit analysis methodology for fire safety measures in structural fire engineering

Andrea Lucherini, Shuna Ni, David Unobe, Thomas Gernay, Ranjit Kumar Chaudhary, Mengying Peng, Ruben Van Coile | Presented by Mengying Peng

10:00

Comparing various methods for estimating the fire decay and the cooling phase in structural fire engineering

Andrea Lucherini, Ruben Van Coile, Bart Merci | Presented by Andrea Lucherini

10:15

Probabilistic fire assessment of bridges: An Italian case study

Patrick Covi, Nicola Tondini | Presented by Patrick Covi

10:30

Coffee Break

4th floor of DEC

11:00

Session A.2.1 | Applications of Structural Fire Engineering 2

Room A – Auditorium Laginha Serafim

11:00

Analyzing the impact of fire intensity and bridge geometrical characteristics on the thermo-structural response of bridge girders during tanker fire incidents

Augusto M. Gil, Venkatesh K. R. Kodur | Presented by Venkatesh K. R. Kodur

11:15

Optimising airport structural fire design with fire spread models: A case study on integrating gozone with SAFIR

Jeremy Chang, Antonio Gamba, Linus Lim, Peter Armstrong, Konstantinos Papaioannou | Presented by Jeremy Chang

11:30

Behaviour of simple steel joints under natural fire curves: A case study

Niccolò Passarini, Nicola Tondini | Presented by Nicola Tondini

11:45

The fire engineering challenge associated with a steel beam penetrating a compartment wall

Edwin Ayala, Mark Davison, and Cristian Maluk | Presented by Edwin Ayala

12:00

Simplified verification method for the classification of thermally insulating vertically perforated bricks in case of fire

Heiner Kruse, Catherina Thiele | Presented by Heiner Kruse

12:15

The comprehensive study of the thermo-mechanical behaviour of masonry walls

Armita Obaei, Javad Eslami, Anne-Lise Beaucour, Dashnor Hoxha, Albert Noumowe, Pierre Pimienta | Presented by Armita Obaei

11:00

Session B.2.1 | Composite Structures in Fire 1

Room B – Amphitheater S.A 2.5

11:00

A user interface to compare the lifetime costs of prescriptive and performance-based fire designs of composite buildings

Chenzhi Ma, Ruben Van Coile, Thomas Gernay | Presented by Ruben Van Coile

11:15

Fire behaviour of timber-concrete composite constructions under fire exposure

Philipp Peifer, Catherina Thiele | Presented by Philipp Peifer

11:30

Parametric numerical study of fire experiments on steel-concrete composite floors

Chenzhi Ma, Thomas Gernay | Presented by Thomas Gernay

11:45

Fire performance of protected high strength concrete-filled steel tubular columns

Utsab Katwal, Zhong Tao, Qingtao Huang, Maroun Rahme | Presented by Zhong Tao

12:00

Fire behaviour of concrete-encased concrete-filled steel tube slender columns under concentric and uniaxial eccentric load

Nuoxin Wu, Kang Hai Tan | Presented by Nuoxin Wu

12:15

Mechanical behaviour of vacuum-infused GFRP composites at elevated temperatures – influence of fibre architecture

Eloísa Castilho, João P. Firmo, Mário Garrido, João R. Correia, Afonso Ataíde, Marcos Roque | Presented by Eloísa Castilho

12:30

Lunch Time

4th floor of DEC

13:45

Session A.3.1 | Concrete Structures in Fire 1

Room A – Auditorium Laginha Serafim

13:45

High-temperature bond strength of GFRP reinforcing bars for informing design recommendations

Bronwyn Chorlton, Naeim Roshan, Hamzeh Hajiloo, Mark Green | Presented by Mark Green

14:00

Temperature effects on the bond behaviour of reinforcement in fibre-reinforced lightweight aggregate concrete

Christopher Kevinly, Panwei Du, Kang Hai Tan | Presented by Panwei Du

14:15

Experimental study on thermo-hydral response of cracked concrete subjected to elevated temperatures

