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Universitetshuset in Lund (Lund University photo)

IAFSS was founded in 1988 with the primary objective of encouraging research into the science of preventing and mitigating the adverse effects of fires and of providing a forum for presenting the results of such research

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Our Aims

Fire Safety Science News aims to be a platform for spreading the work of IAFSS members, and to be the place where fire safety scientists can read what is not readily found elsewhere, thus favoring news and trending research. A digital archive of previous issues can be found online.

MINUTES FROM LATEST MANAGEMENT COMMITTEE MEETING AVAILABLE

The IAFSS Management Committee met on July 4th at Royal Holloway College, near Windsor (UK), in conjunction with INTERFLAM, where many of the committee members were in attendance. The minutes of the meeting are posted on the IAFSS website at http://www.iafss.org/committees/committee-documents/. The items on the agenda included organization of the 12th Symposium and report from the Programme Committee; report on the Asia-Oceania Association for Fire Science and Technology; updates on the printing of the conference proceedings from the 11th IAFSS Symposium, *Fire Safety Journal* and the IAFSS website and newsletter; evaluation of the European IAFSS symposia; membership drive; Young Scientist Award; and the status of the Nominating committee. Between IAFSS conferences, the Committee tries to schedule full committee meetings during large fire safety conferences in order to increase the opportunity for members to meet face-to-face.

MEMBERSHIP RENEWAL FOR 2017

It's time to renew your membership for 2017. The IAFSS secretariat will soon send out a mail for your renewal. Please try to respond as soon as possible to avoid unnecessary administration. Renew on the website at http://www.iafss.org/membership/ or download a form.

Free student membership offered! The Committee of the IAFSS invites all fire science and engineering students to apply for free membership in the Association. To apply for a free student membership, you must be enrolled in a technical college or a university and studying for a technical degree, BSc, Masters or PhD, in a field that is related to fire science and engineering. Membership will be valid until studies have been completed. Acceptance of applications is at the discretion of the IAFSS. See http://www.iafss.org/membership/ to apply.

LETTER FROM THE CHAIR

Our 12th symposium in Lund comes closer and closer and the preparations are moving forward at high speed.

The deadline for papers was October 15th; however the calls for posters and pictures are still open for submission of work in progress. We received 266 manuscripts. In the New-Zealand Symposium, we had 205 submitted manuscripts so this 266 number corresponds to a 30% increase! The biggest change compared to previous symposia is the fact that all accepted and presented papers which fulfil the editorial criteria of *Fire Safety Journal* will be published in a special issue of the journal. As such all our papers will get a Web of Science citation. Impact and citations are becoming more and more important, as is registration on Web of Science. In order to help our young researchers, we see this as a big move forward and we hope this will become a smooth and successful process. I would like to thank everyone involved in this process, especially Prof. Charley Fleischmann who led the task group, as well as Elsevier and the responsible persons for the *Fire Safety Journal*. *Fire Safety Journal* is the official journal of IAFSS and we are very happy that we could find an agreement on our proceedings.

The awards committee is also very busy and announced earlier the 2017 Howard Emmons Invited Plenary Lectureship, namely Professor Carlos Fernández-Pello of the University of California at Berkeley (USA). The Emmons Lectureship is a prestigious recognition of distinguished career achievement in fire science and engineering awarded by the IAFSS once every three years. New for the Lund symposium is the introduction of two new young researcher awards namely the Guylène Proulx and Sven Erik Magnusson awards. Besides our own awards, a number of travel awards for students are sponsored by the International FORUM of Fire Research Directors (http://fireforum.org/). We are very thankful that they even increased their financial contribution for the Lund symposium to $10,000 (US). For a full overview of the awards, please visit our website.

Locally here in Lund, we are getting more and more excited organising the conference and all specific events such as workshops, key-notes, PhD student events, excursions, etc. With respect to workshops, a new initiative is the one-day workshop within our new working MaCFP group. MaCFP means “Measurement and Computation of Fire Phenomena" and it is the intention to have this as an on-going activity as a working group. The local organising committee also plans a short postgraduate course on experimental methodology and ethics in fire science research to be held the week before the conference. If you are interested, please send an email to us. Our contact email can be found on the local website www.iafss2017.se.

Early next year, we will again discuss our membership drive and how to continue to increase our number of members. As a member, you will have, amongst many other benefits, reduction on the registration fee for the 12th symposium, so please talk to any of your colleagues who intend to participate in the conference, and remind them to join or renew their membership for next year.

Last but not least I would like to inform our membership that we are standing up to the challenge of bringing our organisation into a new structure. Bit by bit, we are getting guidelines and procedures for our working process and the next challenge for us is to find a new secretariat. Due to the retirement of Carole Franks at Interscience Communications, we are looking for a new solution on providing our secretariat. But the most important thing is to thank Carole Franks for all the effort and work she has put into our organisation. There are not enough words to thank her!

Finally I do hope to see all of you at our symposium in Lund. Keep an eye on our website and please contribute to our organisation.

Signed: Patrick Van Hees, Chair IAFSS, Lund University, Sweden

KEY EVENTS IN CONJUNCTION WITH THE IAFSS SYMPOSIUM

Several events have been planned in conjunction with the 12th International Symposium on Fire Safety Science. More details can be found in this newsletter and on the symposium website: http://www.iafss2017.se/.

June 8-10*	Activities for students, such as a Post-graduate course (Experimental Methodologies in Fire Science Research) and a discussion forum on Science Communication (page 9)
June 10-11	MaCFP Workshop (page 9)
June 11	Five Sunday workshops (page 9)
June 11	Student workshop (informal) – look for details soon on the website

* These dates are subject to change as the events are being organised locally. Check the symposium website for the latest details on scheduling.

12TH INTERNATIONAL SYMPOSIUM ON FIRE SAFETY SCIENCE

The International Association for Fire Safety Science (IAFSS)'s 12th International Symposium on Fire Safety Science will be held on June 12–16, 2017 at Lund University, Sweden (http://www.iafss2017.se/).

The Symposium is the premier fire safety science meeting in the world and has been organized triennially since 1985 by the IAFSS. The program will have parallel sessions for the presentation of fully peer-reviewed papers over the five days of the Symposium, including invited lectures from the world's top fire science researchers (see below).

