

# Applications of Structural Fire Engineering 2017 Programme

Sackville Street Building

University of Manchester

UK, M1 3WE

7-8th September 2017

**THURSDAY 7<sup>th</sup> SEPTEMBER**

**All Presentations in Sackville St Building Great Hall**

**8.00-8.30 Registration**

**8.30-8.45 Introductions**

**8.45-9.15 Key Note Presentation Prof Guo-Qiang Li, Tongji University “Fire-Resistance of Steel Structures for Large Space Buildings”**

**9.15 - 11.15 SESSION A Presentation Session 1 - Concrete Structures**

Thomas Gernay, Vlado Peric, Boyan Mihaylov, Tom Molkens and Jean-Marc Franssen	Effect of upgrading concrete strength class on fire performance of reinforced concrete columns
Mohammadali Javaheriafif, Buick Davison and Ian Burgess	The Influence of Slab Ductility on the Robustness of Composite Joints in Fire
Jason Martinez, Ha Nguyen and Ann Jeffers	Finite Element Analysis of Axial Forces in Composite Beams under Fire
Shujaat Buch and Umesh Sharma	Fire Resistance of Reinforced Concrete Columns: A Systematic Review (Full Paper)
S.H. Buch & U.K. Sharma	Fire Resistance of Reinforced Concrete Columns: A Systematic Review
Tom Molkens and Luc Taerwe	Methodology for upgrading the fire resistance of existing floor slabs by concrete topping

**9.15-11.15 SESSION B Presentation Session 2 – Steel Structures 1**

Dmitry Podolski, Yong-Chang Wang and Jifeng Yuan	Numerical investigation of intumescent ‘coatback’ on unprotected secondary beams
Mohamed Imran, Mahen Mahendran and Poologanathan Keerthan	Importance of Elevated Temperature Mechanical Properties for the Fire Design of Cold-Formed Steel Tubular Columns
Mohamed Imran, Poologanathan Keerthan and Mahen Mahendran	Fire Performance of CFRP Strengthened Cold-Formed Steel Tubular Columns
Chrysanthos Maraveas, Thomas Gernay and Jean - Marc Franssen	Sensitivity of elevated temperature load carrying capacity of thin-walled steel members to local imperfections
Aleksey Tretyakov, Illia Tkalenko, Frantisek Wald, Josef Novak, Radek Stefan and Alena Kohoutková	Fire resistance of the steel and fibre-reinforced concrete circular hollow column

**11.15-11.30 Coffee break**

**11.30-13.10 Presentation Session 2 -Steel Structures 2**

In-Rak Choi and Kyung-Soo Chung	Fire performance of steel tube and cft columns with fire resistant materials
Yong Du, Fei Cheng and Yongzhen Zhang	Behaviors of axially restrained tubular members under fire - Part 2: experimental study
Fei Cheng, Yong Du and Yongzhen Zhang	Behaviors of axially restrained tubular members under fire - Part 1: a novel test set-up
Guobiao Lou, Jian Jiang and Guo-Qiang Li	Robustness Index for Steel Portal Frames against Fire-induced Progressive Collapse
Pinar Sunar Bükülmez and Oğuz Cem Çelik	Structural fire behaviour and testing of protected and unprotected steel-concrete composite cellular beams

**13.10-14.00 Lunch, networking and informal discussion in Sackville St Building Entrance Hall**

**14.00-16.00 Presentation Session 3 - Materials**

Ming Xiang Xiong	Effects of Heat-Treatment Methods on Mechanical Performance of High-Tensile Strength Steel Subject to Elevated Temperatures
Neno Torić, Josip Brnić, Ivica Boko, Marko Čanađija, Goran Turkalj, Domagoj Lanc, Marino Brčić, Ivana Uzelac, Ian W. Burgess, Alen Harapin, Vladimir Divić and Mirela Galić	High-temperature properties of aluminium alloy en6082aw t6
Jan Lyzwa and Jochen Zehfuß	Thermal material properties of concrete in the cooling phase
Omid Pouran and Reinhard Harte	Influence of Heating Rate and Thermal Incompatibilities on the Test Results of Concrete Cylinder Specimens with Polypropylene Fibers under Heating
Donatella de Silva, Antonio Bilotta and Emidio Nigro	Effect of the thermal input on the behavior of intumescent coatings
Ming Xiang Xiong, Richard Liew and Yong Du	Effects of Heat-Treatment Methods on Mechanical Performance of High-Tensile Strength Steel Subject to Elevated Temperatures