Yu-Qing Ge, Chao Jiang, Hao-Chuan Zhang, Xiang-Lin Gu, Xiao-Bin Song | Presented by Yu-Qing Ge

14:30

A Model for the effect of THERMAL spalling in RC columns

David L. Peña, Carmen Ibáñez, Vicente Albero, Antonio Hospitaler, Andrés Lapuebla-Ferri, Héctor Saura | Presented by Carmen

Ibáñez

14:45

A new tabulated procedure to fire-design RC ribbed slabs

Fabrizio Longhi Bolina

15:00

Experimental investigation on thermal performance of 3D printed concrete elements subjected to fire

Jin Qiu, Liming Jiang, Jinjin Wang, Yiwei Weng, Asif Usmani | Presented by Liming Jiang

13:45

Session B.3.1 | Other Topics Related to Structures in Fire

Room B – Amphitheater S.A 2.5

13:45

Revisiting structural fire resistance requirements for carparks

Sigurjon Ingolfsson, Adam Glew, Julian Mendez, Eoin O'Loughlin, Alistair Morrison | Presented by Sigurjon Ingolfsson

14:00

Prediction of structural failures in a fire accident for firefighters' safety

Aatif Ali Khan, Mustesin Ali Khan, Nan Zhuojun, Asif Usmani | Presented by Aatif Ali Khan

14:15

Delivering sustainable buildings: implications and challenges for structural fire engineering

Marion Charlier, Andrea Lucherini | Presented by Marion Charlier

14:30

Fire fragility assessment for bridge structures

Donatella de Silva, Andrea Miano, Gabriella De Rosa, Francesco Di Meglio, Andrea Prota, Emidio Nigro | Presented by Francesco Di

Meglio

14:45

A computational modeling approach for steel gravity frames with composite floor systems subjected to fire

Mohammed A. Morovat, Joseph A. Main Jonathan M. Weigand, Fahim H. Sadek, Long T. Phan | Presented by Mohammed A.

Morovat

15:00

Chemo-thermo-hygro-mechanical analysis of blended concretes under fire loading

Simon Peters, Günther Meschke | Presented by Simon Peters

15:15

Coffee Break

4th floor of DEC

15:45

Session A.4.1 | Steel Structures in Fire 1

Room A – Auditorium Laginha Serafim

15:45

Structural behaviour of automated rack supported warehouses in fire situation

Margherita Autiero, Donatella de Silva, Naveed Alam, Emidio Nigro | Presented by Emidio Nigro

16:00

OpenSEES simulation of the plasco tower collapse using an integrated simulation approach

Ramakanth Domada, Aatif Ali Khan, Anwar Orabi, Asif Usmani | Presented by Ramakanth Domada

16:15

DSM design for cold-formed steel lipped channel beams failing in global modes under fire conditions

Natan Sian das Neves, Alexandre Landesmann, Dinar Camotim | Presented by Alexandre Landesmann

16:30

Experimental and numerical investigation on collapse modes and mechanisms of planar steel triangle trusses exposed to fire

Jinyu Li, Guo-Qiang Li, Shaojun Zhu, Wei Ji, Yao Wang, Honghui Qi, Xiuzhi Zheng, Kun Ding | Presented by Jinyu Li

16:45

In situ test procedure to determine the fire resistance of existing steel structures with aged intumescent coating

Richard Fürst, Dustin Häßler, Ludwig Stelzner, Sascha Hothan

15:45

Session B.4.1 | Concrete Structures in Fire 2

Room B – Amphitheater S.A 2.5

15:45

Quantifying the link between in-depth temperature gradients and onset of fire-induced concrete spalling

Ho Yin Lam, Kai Teng Eunice Lim, Cristian Maluk

16:00

Fire behaviour of reinforced concrete beams strengthened in shear using embedded through-section (ETS) steel or CFRP bars – fire resistance tests and numerical thermal modelling