Symposium activities will begin on Sunday, June 11, with several workshops during the day and a Welcome Reception in the evening. The Symposium will also have poster sessions, which will provide an excellent opportunity to interact individually with researchers about their most recent work.

Students are encouraged to participate and awards will be granted for the best student presentations. In addition to the technical sessions, numerous social activities are planned to cater for informal meetings with colleagues and friends. Southern Sweden holds both rural and urban areas as well as a marvellous nature within a well accessible area. More information about the different arrangements will be presented as the planning of the Symposium progresses.

Host Venue

The Symposium will be held at the Technical Faculty Campus at Lund University – a world-class university, ranked as one of the top 100 universities in the world (http://www.lth.se/fileadmin/virtuell_flygtur/en/).

The city of Lund was founded around year 990 and in 1085 the first school was founded in the city, which makes Lund the oldest seat of learning in Scandinavia. Lund University was officially founded in 1666 and today it has over 42,000 students enrolled. There has been active and well-known research in Fire Science at Lund University since the 1960s. The Division of Fire Safety Engineering (http://www.brand.lth.se) is involved in both bachelor and master programs in Fire Safety Engineering, with a yearly enrolment of around 60 new students in these programs.

Lund city center is accessible due to its small size, making it easy to travel both by foot and by the well-developed public transport system. There are also very good connections with the rest of the region and the world. The international airport in Copenhagen is only 35 minutes away by train. Copenhagen airport is the largest airport in Scandinavia and easy to reach from most major international airports.

12th IAFSS Symposium Timeline

Full Papers

15 January 2017 – Authors notified of preliminary accept/reject decision

15 February 2017 – Deadline for submission of revised accepted papers

15 March 2017 – Authors notified of final accept/reject decision

31 March 2017 – Final submission deadline for photo-ready copy

Posters

31 March 2017– Submission deadline for poster abstracts

15 April 2017 – Authors notified of accept/reject decision

15 May 2017 – Poster submission for web posting

Symposium

31 May 2017 – Web publication of all papers and posters

12-16 June 2017 – 12th IAFSS Symposium

Registration and Accommodation

Symposium registration and hotel booking for participants and their companions will be available via links from the Symposium website at http://www.iafss2017.se in the beginning of 2017. Registration will include online access to full papers and posters. If you would like more information on the arrangements for the upcoming Symposium, please visit the IAFSS website at http://www.iafss.org or contact the Local Host Committee at http://www.iafss2017.se.

Symposium Committees

12th Symposium Planning Committee
Co-Chair E. Galea
Co-Chair K. Boyce

12th Symposium Program Committee
Co-Chair A. Trouvé
Co-Chair B. Merci
Poster Chair: N. Liu

12th Symposium Workshops Committee
Co-Chair T. Hakkarainen
Co-Chair A. Steen-Hansen

12th Symposium Publications Committee
Editor: E. Weckman

12th Symposium Awards Committee (including best thesis)
Chair A. Hamins

12th Symposium Local Arrangements Committee
Chair D. Nilsson

12th Symposium Writing Mentor Program
Chair: C. Wade

Invited Speakers

- **Luke Bisby** (University of Edinburgh, UK) "Structural Response of Cross-Laminated Timber Compression Elements Exposed to Fire"
- **Karen Boyce** (University of Ulster, UK) "Safe Evacuation for All – Fact or Fantasy? Past Experiences, Current Understanding and Future Challenges"
- **Ritsu Dobashi** (University of Tokyo, Japan) "Studies on accidental gas and dust explosions"
- **Longhua Hu** (University of Science and Technology of China) "A review of pool fire behaviors in wind and challenges"
- **Birgit Östman** (SP, Sweden) "Fire safety engineering in timber buildings"

Proceedings to be Published in Fire Safety Journal

For the 12th IAFSS Symposium, and this for the first time, the Proceedings will be published as a Special Issue of the *Fire Safety Journal* (http://www.journals.elsevier.com/fire-safety-journal). Details on the transfer of the manuscripts from the EasyChair website used by IAFSS to the Elsevier website used by *Fire Safety Journal* as well as details on the composition of the Guest Editors team responsible for final publication decisions are still being worked out and will be clarified in the coming few weeks.

The 2017 Howard Emmons Invited Plenary Lectureship


Carlos Fernández-Pello

The 2017 Howard Emmons Invited Plenary Lectureship at the 12th IAFSS Symposium in Lund, Sweden will be delivered by Professor Carlos Fernández-Pello of the University of California at Berkeley (USA). The Emmons Lectureship is a prestigious recognition of distinguished career achievement in fire science and engineering awarded by the IAFSS once every three years at its International Symposia on Fire Safety Science.

Professor Fernández-Pello's research interests have been broad and recognized for their innovation and significance. His research interests include heat and mass transfer, materials flammability, microgravity fire effects, micro and meso-scale combustion, ignition and flame propagation, smoldering and transition to flaming combustion. He has published more than 200 refereed archival publications, co-authored a book on combustion processes and has been involved in teaching and research activities since the 1970s in institutions around the globe, mainly in the USA, Spain, France and Japan. His current research involves fuel bed ignition by embers and heated/burning particles, materials flammability and test method development for spacecraft applications, smoldering and transition to flaming, modeling of flame spread on practical solid combustibles. It is worth noting that Professor Fernández-Pello worked closely with Howard Emmons when he was a post-doctoral fellow at Harvard in the 1970s. Among his many awards, Professor Fernández -Pello was awarded the Philip Thomas Medal of Excellence for the best paper at the 6th International Symposium of Fire Safety Science.

Dr. Craig Beyler to be awarded Kunio Kawagoe Gold Medal

The 2017 Kunio Kawagoe Gold Medal will be presented at the 12th IAFSS Symposium in Lund, Sweden to Dr. Craig Beyler. The Kunio Kawagoe Gold Medal is awarded by IAFSS as a prestigious recognition of life-long contributions to and career achievements in fire science and engineering.

Dr. Beyler has contributed to global progress of fire science and engineering in extensive ways. He provided dedicated leadership to the development of the IAFSS as its president for two terms from 2005 through 2011 and as Chairs/Members of Award and Program committees for the 4th -8th IAFSS Symposia. During his IAFSS presidency, he introduced the digital online library, where all the symposium proceedings are freely available to researchers, so that research papers published in the IAFSS proceedings can be globally identified and available to researchers and practitioners.