**16.00-17.30 Panel Discussion “What are Industry’s Needs. How Can Academia Meet them?”**

**19-30 - 22.00 Conference Dinner, Mumford Restaurant**

**FRIDAY 8<sup>th</sup> SEPTEMBER**

**8.30-10.30 Presentation Session 1 - Fire**

Nicola Tondini, Andrea Morbioli and Jean-Marc Battini	A co-rotational 2D beam element for the analysis of flexural buckling of steel structures at elevated temperatures
Kamila Cabova, Nikola Liskova, Filip Zeman, Martin Benysek and Frantisek Wald	Numerical simulation of fire-resistance test
Egle Rackauskaite, Panagiotis Kotsovinos and Guillermo Rein	The effect of vertically travelling fires on a multi-story steel frame building
D Hopkin S Anastasov and D Brandon	Reviewing the veracity of a zone-model-based-approach for the assessment of enclosures formed of exposed CLT
Alastair Temple, Gary Walker, Graeme Flint, Yavor Panev and Panagiotis	Verification of 2D heat transfer models developed in LS-DYNA for structural fire engineering applications

Kotsovinos	
Athina Atalioti, Guillermo Rein, Panagiotis Kotsovinos and Adam Sadowski	Thermal Response of Structural Cables Subjected to Fire

**10.30-10.45 Coffee break**

**10.45- 12.25 Presentation Session 2 - Steel 3**

Chrysanthos Maraveas, Zacharias Fasoulakis and Konstantinos Tsavdaridis	Fire resistance of axially restraint and partially unprotected Ultra Shallow Floor Beams (USFB) and Delta composite beams
Anita Ogrin, Miran Saje and Tomaž Hozjan	An out-of-plane mechanical response of a planar steel frame in fire
Urška Dolinar, Anita Ogrin, Igor Planinc and Tomaž Hozjan	Influence of creep on buckling behaviour of steel columns in fire conditions
André Reis, Nuno Lopes and Paulo Vila Real	Shear buckling resistance of steel plate girders at elevated temperatures
G.C Clifton, A Abu, A.G. Gillies, N. Mago, K. Cowie	Fire Engineering Design of Composite Floor Systems for Two Way Response in Severe Fires

**12.25-13.15 Lunch, networking and informal discussion in Sackville St Building Entrance Hall**

**13.15-15.15 Presentation Session 3 Design**

Marcus Achenbach and Guido Morgenthal	A manual calculation method for the check of the fire resistance of concrete columns subjected to a standard fire
Kingsley Ukanwa, Charles Clifton, James Lim, Anthony Abu, Stephen Hicks and Umesh Sharma	Fire design of continuous concrete filled steel tubular column for a multi-storey building
Negar Elhami-Khorasani, Chenyang Fang and Thomas Gernay	Comparative fire analysis of steel-concrete composite buildings designed following performance-based and U.S. prescriptive approaches
Ruben Van Coile and Luke Bisby	Optimum investment in structural fire safety: case-study on the applicability of deflection-based failure criteria
Mark Jones, Serdar Selamet, Yong Wang and Metehan Calis	Fire safety of high-rise residential buildings: scope of fire engineering and comparison between UK and Turkish Practice
Mikko Salminen and J. Hietaniemi	Performance-Based Fire Design of 14-Story Residential Timber Framed Building

**15.15-17.15 Presentation Session 4 - New Directions**

Sauca Ana, Mergny Elke, Gernay Thomas and Franssen Jean-Marc	A method for Hybrid Fire Testing: Development, implementation and numerical application
Martina Manes and David Rush	Meta-analysis of UK, USA and New Zealand fire statistics databases with respect to damage and financial loss.
Ohk Kun Lim and Sengkwan Choi	Numerical studies on headed shear studs under elevated temperatures
John Gales, Matthew Smith and Chloe Jeanneret	Fire Safety Research towards Enabling Timber Structures in Canada
Liping Duan and Jincheng Zhao	A cross section deformable beam finite element model for fire simulations of thin-walled steel columns
R. Suwondo, M. Gillie, C. Bailey, L. Cunningham	Post-earthquake fire behaviour of composite steel-framed structures

**17.15-130 Close**