Adriana S. Azevedo, João P. Firmo, João R. Correia | Presented by João P. Firmo

16:15

Investigating the High-Temperature Behavior of Polymer Concrete

Srishti Banerji, Venkatesh Kodur, Ahmed Almaadawy, Manish Sah, David Unobe | Presented by Srishti Banerji

16:30

Structural fire design of blast damaged concrete columns

Kevin Mueller, Daksh Patel, Kyle Root | Presented by Kevin Mueller

16:45

Numerical analysis of load-bearing fire tests of a composite slab with laps

Haruka Kanada, Shimono Kisei, Moe Horie, Takeo Hirasima, Kei Kimura, Yusuke Shintani | Presented by Haruka Kanada

17:00

Group Picture

Front of DEC

21:30

UC by night

University of Coimbra

UC by night - 19th June, 21:30 - 23:30 Are you ready to embark on an unforgettable journey through the University of Coimbra at night?

UC BY NIGHT offers a unique guided visit, led by expert interpreter guides, full of history, curiosities and enchanting moments.

Guided visit includes emblematic places, as the University Palace, the Chapel of St. Michael and the Noble Floor of the Joanine Library. You also have the opportunity to climb the Tower of the University of Coimbra and enjoy the panoramic view over the city.

The meeting point will be at Porta Ferrea, Polo I at the University of Coimbra

Location: <https://maps.app.goo.gl/s8jTB4bGUwVMkvDRA>

20th June 2024

09:00

Session A.1.2 | Numerical Modelling of Structures in Fire

Room A – Auditorium Laginha Serafim

09:00

Thermo-mechanical analysis and validation of safir for historic forms of construction

Octavian Lalu, Tom Lennon, Diana Duma, Thomas Gernay | Presented by Octavian Lalu

09:15

Validation of structural fire simulations: From small-scale experiments to real, large-scale fires

Wulan Shofa Aisyah, Augustin Guibaud, Jose Torero, Alejandra Albuerne | Presented by Wulan Shofa Aisyah

09:30

Numerical investigation of the structural fire response of tunnel structures with rectangular cross-sections

Thomas Thienpont, Florian Put, Balša Jovanovic, Ranjit Kumar Chaudhary, Ruben Van Coile | Presented by Thomas Thienpont

09:45

Validation of numerical simulations for hot-dip galvanized composite beams and connection details with experimental data

Maria-Mirabela Firan, Justus Frenz, Jie Li, Annika Kapfhammer, Prof. Jochen Zehfuß, Prof. Martin Mensinger | Presented by Maria-Mirabela Firan, Justus Frenz

10:00

Integrated analysis of loading eccentricity on response of a column under travelling fire

Rabinder Kumar, Naveed Alam, Ali Nadjai | Presented by Rabinder Kumar

10:15

Structural bolt heating and cooling: numerical study

Gordon Chen, Anthony Abu, Gregory MacRae | Presented by Gordon Chen

09:35

Session B.1.2 | Steel Structures in Fire 2

Room B – Amphitheater S.A 2.5

09:35

Fire resistance testing of steel tension members with hollow section protected by intumescent coating

Dustin Häßler, Andreas Becker, Richard Fürst, Sascha Hothan | Presented by Dustin Häßler

09:45

Charpy impact test in the post-fire verification of structural steel susceptibility to brittle fracture

Mariusz Maslak, Michal Pazdanowski, Marek Stankiewicz, Paulina Zajdel | Presented by Mariusz Maslak

09:55

Lateral-torsional buckling of steel beams supporting cross-laminated timber slabs in fire

Aatish Jeebodh, Buick Davison, Martyn S. McLaggan, Ian Burgess, Danny Hopkin, Shan-Shan Huang | Aatish Jeebodh

10:05

Numerical and experimental study on critical temperature of axially loaded steel members under fire conditions

Hao Tang, Shouchao Jiang, Tingna Zhang | Presented by Hao Tang

10:15

Failure analysis of an aluminium warehouse columns due to time-dependent strain

Marko Goreta, Neno Toric, Ivica Boko | Presented by Marko Goreta

10:25

Deep learning-driven real-time prediction of fire-induced collapse of steel portal frames