Dr. Beyler has contributed to promote the development of fire science and engineering by providing the means to publish and access fire research results worldwide. He is the founding editors for the *Journal of Fire Protection Engineering* and *Fire Science Reviews*. In addition, he is the associate editor for *Fire Technology* and an advisory board member of several fire safety science journals including *Fire Technology*, *Journal of Fire Protection Engineering*, and *Fire Safety Journal*.

As a researcher, Dr. Beyler created a paradigm shift in the area of combustion product generation in compartment fires by his hood experiments investigating the generation of combustion products and the introduction of the concept of the global equivalence, which are now widely recognized as basic knowledge on combustion product generation.

Dr. Beyler served as the Technical Director for Jensen Hughes, Inc. (formerly Hughes) for 24 years. As technical director, he was involved in fire protection design, research and development projects for the company. During this period, he contributed to the growth of the number of engineers of the company from less than 50 to over 600 engineers and mentored hundreds of interns, graduate students, and engineers.

Best Thesis Award Nominations due 15th December

IAFSS Best Thesis Award "Excellence in Research" recognises the best research thesis at the PhD and Masters levels, in all the fields related to fire safety science and engineering. There are three such Awards for the three IAFSS regions – Europe/Africa, Americas, and Asia/Oceania. To be eligible for nomination, the nominee's thesis must have been officially submitted to the university granting the degree for examination between January 1st, 2014 and November 31st, 2016 and nominated for the Award by the nominee's supervisor.

Each recipient must deliver, at the 12th Symposium, a paper drawn from his/her thesis. The recipient will be asked to prepare a paper, as per submission guidelines of the 12th Symposium, based on the material included in the thesis and not published in the Symposium or other peer reviewed archival publication.

The Award consists of a plaque, a grant of US$2,000 to cover travel and sustenance related to the recipient's attendance at the 12th Symposium in Lund, Sweden, and free registration for the Symposium.

Nomination process

The following documents need to be submitted by email by the nominee's supervisor to Professor José L. Torero, The University of Queensland, Australia, j.torero@uq.edu.au, by midnight the 15th of December, 2016, UK time:

- A letter of recommendation by the nominee's supervisor not to exceed 2 pages;
- A pdf copy of the thesis (preferably in English; if not available, in its original language);
- An abstract of the thesis in English (no longer than three pages);
- A list of publications. The list should comprise journal articles (including those that have been submitted for publication, whether accepted or not), and conference publications (indicating the form of review; no review, by Abstract, by full paper). Publications in preparation or draft should not be listed;
- Pdf preprints or reprints of up to three best papers derived from the nominee's thesis (conference papers can be included) can be submitted but are not compulsory. If the thesis is not written in English, at least one paper in English shall be submitted. Submission subject to confidentiality requirements should be accompanied by an explanation from the supervisor indicating which sections of the thesis cannot be made public or submitted for review. The requirement for the recipient to deliver a

presentation at the 12th Symposium cannot be waived; therefore, this explanation has to include a clear indication of which sections will be presented at the Symposium.

Only one thesis can be submitted for award from a given University or Institution. When more than one thesis is of sufficient quality for submission for the Award, a preliminary selection must be carried out locally and the nominee's supervisor needs to explicitly describe in the letter of recommendation the local selection process. If more than one thesis is submitted by a single institution the nominators will be asked to withdraw the submissions voluntarily and explain the reasoning behind the selection.

If more than one thesis remains submitted by 31st of December 2016 (midnight, UK time) then none of the submissions from that institution will be considered. All submissions will be confirmed upon reception.

Selection considerations
The four criteria used to select the best thesis include:

- Pertinence: Is the thesis' subject matter within the scope of the field of fire science and/or engineering?
- Quality: Are the methodologies applied in the thesis sound and correct? Is the thesis well written?
- Significance: Do the results of the thesis add to our present knowledge? Are the results new, accurate, useful and important?
- Impact: Do the results of the thesis have a broad impact in the fields of fire science and/or engineering?

Selection body
The recipients of the IAFSS Best Thesis Award "Excellence in Research" will be selected by the IAFSS Awards Committee. The Awards Committee will nominate a Chair for the Best Thesis Award who will call upon three co-chairs (one representing each region). Each co-chair will request at least one independent review by an expert in the subject of the thesis. Chair and co-chairs will rank submissions based on their assessment and the information provided by the independent reviewer.

The recipients will be contacted by the first week of March, 2017.

The Awards will be formally announced at the 12th Symposium in Lund, Sweden in June 2017.

Call for Posters and Images

As part of the program of the 12th IAFSS Symposium to be held on June 12 – 16, 2017 at the Lund University, Sweden (http://www.iafss2017.se), you are invited to submit a poster that advances the basic understanding and presents or advances new ideas on any topic in the entire spectrum of fire safety science.

Posters will be presented during two dedicated sessions to allow authors to exhibit and discuss recently completed work or work in progress, including new and relatively underdeveloped concepts. Students are especially encouraged to submit posters for presentation. The poster session(s) is (are) designed to foster a collegial environment where authors and attendees can discuss their research interests and make or renew relationships to help foster collaboration.

Poster abstracts will be accepted on the basis of their quality and originality in the science of fire safety and its applications. The material presented in Poster Sessions **will not be published** in the Proceedings of the 12th IAFSS Symposium. The abstracts of the posters will be posted online by May 15, 2017.

Fire Science Image
Building on previous successes in recent symposia, the program of the 12th IAFSS Symposium will also include a Fire Science Image competition and you are invited to submit an image that may correspond to experimental studies, numerical studies or actual events. Images should be non-commercial. Images will be displayed on a designated display board. Images should be between A5 (148 mm x 210 mm) and A4 (210 mm x 297 mm) in size.

Awards
Posters and images presented at the 12th IAFSS Symposium will be considered for the following 3 Awards:

- **Best Poster Award** – Awarded to the best poster based on technical content, organization, and visual presentation. The selection will be made by the poster awards committee.
- **Best Student Poster Award** – Awarded to the best poster by a student author based on technical content, organization, and visual presentation. The selection will be made by the poster awards committee.

- **Graphic Image Award** – Awarded to the best fire image based on originality, scientific significance, and artistic/aesthetic appeal.

