Programme

Training School for Young Researchers

"Advanced Fire Engineering in Practice – Software Tools"

Luleå University of Technology (LTU), 97187 Luleå, Sweden

12 - 15 March 2014

The Training School is intended to broaden the research background of the participants, firstly by introducing them to the views of some leading researchers and practitioners on topics of fire dynamics and heat transfer, structural behaviour and people movement, and then by challenging them to understand and use different software modelling tools. Through interchange of this information, as well presenting their work on benchmark studies or their own research, the COST TU0904 Action will play a major part in the formation of the next generation of leaders in fire engineering research and practice across Europe.

The School will run for 4 intensive days.

12 March:

The School will start with 1 day of presentations by students on their benchmark studies or their own research (for students who are not involved in WP4 Benchmark Studies of the Action). Presentations should each take 5 minutes (maximum 5 slides), with 3 minutes discussion. The discussion involving the whole group is intended to contribute ideas and advice succinctly.

Room E632

09.00 – 09.30	Welcome to participants by local organizer, Chair and Vice Chair of the Action
09.30 – 10.15	Current research at University of Luleå; Ulf Wickström (Luleå Technical University, Sweden)
10.15 – 10.45	Coffee break
10.45 – 12.30	Students´ presentations o Natalia Mambrilla - Fire Case Studies in XX Century Spanish Architecture o Javier Bermejo - Two Pedagogical Experiences in Fire Learning: emergency lightning technical cabinet and fire drills o Kalliopi Zografopoulou - FDS-CFD analysis of temperature development in an enclosure o Egle Rackauskaite - Travelling fires for structural design o László Szabó - Test fires o Bartek Sawicki and Pawel Krupa - Benchmarks for beams under elevated temperature - H-beam and Rectangular beam o Neno Torič - Benchmark studies for steel beams and columns o Domenico Sannino - Analysis of steel columns using different FE types and constitutive laws
12.30 – 13.30	Lunch in Campus*
13.30 – 15.30	Students´ presentations o Helder Craveiro and Luís Laím - Structural behaviour of cold-formed steel elements subjected to fire o Martin Prachař - Lateral torsional-buckling of class 4 steel plate girders under fire conditions o Malgorzata Snela - Critical temperature of steel frame with joint flexibility increasing in fire o Ross Johnston - Cold-formed steel portal frames at elevated temperatures o Daphne Pantousa - Behavior of steel structures under fire conditions after earthquake events

- Iolanda Del Prete - Benchmarking of columns and space-frames using Vulcan and Safir
- Guan Quan - Shear panel component in the vicinity of beam-column connections in fire
- Tomaz Hozjan - Benchmark cases of steel and composite structures exposed to fire
- Katarzyna Ostapska - Composite column under ISO fire - different variants based on DIN EN 1991-1-2/NA:2012-03

15.30 – 16.00	Coffee break
16.00 – 17.30	Students´ presentations

- Ioan Both - Numerical analysis of a composite column subjected to fire
- David Rush - Benchmark modelling of concrete filled structural hollow sections
- Urška Bajc – Benchmark studies of axially loaded RC columns
- Eva Caldová - Charring of timber
- Gergely Kakasy – Door set with fire resisting characteristics
- Jiří Apeltauer – Microsimulation of traffic flow and UAV in traffic engineering
- Oskar Lind and Christoffer Vicström – …
- Alexandra Byström – Experimental study of localised fire thermal exposure
- Naveed Iqbal - Restrained behaviour of steel beams exposed to fire

18.00	Dinner in Staff room, University Campus

13 March:

Introduction to modelling of fire dynamics and heat transfer, structural behaviour and people movement will be presented by scholars as the background to use of software. Together with introduction of a scenario for the hands-on exercise it will occupy half of the day.

	Room E632
08.30 – 09.00	Introduction of scenario for the hands-on exercise, Florian Block (Buro Happold, Germany)
09.00 – 10.00	Structural behaviour, Tomaž Hozjan (University of Ljubljana, Slovenia)
10.00 – 10.30	Coffee break
10.30 – 11.30	People movement, Shrikant Sharma (Buro Happold, Bath, UK)
11.30 – 12.30	Introduction to fire dynamics and heat transfer, Joakim Sandström (LTU, Sweden)
12.30 – 13.30	Lunch in Campus *
13.30	Transport to city centre by public bus for non-technical excursion - walk around the city ice road in downtown Luleå

Evening session for hands-on software usage. Students will be divided into three groups G1, G2 and G3. The usage of three software tools (FDS, SMARTMOVE, LS-DYNA) will be taught by scholars in three computer labs F441, F445, F631. Usage of each software will take 3,5 hours (two lessons, for example 1a + 1b).

18.30 – 20.30	Software usage course # 1a
20:30 – 20:45	Small refreshment
20.45 – 22.00	Software usage course # 1b

14 March:

Full day of hands-on software usage.

	Computer labs F441, F445, F631
08.30 – 10.30	Software usage course # 2a
10.30 – 11.00	Coffee break
11.00 – 12.30	Software usage course # 2b
12.30 – 13.30	Lunch in Campus*
13.30 – 15.30	Software usage course # 3a
15.30 – 16.00	Coffee break
16.00 – 17:30	Software usage course # 3b
Evening	Free to use software in computer labs
21.30	Social drink

15 March:

9 combinations of different scenarios will be prepared for presentation of results. Then the results of the exercise will be presented by selected students from each group. A discussion involving the whole group and award of certificates to students will conclude the Training School.

	Computer labs F441, F445, F631 and room E632
08.30 – 11.00	Finalize modelling and prepare results for final presentations in computer labs or room E632 (9 combinations of different scenarios in 9 presentations)
	Coffee
11.00 – 12.30	Presentation of results of 9 different scenarios by selected students, discussion, feedback
12.30 – 13.30	Lunch in Campus*
13.30 – 14.00	Award of certificates, concluding remarks by Chair and Vice Chair of the Action

Course nb.	FDS	SMARTMOVE	LS-DYNA
1a + 1b	G1	G2	G3
2a + 2b	G2	G3	G1
3a + 3b	G3	G1	G2

The materials of the Training School will be available on the Action's website shortly afterwards as a collection of PDF documents:

- Scholars' presentations
- Students' presentations

[Please ensure that you leave your MS PowerPoint presentation with Kamila at the event.]

* Please note that each participants cover his lunch expenses.

In campus there are several dining alternatives: Campus Restaurant, Restaurant Husman, Pizzeria Porsön and Restaurant Old Brodies. Last three possibilities are the alternatives on Saturday. It's also possible to use Supermarket (for the smaller wallet).