Wei Ji, Guo-Qiang Li, Shaojun Zhu, Yong Du, Liu Zhi, Zongjun Xia, Zhifei Chen

10:35

Coffee Break

4th floor of DEC

11:00

Session A.2.2 | Timber Structures in Fire 1

Room A – Auditorium Laginha Serafim

11:00

Embedment strength of dowelled connections of glulam timber at high temperatures

Shunsuke Saito, Takayuki Kikuchi, Yukito Nakayama, Marina Totsuka, Takeo Hirashima | Presented by Shunsuke Saito

11:15

Investigation on the post-fire mechanical properties of glulam

Jingxian Zhao, Hongbo Liu, Thomas Gernay, Zhihua Chen, Shixing Zhao

11:30

Experimental fire studies comparing the charring behaviour of timber protected with thin intumescent coatings and fire rated plasterboard

Stavros Spyridakis, Felix Wiesner, Anwar Orabi, Cristian Maluk | Presented by Stavros Spyridakis

11:45

Fire development in large compartments with mixed-timber-section ceiling

Cheng Chen, Tianwei Chu, Guillermo Rein, Asif Usmani, Liming Jiang | Presented by Tianwei Chu

12:00

Influence of adhesive type on heat induced delamination in tension loaded shear lap cross laminated timber samples exposed to radiant heat flux

Colic A., Wiesner F., Spearpoint M., Hopkin D., Bisby L. | Presented by Antonela Colic

12:15

Numerical modelling of the charring performance of cross-laminated timber exposed to standard fire

Mika Alanen, Topi Julin, Mikko Malaska, Mikko Salminen, Alekski Ojala | Presented by Mikko Salminen

11:00

Session B.2.2 | Concrete Structures in Fire 4

Room B – Amphitheater S.A 2.5

11:00

Fire-induced spalling of normal strength concrete with different types of blended portland cement

Tim Pittrich, Ludwig Stelzner, Frank Weise | Presented by Tim Pittrich

11:10

Post-fire structural performance of corroded concrete beams

Ethan Phillion, Kathryn Chin, Austin Martins-Robalino, John Gales | Presented by Ethan Phillion

11:20

Spalling tests of ultra-high performance concrete: influence of polypropylene fibers, drying and heating rate

V. Albero, D. Hernández-Figueirido, L. Reig, M. Roig-Flores, A. Melchor-Eixea, A. Piquer, A. Pitarch | Presented by V. Albero

11:30

Structural modelling coupled with large-scale fire tests for determining spalling of concrete structures: a real application case to the mont-blanc tunnel vault

Dorjan DAUTI, Julien VIALE, Jos BIENEFELT, Maïkel LOPEZ, Clifford CHINAYA, Xavier DUPONCHEL, Nicolas ROGES, Jean Noel PONTAROLLO | Presented by Dorjan DAUTI

11:40

Experimental investigation on the concrete behavior in the cooling phase of thermal cycles at high temperature

Jan Lyzwa, Jochen Zehfuss | Presented by Jan Lyzwa

11:50

Effect of elevated temperatures and varying cooling regimes on transport properties of concrete

Pavan Kumar, Umesh Kumar Sharma, A. B. Danie Roy

12:00

Efficient and reliable fire risk assessment of RC column

Akshay Baheti, David Lange, Vasant Matsagar | Presented by Akshay Baheti

12:10

Structural fire assessment of an existing tunnel using performance based approach and design

Eric Tonicello, Julien Duboc | Presented by Eric Tonicello

12:30

Lunch Time

4th floor of DEC

13:45

Session A.3.2 | Concrete Structures in Fire 3

Room A – Auditorium Laginha Serafim

13:45

Unravelling the Dynamics of fire-induced concrete spalling: A Focus on thermal energy in a two-stage mechanism

Ramin Yarmohammadian, Roberto Felicetti | Presented by Ramin Yarmohammadian

14:00

Confined slab spalling test (CSST): a screening tool to assist concrete mix design in tunnel projects