Poster Requirements

- **Posters**: Must be original work.
- **Abstracts**: Are limited to 1 page maximum.
- **Style**: All posters and poster abstracts must be in English and use SI units.
- **Display Presentation**: Presentation of posters will be made during 1 or 2 dedicated sessions held at the Symposium. Authors will be offered a standard A0-size display space, 84 cm wide and 119 cm high (33" x 47"). Authors are expected to be in attendance at their poster during the session.

Submitting Your Poster Abstracts

- One page abstracts should be submitted electronically, beginning **January 31, 2017** through the Symposium author web page located on the IAFSS website (http://www.iafss.org).
- Submission deadline for posters is **March 31, 2017.** Posters submitted after this date will not be considered.

Poster Review Process

- Poster abstracts will be reviewed by the Program Committee.
- Authors will be notified of the Program Committee's decision by **April 15, 2017**.
- Notification may include reviewers' comments.

Fire Image Competition Requirements

- **Images:** Must be original work.
- **Style:** Images may correspond to experimental studies, numerical studies or actual events.
- **Caption:** A brief figure caption describing the image is expected to accompany the images. Captions are limited to 100 words. The submitter should include name and affiliation with the caption, but this information is not included in the word count.
- **Display Presentation:** Submitters will be offered a standard A3-size display space, 30 cm wide and 42 cm high, for their image, caption, name and affiliation. The maximum image size is A4 (297 mm x 210 mm). Submitters are **not** required to be in attendance at their image during the session.

Submitting Your Image

- Images and captions should be submitted electronically beginning **April 1, 2017** through the Symposium author web page located on the IAFSS website (http://www.iafss.org). The image format should be jpg, png, or bmp. The maximum image size for review is 1 Mbyte.
- Submission deadline for images is **May 15, 2017**. Images submitted after this date will not be considered.

Images Review Process

- Images will be reviewed by the Poster Program Committee.
- Submitters will be notified of the Poster Program Committee's decision by **May 31, 2017**

Posters and images Key dates

- March 31, 2017 – Submission Deadline for Poster Abstracts
- April 15, 2017 – Poster Abstract Acceptance
- May 15, 2017 – Poster Abstract for Web Posting
- May 15, 2017 – Image submission Deadline
- May 31, 2017 – Image Acceptance

Posters and images can be submitted via the link on the IAFSS website: http://www.iafss.org

If you would like more information on either the Poster or Fire Science Image events at the 12th IAFSS Symposium, please contact Prof. Naian Liu (Email: liunai@ustc.edu.cn).

The Call for Posters and Images can be found at http://www.iafss.org/symposium/12th-international-symposium-on-fire-safety-science/call-for-posters-and-images/.

Workshops

The Sunday workshops are a tradition at the IAFSS symposium. For the 12th symposium, five workshops will be arranged on Sunday afternoon, June 11.

Each workshop will include a panel of experts that will engage with the audience discussing and debating the pertinent issues in the topic. The workshop titles for the 12th symposium are:

- Quantification of Fire Effluent Toxicity
- Large Outdoor Fires and the Built Environment
- New Approaches to Evacuation Modelling
- Global perspectives of Timber in high-rise buildings
- Better Linking Fire Safety Science and Fire Safety Engineering: Research Priorities for Fire Safety Engineering

Detailed information about the workshops can be found here (http://www.iafss2017.se).

Postgraduate course – Experimental Methodology in Fire Science Research

The division of Fire Safety Engineering at Lund University will offer a postgraduate course on experimental methodology and ethics in fire science research in conjunction with the 12th International Symposium on Fire Safety Science, held in June 2017 in Lund.

The aim is that the postgraduate students get a deeper understanding of experimental method applicable in fire science research. The student will be provided with knowledge about fundamental concepts and techniques that are applied across a range of experimental fields. Furthermore, the course aims to bring young researchers in the field of fire safety science together in order to exchange experiences and contacts for future collaboration and contact.

The preliminary dates for the course are June 8-9, 2017. More information will follow; however, if you are interested in the course please contact: nils.johansson@brand.lth.se

Student Activity on Science Communications

A half-day discussion forum on peer review in fire science will be held prior to the symposium. The event is intended for research students and the focus will be on writing papers, peer-reviewing and public speech. More information will follow; however, if you are interested in participating, please contact Dr. Guillermo Rein, g.rein@imperial.ac.uk. Exact date and time will be announced once plans are consolidated.

Call for Participation in the First Workshop Organized by the IAFSS Working Group on Measurement and Computation of Fire Phenomena

A new initiative, endorsed and supported by the International Association for Fire Safety Science (IAFSS, http://www.iafss.org), has been launched: "the IAFSS Working Group on Measurement and Computation of Fire Phenomena" (or the MaCFP Working Group). The primary objective of this letter is to engage the members of the fire research community to participate in the first workshop organized by the MaCFP Working Group and which is scheduled as a pre-event to the 12th IAFSS Symposium in Lund, Sweden, in June 2017 (http://www.iafss.org/save-the-date-12th-iafss-symposium/). Constantly updated information on the MaCFP Working Group effort is found at http://www.iafss.org/macfp/.

Background and motivation

The general objective of the MaCFP Working Group is to establish a structured effort in the fire research community to make significant and systematic progress in fire modeling, based on a fundamental understanding of fire phenomena. This is to be achieved as a joint effort between experimentalists and modelers, identifying key research topics of interest as well as knowledge gaps, and thereby establishing a common framework for fire modeling research. The MaCFP Working Group is intended as an open, community-wide, international collaboration between fire scientists. It is also intended to become a regular series of workshops, with workshops held every two years.

The MaCFP Working Group is modeled after the successful example of the TNF Workshop (http://www.sandia.gov/TNF/abstract.html) and is tailored to the needs of fire modeling. The TNF Workshop was established approximately twenty years ago in the combustion science community and has since then emerged as an exceptionally effective framework for the collaborative development and promotion of the field of turbulent combustion. The TNF Workshop offers: (1) a digital library of well-documented target flame

experiments; (2) examples of comparisons between experimental measurements and simulation results; and (3) the active participation and support of the entire turbulent combustion scientific community in the data collection and analysis. The MaCFP Working Group aims to achieve similar benefits.