Roberto Felicetti, Francesco Lo Monte, Umberto Cardu, Federico Martellozzo, Nicola Valiante | Presented by Roberto Felicetti

14:15

Influence of design moment redistribution to the fire resistance of fibre-reinforced lightweight aggregate concrete continuous slabs

Christopher Kevinly, Panwei Du, Bak Koon Teoh, Kang Hai Tan | Presented by Christopher Kevinly

14:30

Enhancing fire resistance of geopolymer concrete utilizing recycled aggregates, copper slag, and glass spheres: a comprehensive study

Tawzia Manzoor, Asif H. Shah, Javed Ahmad Bhat | Presented by Asif H. Shah

14:45

Load-induced thermal strain of high-strength concrete at elevated temperatures

Dinh Ba Le, José L. Torero, Vinh Dao | Presented by Vinh Dao

15:00

Response of structural concrete elements to thermo-mechanical loads

Biswajit Pal, Ananth Ramaswamy | Presented by Ananth Ramaswamy

13:45

Session B.3.2 | Experimental and Numerical Modelling of Structures in Fire 1

Room B – Amphitheater S.A 2.5

13:45

Introduction to the jet fire and force loading coupled test device

Yanhong Zhang, Guobiao Lou, Guoqiang Li, Mengjie Wang, Honghui Qi

13:55

Temperature distribution and residual strength of mortar infilled modular rectangular steel columns exposed to standard fire

Seulgi Han, Junyoung Gwak, Sunhee Kim, Inrak Choi, Sungmo Choi | Presented by Inrak Choi

14:05

Dynamic Response Assessment of RC Structure Exposed to Natural Fire

Muhammad Noman, Muhammad Yaqub, Salman Khan

14:15

On the fire development and modelling for automated rack supported warehouses

Margherita Autiero, Donatella de Silva, Emidio Nigro | Presented by Donatella de Silva

14:25

Experimental and analysis of precast concrete sandwich panels façade (PCSPF) systems at elevated temperatures

Ali Nadjai, Donatella De Silva, Gabriella De Rosa, Naveed Alam, Faris Ali | Presented by Ali Nadjai

14:35

Numerical analysis of steel-concrete composite shear wall at elevated temperature

Bhatt Nav Raj, Mahbub Khan, Huu Tai Thai, Tuan Ngo, Brian Uy | Presented by Bhatt Nav Raj

14:45

A numerical investigation on fire resistance of steel warehouse based on fire protection optimization

Pegah Aghabozorgi, Aldina Santiago, Luís Laím | Presented by Pegah Aghabozorgi

14:55

Numerical design calculation of the Cardington frame joints

Batuhan Der, František Wald, Petr Cervinka, Martin Vild

15:05

Response of composite bridge girders exposed to realistic fire scenarios using a deep learning based approach

Mustesin Ali Khan, Aatif Ali Khan, Nan Zhuojun, Ghazanfar Ali Anwar, Katherine Cashell, Asif Usmani | Presented by Katherine Cashell

15:15

Coffee Break

4th floor of DEC

15:45

Session A.4.2 | Composite Structures in Fire 2

Room A – Auditorium Laginha Serafim

15:45

Influence of laps on the behaviour of a composite slab under membrane action in fire

Moe Horie, Takeo Hirashima, Haruka Kanada, Yusuke Shintani | Presented by Moe Horie

16:00

Enhancement of the fire performance of steel-reinforced concrete-filled steel tubular slender columns with high-performance materials

David Medall, Carmen Ibáñez, Ana Espinós, Manuel Luis Romero | Presented by Manuel Luis Romero

16:15

Investigations on headed studs in profiled steel sheeting at elevated temperatures

Kurt Tutzer, Knallinger Georg, Mohamad Mohamad, Martin Mensinger | Presented by Martin Mensinger

16:30

Numerical investigation on different fire protection systems for steel-concrete composite beams with demountable shear connectors

Vicente Albero, Ana Espinós, Andrés Lapuebla-Ferri, Manuel Luis Romero | Presented by Ana Espinós Capilla

16:45

Heating of fire protected steel beams with unfilled cavities formed between the steel profile and otop steel deck of composite slabs - experimental and numerical studies

Bin ZHAO, Hoang-Tung VU | Presented by Bin ZHAO

16:00

Session B.4.2 | Timber Structures in Fire 2

Room B – Amphitheater S.A 2.5

15:45

Burning behaviour of a timber ceiling: a bench-scale investigation

Joshua Madden, Mabelle Kriel, Felix Wiesner, Wenxuan Wu, Ryan Hilditch, Adam Ervine, David Lange | Presented by Joshua Madden

15:55

Application of the European charring model to cross laminated timber in parametric fire

Mika Alanen, Mikko Malaska, Sami Pajunen | Presented by Mika Alanen

16:05

An empirical model of fallout of char layer of glue laminated timber walls heated by ISO 834 standard fire for various duration

Shoma Makino, Anyang Sun, Kazunori Harada, Daisaku Nii | Presented by Kazunori Harada

16:15

Probabilistic modelling of wood charring rates: a parametric study and next steps

Jakub Šejna, Dominik Štraus, Kamila Cábová, František Wald | Presented by Jakub Šejna

16:25

Influence of surface slot shape on the temperature rise and burning behavior of wood under intense heating

Anyang Sun, Kazunori Harada, Daisaku Nii | Presented by Anyang Sun

16:35

CFD-based analysis of thermocouple measurements in the fire decay and cooling phases in relation to the adiabatic surface temperature

Florian Put, Andrea Lucherini, Ruben Van Coile, Bart Merci | Presented by Florian Put

16:45

Simulations and tests of steel plates protected by intumescent paint exposed to fire

Véronique Saulnier, Salah Eddine Ouldboukhitine, Sébastien Durif, Abdelhamid Bouchaïr | Presented by Véronique Saulnier

21st June 2024

09:00

Session A.1.3 | Concrete Structures in Fire 5

Room A – Auditorium Laginha Serafim

09:00

Application of the method of parallel sections (MPS) for the assessment of the thermo-mechanical performance of precast prestressed

concrete roof/floor members in fire

Bruno Dal Lago, Matteo Mostachetti | Presented by Bruno Dal Lago

09:15

Post-fire bond strength of steel reinforcing bars to concrete using beam-end specimens

Nima Tajik, Negar Elhami-Khorasani, Ravi Ranade, Anthony Tessari | Presented by Negar Elhami-Khorasani

09:30

Test of a full-scale concrete slab with step exposed to a long-duration ISO fire

Mami Saito, Yusuke Shintani, Toshihiko Nishimura, Kei Kimura | Presented by Mami Saito

09:45

Thermal performance of fire protection materials under non-standard heating regimes: an experimental parametric study

Antonio Cibelli, Donatella de Silva, Francesco Dionisio, Emidio Nigro | Presented by Antonio Cibelli

10:00

Post-fire damage classification of reinforced concrete structures using thermal analysis

Nima Tajik, Negar Elhami-Khorasani, Ravi Ranade, Anthony Tessari, Fernando Szasdi-Bardales | Presented by Fernando Szasdi-Bardales

10:15

From xai into causal inference: a quantification of polypropylene fibers effect in mitigating fire-induced spalling across concrete grades

Mohammad Khaled Gazi al-Bashiti, M.Z. Naser | Presented by M.Z. Naser

09:35

Session B.1.3 | Applications of Structural Fire Engineering 3

Room B – Amphitheater S.A 2.5

09:35

Smart performance-based structural fire design

Zhuojun Nan, Mhd Anwar Orabi, Xinyan Huang, Asif Usmani

09:45

Performance-based analysis and structural optimization of existing buildings: case study and developments

Julien Duboc, Eric Tonicello | Presented by Julien Duboc

09:55

Enhancing composite bridges fire safety through performance analysis: lessons from an actual bridge fire incident on the influence of cross-section, constitutive model, and finite element type