The MaCFP initiative was started following discussions that took place in February 2014 at the 11th IAFSS Symposium (http://www.iafss.org/symposium/11th-symposium/), in particular during a pre-Symposium workshop entitled "Benchmarking/Data Sharing" with the participation of Prof. Assaad Masri (University of Sydney, Australia, and co-founding member of the TNF Workshop) as guest speaker. These discussions led to the formation of a Task Group of fire researchers (both modelers and experimentalists) on the topic of the experimental validation of CFD-based fire models. The Task Group produced a white paper (http://www.iafss.org/portal/wp-content/uploads/MaCFP-white_paper.pdf) and subsequently received the endorsement of IAFSS in March 2015. This was followed by a planning meeting in May 2015 during which a list of target experimental databases was produced, deemed suitable for validation of fire models. This list brings structure and focus to the MaCFP effort for the coming 18 months and essentially defines the bulk of the program of the upcoming first MaCFP workshop.

Objectives

As mentioned, the central objective of the MaCFP Working Group is to develop a fundamental understanding of fire phenomena and to advance predictive fire modeling. The strategy is based on the study of elementary academic problems and a gradual move towards complexity and realism by following a building block approach to model development. The new MaCFP workshop series is intended to be complementary to both the existing Verification and Validation guides developed in support of the FDS fire modeling software (http://firemodels.github.io/fds-smv/) and the FM Global Open Source Fire Modeling Workshop series (https://sites.google.com/site/firemodelingworkshop/).

The specific objectives of the MaCFP Working Group are to:

- Develop a digital archive of well-documented fire experiments that can be used as targets for CFD model validation;
- Develop a digital archive of well-documented CFD-based numerical simulations corresponding to the selected target experiments;
- Develop protocols for detailed comparisons between computational results and experimental measurements;
- Identify key research topics and knowledge gaps in computational and experimental fire research;
- Develop best practices in both computational and experimental fire research (including quality control and quantification of uncertainties);
- Establish a network between fire researchers and provide a community-wide forum for discussion and exchange of information.

The initial list of target experiments identified by the MaCFP Working Group includes five categories:

- *Category 1:* Turbulent buoyant plumes;
- *Category 2:* Turbulent pool fires with gaseous fuel;
- *Category 3:* Turbulent pool fires with liquid fuel;
- *Category 4:* Turbulent wall fires;
- *Category 5:* Flame extinction.

These target experiments correspond to basic configurations (building blocks) with carefully-controlled conditions and quality instrumentation and diagnostics. They also correspond to available open databases. This list will be enhanced after the first workshop.

MaCFP Repository

The MaCFP repository is hosted on GitHub (https://github.com/MaCFP) and is under development. The repository already contains or will soon contain:

- A description of each selected target experiment (organized according to the categories (1)-(5) mentioned above), including a description of the experimental configuration and a description of measured quantities and measurement uncertainties (if known);
- An electronic copy of experimental data organized in simple comma-delimited ASCII files;
- Protocols to perform comparisons between experimental data and simulation results based on (provided) MATLAB-based post-processing tools.

Furthermore, the repository is meant to host the contributions submitted by different modelers in preparation of the first MaCFP workshop. It will therefore also contain:

- An electronic copy of computational results submitted by researchers, also organized in simple comma-delimited ASCII files.

The repository was created and is managed by Dr. Randy McDermott (National Institute of Standards and Technology, USA).

June 2017 Workshop
The first MaCFP workshop will be organized immediately before the 12th IAFSS Symposium, on June 10-11 2017.

The organizing committee for the first MaCFP workshop is composed of:

- Alexander Brown — Sandia National Laboratories, USA
- Michael Gollner — University of Maryland, USA
- John Hewson — Sandia National Laboratories, USA
- Andre Marshall — University of Maryland, USA
- Randy McDermott — National Institute of Standards and Technology, USA
- Bart Merci (Co-Chair) — Ghent University, Belgium
- Jose Torero (Co-Chair) — University of Queensland, Australia
- Arnaud Trouvé (Co-Chair) — University of Maryland, USA
- Yi Wang — FM Global, USA
- Beth Weckman — University of Waterloo, Canada

The exact format of the workshop is yet to be determined but is likely to be a mix of poster/oral presentations by researchers, one or two plenary talks by invited keynote speakers and group/panel discussions, guided by plenary introductions and concluded by reports of main outcomes. It is intended to be centered on in-depth topical discussions. Proceedings will be edited and put online on the MaCFP website (http://www.iafss.org/macfp/). The proceedings are intended to review progress, summarize accomplishments of the workshop and provide guidance with clear objectives for the next workshop.

Call for Participation
The MaCFP Working Group is inviting the members of the entire fire research community to participate in the first workshop. While the workshop topic is of direct interest to experimental and computational fire researchers, the workshop should also be of broad interest to the community at large. Registration to the June 2017 workshop will be fully open.

Members of the fire research community can participate in one or both of the following ways:

- From now until June 2017: participate in the planning of the workshop by interacting with the organizing committee and generating/contributing simulation results to be discussed at the workshop;
- June 10-11, 2017: attend and participate in the discussions at the workshop.

Important issues like membership to the organizing committee of the MaCFP Working Group and the selection of new target experiments for the second MaCFP workshop will also be discussed at the first workshop. Suggestions on these topics are also welcome anytime.

The organizing committee of the MaCFP Working Group is looking forward to welcoming many of you in its effort and to holding its first workshop at the 12th IAFSS Symposium in June 2017.

Bart Merci (bart.merci@ugent.be)
José Torero (j.torero@uq.edu.au)
Arnaud Trouvé (atrouve@umd.edu)
Co-Chairs of the organizing committee of the MaCFP Working Group http://www.iafss.org/macfp/

2015-2016 INTERNATIONAL FORUM OF FIRE RESEARCH DIRECTOR AWARDS

The International FORUM of Fire Research Directors selected the recipients for the 2015 and 2016 Sjölin and mid-career researcher awards.

THE FORUM SJÖLIN AWARD
The FORUM Sjölin Award recognizes an outstanding contribution to the science of fire safety or an advance in the state of the art in fire safety engineering practice of extraordinary significance. It is presented to the

individual or group whose efforts are primarily responsible for or traceable to the specified advance. The prize consists of a plaque and an honorarium. Recipients of the award are selected annually and the awards are delivered at the triennial symposia of the International Association for Fire Safety Science.