Juan José Pagán-Martínez, Ignacio Paya-Zaforteza, Antonio Hospitaler-Pérez | Presented by Juan José Pagán-Martínez

10:05

A refined cylinder fire model for steel beam temperature calculation under localized fire conditions

WEI Junjie, ZHANG Chao | Presented by WEI Junjie

10:15

Calculation of fire protected steel section temperatures in performance-based fire design – EC3 calculation method generalized for non-uniform fire exposure

Timo Jokinen, Risto Ranua | Presented by Timo Jokinen

10:25

Behaviour of modular building incorporating CFST columns subjected to compartment fire

Lalita Lama, Thomas Gernay, Huu Tai Thai, Tuan Ngo, Brian Uy | Presented by Lalita Lama

10:35

Coffee Break

4th floor of DEC

11:00

Session A.2.3 | Steel Structures in Fire 3

Room A – Auditorium Laginha Serafim

11:00

Fire resistance of partially enclosed structural carbon steel hollow columns

Luís Laím , Aldina Santiago , Helder D. Craveiro | Presented by Luís Laím

11:15

Fire dynamics and structural response of sprinklered warehouse with steel trusses using computational modelling

Dilip Neupane, Zhongcheng Ma | Presented by Dilip Neupane

11:30

Fire-induced collapse early-warning method for planar multi-story steel frame structures

Yao Wang, Guo-Qiang Li, Shaojun Zhu, Xiuzhi Zheng | Presented by Yao Wang

11:45

Resistance models for thin-walled steel beams under non-uniform temperature using machine learning

Carlos Couto, Qi Tong, Thomas Gernay | Presented by Carlos Couto

12:00

Guidance for incorporating high-temperature creep in fire-induced progressive collapse of steel-framed buildings

Svetha Venkatachari, Venkatesh Kodur | Presented by Svetha Venkatachari

12:15

Experimental and numerical response of steel trusses exposed to a localized fire

Kathryn Chin, Chloe Jeanneret, Panagiotis Kotsovinos, John Gales | Presented by Kathryn Chin

11:00

Session B.2.3 | Composite and Timber Structures in Fire

Room B – Amphitheater S.A 2.5

11:00

Simulation of built-up cold-formed steel-lightweight concrete (CFS-LWC) composite beams subjected to elevated temperatures

Rohola Rahnard, Hélder D. Craveiro, Rui A. Simões, Luís Laím, Aldina Santiago, Leroy Gardner | Presented by Rohola Rahnard

11:10

Load-bearing performance of concrete-filled steel tubular columns with high-strength steel sheets in the core exposed to fire

Shaghayegh Ameri, Michael Schäfers, Martin Mensinger, Jochen Zehfuß | Presented by Shaghayegh Ameri

11:20

Numerical investigations on fire performance of timber frames with dowel-type connections

Yukito Nakayama, Marina Totsuka, Takeo Hirashima | Presented by Yukito Nakayama

11:35

Towards alternative fire design solutions for wood-to-wood connections

Anne Davidson, Ethan Phillion, Lilyana Mladenova, Rwayda Al Hamd, Beth Weckman, John Gales | Presented by John Gales

11:50

Study on the fire design method of timber members treated with surface plastering application

Lingzhu Chen, Xi Chen, Qingfeng Xu, Mingqian Wang, Yubing Leng, Fuwen Zhang | Presented by Lingzhu Chen

12:05

Parametric experimental study on GLT columns stability during natural fire tests including the cooling phase

Silvio Renard, Thomas Gernay, Fabienne Robert, Jochen Zehfuß, Robert McNamee, Patrick Bamonte, Jean-Marc Franssen | presented by Jean-Marc Franssen

12:20

Determination of char layer density profile during structural timber fire experiments

Fernando Pérez Pérez, Joachim Schmid, Andrea Frangi | Presented by Fernando Pérez

12:35

Lunch time

4th floor of DEC

13:45

Session A.3.3 | Steel Structures in Fire 4

Room A – Auditorium Laginha Serafim

13:45

Modelling thermal creep of ultra-high-strength steels under steady state temperature conditions

Sara Uszball, Faranak Faghihi, Markus Knobloch | Presented by Markus Knobloch

14:00

Failure analysis on the global behaviour of carbon and stainless steel frame structures under fire conditions

Nuno Lopes, João Cabral, Paulo Vila Real | Presented by Nuno Lopes

14:15

Progressive collapse of steel frames subjected to parametric fire curves

Luca Possidente, Boban Cvetanoski, Nicola Tondini, Fabio Freddi | Presented by Luca Possidente

14:30

Heated steel bearing elements continuing through fire compartment boundaries

Anita Ogrin, Friderik Knez, Urška Blumauer | Presented by Urška Blumauer

14:45

Concrete splitting of post installed rebars at hightemperatures: experimental investigation

Fatima Ben Mouhou, Nicolas Pinoteau, Omar Al Mansouri, Roberto Piccinin , Kresimir Nincevic, Sébastien Rémond, Dashnor Hoxha |

Presented by Fatima Ben Mouhou

15:00

A new approach to the assessment of the fire resistance of structures

Tom Lennon, Octavian Lalu, Diana Duma | Presented by Tom Lennon

13:45

Session B.3.3 | Experimental and Numerical Modelling of Structures in Fire 2

Room B – Amphitheater S.A 2.5

13:45

Experimental study of the loadbearing performance of light gauge steel frame (LSF) walls exposed to fire on two sides

Iziengbe Inerhunwa, Danny Hopkin, Grzegorz Kimbar, Michael Spearpoint, Georgios Kanellopoulos, Piotr Turkowski | Presented by

Carmen Gorska

14:00

Performance of FREEDAM joints under fire – experimental assessment

Ana Francisca Santos, Aldina Santiago, Hélder Craveiro, Luís Simões da Silva | Presented by Ana Francisca Santos

14:15

Assessment of burnout performance of a concrete beam using a novel electric radiant panel

Balša Jovanovic, Robby Caspeepe, Edwin Reynders, Geert Lombaert, Florian Put, Andrea Lucherini, Ruben Van Coile | Presented by

Balša Jovanovic

14:30

Characterization of the change in polymer concrete overlays due to vehicle fire exposure

Ikwulono David Unobe, Shuna Ni | Presented by Shuna Ni

14:45

Optimising Diagrid Design for Fire Resistance in High-Rise Buildings

Zhiruoyu Wang, Mhd Anwar Orabi, Matthew Mason, Weiyong Wang, David Lange | Presented by Zhiruoyu Wang

15:00

Fire resistance of earthquake-damaged CFST columns filled with plain and fiber-reinforced concrete

Smita Singh, Anil Agarwal

15:15

Concrete-filled closed built-up cold-formed steel columns in fire with restrained thermal elongation

Hélder D. Craveiro, Rohola Rahnavard, Luís Laím, Aldina Santiago | Presented by Hélder D. Craveiro

15:30

Coffee Break

4th floor of DEC

15:45

Session A.4.3 | Experimental Modelling of Structures in Fire

Room A – Auditorium Laginha Serafim

15:45

Updating French car park fire scenarios for modern vehicles: HRR experimental study

Jean-Baptiste Traroni, Mathieu Suzanne, Gildas Auguin, Christophe Thauvoye | Presented by Jean-Baptiste Traroni

16:15

Hybrid fire test on a concrete-filled steel tube (CFST) column

Majid Hamidi Iravani, Masoud Adelzadeh, Hamzeh Hajiloo | Presented by Majid Hamidi Iravani

16:30

Apparatus for assessing the load-induced thermal strain of concrete at elevated temperature

Kajanan Selvaranjan, Maurizio Guadagnini, John L. Provis, Giacomo Torelli | Presented by Kajanan Selvaranjan

16:45

Closing Session/Awards

Room A – Auditorium Laginha Serafim