The FORUM selected ***Dr. William Parker*** as the recipient of the 2015 Sjölin Award. The FORUM selected Dr. Parker in recognition of his outstanding contribution to fire science and engineering through the creation of innovative methods for accurately measuring heat release rate in fire experiments; initially by developing an isothermal heat release rate calorimeter, for which Dr. Parker was awarded the U.S. Department of Commerce bronze medal in 1976; and more recently by deriving and implementing the equations for measuring heat release rate based on the oxygen consumption technique, which is now used in fire research and testing laboratories throughout the world. Other aspects of Dr. Parker's work that were highlighted are the development of a comprehensive computer model to predict the heat release rate of wood, which accounts for the effects of contraction of and fissures developing in the char; extensive research on the flammability of upholstered furniture, the results of which are described in numerous publications, including a book co-authored with Dr. Vytenis Babrauskas and Dr. John Krasny; and his role in the development the "Phi Meter," an instrument for monitoring combustion equivalence ratio in room fires independent of the fuel.

The FORUM selected ***Dr. Esko Mikkola*** as the recipient of the 2016 Sjölin Award. With this award the FORUM is recognizing more than three decades of outstanding contributions to fire safety engineering practice, in particular as it pertains to evaluating the fire performance of materials, products and structures, the comprehensive fire risk assessment of challenging construction projects such as multi-story timber frame buildings and underground structures, and the development and interpretation of fire safety regulations. One aspect of Dr. Mikkola's work that was highlighted is the development in the late 1980s of thermal ignition models for combustible materials, which are widely referenced in the literature until today. Over the years, Dr. Mikkola has conducted cutting-edge research on reaction-to-fire performance and charring of wood-based materials, the effect of fire retardants on the fire performance of materials and products, the analysis of toxic smoke gases, the evaluation of the fire performance of façades and timber structures through large-scale experiments, wildland-urban interface fires, and the application of performance-based fire safety approach to demonstrate compliance with fire safety requirements.

THE FORUM MID-CAREER RESEARCHER AWARD

The FORUM Mid-Career Researcher Award recognizes exceptional achievement and demonstrated leadership in the fields of fire safety science or fire protection engineering made by those in mid-career. It is intended to honor an individual, who is between the ages of 35 and 50 at the time of nomination. The prize consists of a plaque and an honorarium. Recipients of the award are selected annually and the awards are delivered at the triennial symposia of the IAFSS.

The FORUM selected ***Professor Kazunori Harada***, Kyoto University, as the recipient of the 2015 Mid-Career Researcher Award. With this award, the FORUM is recognizing Dr. Harada's outstanding contributions in the areas of fundamental fire research, development of practical fire design methods, and university education in fire engineering. More specifically, the FORUM is recognizing Dr. Harada's contributions to computer modeling of heat and mass transfer in concrete elements during fire in relation to spalling; the development of a glass breaking model; the development of a set of simplified calculation methods of temperature response of structural elements, which have been adopted in the performance verification methods for fire resistance in the Building Standards Law of Japan and are being used for practical design calculations; experimental evaluation and modeling of the burning behavior of combustible items in realistic conditions, e.g., accounting for the thermal feedback in an enclosure and location effects for an object near a wall or in a corner; and the development of engineering tools for performance based fire safety engineering, e.g., methods to calculate the flow rate of fire smoke through a horizontal opening and the charring rate of structural timbers during all phases of a fire, including cool-down.

The FORUM selected ***Professor Stanislav Stoliarov***, University of Maryland, as the recipient of the 2016 Mid-Career Researcher Award. With this award, the FORUM is recognizing Dr. Stoliarov's outstanding contributions to improving our understanding of the complex physical and chemical phenomena involved in the heat transfer through and thermal decomposition of materials and products exposed in a fire, and to establishing quantitative connections between standard fire test results and the fundamental thermo-physical properties and structure of the material. More specifically, the FORUM is recognizing Dr. Stoliarov's contributions to the creation of the Microscale Combustion Calorimeter described in ASTM D7309; his development of one of the first generalized comprehensive pyrolysis models, ThermaKin; his efforts to develop a systematic methodology for pyrolysis model parametrization, which relies on a combination of new experimental methods and inverse modeling; and

the design of a new experimental method, Microscale Flame Calorimetry, for quantitative assessment of relative activity of gas-phase flame retardants using mg-sized solid samples.

Respectfully submitted, Marc L. Janssens, Ph.D., FSFPE, Chair of the FORUM Award Committee

NFPA'S DINENNO PRIZE AWARDED FOR DEVELOPMENT OF OXYGEN CONSUMPTION CALORIMETRY

In honour of the late Philip J. DiNenno, the highly regarded former CEO of Hughes Associates who passed away in 2013, NFPA established the DiNenno Prize in 2014. A prize committee considers nominations submitted from around the world.

Dr. William Parker of the National Bureau of Standards (now the National Institute of Standards and Technology) was awarded the 2016 Philip J. DiNenno Prize for developing the oxygen consumption calorimetry, now a foundation of modern quantitative fire protection engineering.

Oxygen consumption calorimetry determines the heat release rate of a fire by measuring the rate at which oxygen is consumed. It is often used to evaluate the fire safety of materials and assemblies, making it a crucial element of modern fire testing methods.

In 1974, while working as a research associate at Underwriters Laboratory, Parker observed that the burning rate of a Steiner tunnel sample was proportional to the oxygen depletion percentage in the exhaust. He determined the heat release rate by recognizing the constancy of heat release per unit of oxygen consumed and published his findings in 1977. Parker worked with Dr. Clayton Huggett, a now deceased colleague, who in 1979 first submitted the journal paper that provided the scientific basis for the constancy of heat release per unit of oxygen consumed as a basis for calorimetry. Their efforts provided a means for measuring the heat release rate of a fire, allowing fire research to move forward with confidence.

NEWS FROM MEMBERS

News from SP

SP organize ISTSS tunnel conference in Montreal

The seventh iteration of SP's International Symposium on Tunnel Safety and Security (ISTSS) was held in Montreal, Canada, on March 16-18, 2016. The ISTSS conference began life as a seminar on tunnel fires in Borås, Sweden, in 2003. The seminar was well-received, which led to the first ISTSS conference being held in Greenbelt, USA, in 2004. Since then, ISTSS conferences have been held biannually in either Europe or North America.

The ISTSS is a scientific conference, for which a committee reviews submitted abstracts. Of the near-100 abstracts submitted, just under 60 were approved for presentation at the conference following their writing as papers, and 10 as poster abstracts. The reviewed articles were published in the 700-page conference proceedings, which is now available to purchase.

This year's conference was held at the Marriot Chateau Champlain Hotel in Montreal, Canada. 217 delegates from 25 countries participated in the conference. The programme featured six keynote speakers, almost 60 presentations, around 20 exhibitors, and 10 poster displays. The conference began on Wednesday morning and concluded at lunchtime on Friday.

Among the items on the programme were: the cocktail reception that concluded Wednesday's activities, which included a poster exhibition where the exhibitors were available to answer questions; a dinner on Thursday with an awards ceremony and the long-anticipated appearance of SP's 'tunnel fire safety band'; and the announcement that the next conference, ISTSS 2018, will return home to Borås!

signed: Haukur Ingason

Next generation Nordic fire safety engineering

The Nordic fire safety engineering project for innovative and sustainable building solutions is in its third and final year. We're producing practical standards on two areas within fire safety engineering:

- Standard on Probabilistic Method to Verify Fire Safety Design in Buildings
- Standard on Control in the Building Process

This project is important as it will support Nordic harmonization of fire safety which in the end may facilitate trade of services and products. We all share challenges in our societies as we introduce new technologies and aim for more sustainability, often challenging traditional fire safety concepts. For example, some cases where traditional fire safety regulations may hinder building design are:

- passive housing
- energy efficiency and use of combustible materials
- green facades or roofs
- tall buildings

So what's new in these standards? There are plenty of guidelines and standards on fire safety engineering by British standards, SFPE, ISO and others. What we are developing is however tailored for the Nordic context which is a region that has used fire safety engineering for quite some time now. In some areas, the Nordic region is doing pioneering work. Some things we are trying to achieve in this work are:

- turning good knowledge into practice
- daring to take recommendations one more level
- bridge the gap between probabilistic criteria, such as FN-curves and acceptance criteria used in scenario based design
- quality control & review in the building process

The latter is a very important area as engineering fire safety also may mean that we increase the stakes. There's little guidance on the subject. For example it is possible to build fire safe buildings even when using combustible material, deviating from prescriptive non-combustibility requirements. However, we must ensure that we reach a high quality of the end product by making sure that design and actual construction work meet our goals.

We've come far enough to treat the new publications and review them for different type of cases in the Nordic countries. In spring we will do the final revisions and then will start the INSTA process to finalize the publications. This also means that we reach the formal enquiry phase where we expect thorough feedback from all interested parties!

Keep your eyes open - we want your feedback.

The project is led by SP and has the following partners:

<table>
<tr><th>Sweden</th><th>Iceland</th><th>Denmark</th><th>Finland</th><th>Norway</th></tr>
<tr><td>SP</td><td rowspan="3">Iceland Construction Authority</td><td rowspan="3">DBI</td><td rowspan="6">KK Palokonsultti</td><td>DiBK</td></tr>
<tr><td>Briab</td><td rowspan="2">SP Fire Research AS</td></tr>
<tr><td>Boverket</td></tr>
<tr><td>Brandskyddslaget</td><td rowspan="3">Iceland Fire Research Institute</td><td rowspan="3">Rambøll</td><td rowspan="2">COWI</td></tr>
<tr><td>Lund University</td></tr>
<tr><td>NCC</td><td>Standards Norway</td></tr>
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signed: Michael Strömgren & Pierrick Mindykowski

An international conference on the fire safety of façades

On May 11-13, the second international conference on the Fire Safety of Façades (FSF) was held in Lund, Sweden. Here, 125 people discussed, among other things, testing methods, standardisation, and rules and regulations for three days.

The first conference on façade fires was held in Paris in Autumn 2013, and this, the second, in Lund, Sweden, in late Spring 2016. During the conference, two workshops were held, in which 40-odd people participated; one on fires in high-rise buildings, and the other on testing methods and their reliability.

Internationally, a number of façade fires have attracted much attention due to the fire spreading quickly from floor to floor on the outside of the building, causing substantial damage. This type of fire is, however, very rare in countries that use large-scale testing methods to classify the reaction to fire properties of façades. One problem today is that no standardised method for assessing the reaction to fire properties of façades exists; rather, each country uses its own method, and these often vary widely. As a result, finding ways to arrive at a harmonised

European methodology for the testing and classification of façade systems is a pressing issue. The conference covered several areas related to the fire safety of façades, such as standardisation, testing methods, rules and regulations, façade systems, possibilities for performing analytical dimensioning, and case studies. Among the contributions that were submitted to the conference, 24 were selected for oral presentations and 20 were presented during a poster session that was preceded by brief oral introductions. The conference was arranged by CSTB, and Lars Boström of SP Safety chaired the scientific committee. The next conference will be held in 2019.

signed: Michael Försth

ISO 20088-1 – an ice-cold standard for testing of insulation materials

As one of the first laboratories in the world SP Fire Research is able to offer testing of insulation materials according to ISO 20088-1:2016 "Determination of the resistance to cryogenic spillage of insulation materials - Part 1: Liquid phase".

Filling of liquid nitrogen. 250 liters of liquid nitrogen are poured into the upper part of the test rig before this is released upon the test specimen mounted below.
Photo: Reidar Stølen, SP Fire Research.

The insulation material is exposed to cooling at very low temperature by using liquid nitrogen (cryogenic cooling). This represents an extreme exposure of the tested material and the test results will be used to qualify a material for use in areas where it can be exposed to cryogenic spillage of condensed gas. The background for this new standard is the risk following cryogenic cooling where the extremely low temperature of the liquid gas may damage structures, instruments and equipment due to degradation of protective insulation.

In addition, cryogenic spillage of LNG (liquid natural gas) represents a risk of explosion and fire. This means that the insulation material should withstand exposure from a cryogenic spillage as well as a jet fire. SP Fire Research therefore offers custom–made testing that will document the material's resistance to both extreme cooling and subsequent fire.

SP Fire Research has been actively involved in the preparation of the new test standard, and we are proud to be one of the first laboratories to offer testing according to ISO 20088-1. We are also participating in the ongoing work on developing «Part 2: Vapour phase» and «Part 3: Jet release» of the same standard.

signed: Espen Daaland Wormdahl & Reidar Stølen

Fire incidents in modern wooden buildings mapped

The construction of multi-storey housing with wooden frames has been permitted in Sweden since 1994, when the building regulations became performance-based. The construction technique has gradually been increasingly adopted, and is now well-established and frequently utilised. Regulations concerning life safety are clearly defined in the current building regulations, and questions regarding property protection have now been raised from new perspectives. As a first step towards improved understanding, fire incidents involving multi-storey buildings with wooden frames have been studied. The results show that modern apartment buildings with wooden frames have a lower rate of fire incidents that have resulted in rescue service callouts than the entire apartment building stock. Full report is available at http://www-v2.sp.se/publ/user/default.aspx?RapportId=30816. Similar information from other countries are being sought, please contact Birgit.Ostman@sp.se

signed: Birgit Östman

Fire safety challenges in tall wood buildings – Phase 2

Recent architectural trends include the design and construction of increasingly tall buildings with structural components comprised of engineered wood e.g. cross laminated timber (CLT). These buildings are cited for their advantages in sustainability resulting from the use of wood as a renewable construction material.

Research and testing are needed to evaluate the possible contribution of massive timber elements to room/compartment fires. The Fire Protection Research Foundation in the US is running a project with the goal to quantify the contribution of Cross Laminated Timber (CLT) building elements in compartment fires and evaluate the relative performance of CLT systems compared to other buildings systems commonly used in tall buildings. In a first step, a literature review is available at http://www.nfpa.org/news-and-research/fire-statistics-and-reports/research-reports/building-and-life-safety/fire-resistance/fire-safety-challenges-of-tall-wood-buildings-phase-2-task-1

signed: Daniel.Brandon@sp.se and Birgit.Ostman@sp.se.

News from EU International Master of Science in Fire Safety Engineering

- Kingspan has committed to sponsoring the IMFSE programme, strengthening its Sponsorship Consortium even more.
- IMFSE Student Chapter has been recognized by SFPE!
- IMFSE alumnus Daniel Martin (USA) won the very first 'IWMA Young Talent Award 2016' with his thesis 'The Use of a Water Mist Curtain as a Radiation Shield'. Congratulations!
- At Lund University, Nils Johansson, Stefan Svensson and Patrick van Hees have been awarded the prestigious Jack Bono Award for Engineering Communications.
- Prof. Bart Merci from Ghent University visited the division of Fire Safety Engineering at Lund University and gave lectures on CFD and fires in car parks for students and staff.
- There are new blog posts up, from IMFSE students as well as an IMFSE alumnus! Read here what they are blogging about...
- Prof. Bart Merci and Dr. Tarek Beji wrote a book on fire and smoke dynamics, giving fluid mechanics aspects a central role in the story. The book is titled, *Fluid Mechanics Aspects of Fire and Smoke Dynamics in Enclosures*.
- Prof. José L. Torero, who helped launch the IMFSE programme for the University of Edinburgh (UK) and who currently works for the University of Queensland (Australia), has been awarded an Honorary Doctorate at Ghent University (Belgium). See a video about the award at: https://www.youtube.com/watch?v=R67ch_Zsw_I.

Daniel Martin, with IWMA Scientific Council chair Hong-Zeng (Bert) Yu, IWMA President Ragnar Wighus and his professor from Lund University Bjarne Husted
copyright: IWMA/Jasmina Rahmanovic

Signed: Bart Merci, IMFSE, Ghent University

News from National Research Institute of Fire and Disaster (NRIFD), Japan

New (Re)Hiring

Dr. Sayaka Suzuki has been a permanent staff in Large Fire Laboratory, R&D Division since February 2016 after her 3 year-term. Dr. Suzuki's current research focuses on firebrand ignition problem in large outdoor fires, collaboration with Dr. Manzello, NIST. Dr. Sayaka Suzuki obtained her PhD (2009), as well as BEng (2004) and MEng (2006), in chemical engineering from University of Tokyo, Japan (supervisor: Prof. Ritsu Dobashi). Dr. Suzuki worked in NIST, USA in 2010-2013 as a Guest Researcher, working with Dr. Manzello, NIST, before joining NRIFD as a term staff in February, 2013. Dr. Suzuki is a member of IAFSS, JAFSE (Japanese Association for Fire Science and Engineering), the Combustion Institute, and Combustion Society of Japan and currently serves Fire Technology as a member of Editorial boards and Combustion Society of Japan as a Director, Board of Directors.

New Projects

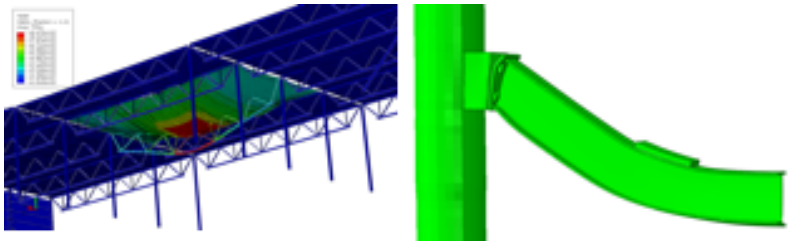
NRIFD started new 5-year projects from April 2016. Three programs are related to Fire Research; Fire Forensics, Evacuation, and Large Outdoor Fires. Detail will be introduced in the future newsletter. Meanwhile, please contact: toiawase2016@fri.go.jp, if you have any questions!

Signed by Dr. Sayaka Suzuki, NRIFD

News from Luleå University of Technology

Doctoral Defense of Naveed Iqbal

Naveed Iqbal, a former Doctoral student at the division of Structural and Fire Engineering of the Luleå University of Technology, successfully defended his Doctoral thesis on the 6th of September, 2016. The title of his thesis was 'Analysis of Catenary effect in steel beams and trusses exposed to fire'. The thesis aims to establish that higher resistance can be obtained in fire design situations for steel structural members such as beams and trusses through a performance based approach. The main focus of the thesis is on the utilization of catenary effect produced in steel beams and trusses in single-storey buildings at elevated temperatures as an alternative load transfer mechanism.



The study performed as part of the doctoral work involved some experimental work and extensive finite element modeling. It was demonstrated through finite element analysis that steel beams in multi-storey buildings and roof structures in single storey buildings offer much more robustness in fire situations in terms of additional resistance than would be expected through conventional design procedures. The thesis work was supervised by Professor Milan Veljkovic , formerly at the Luleå University of Technology and the opponent of the dissertation was Professor Paulo Vila Real from the University of Aveiro, Portugal.

Signed Michael Försth

News from Carleton University, Canada

Carleton University's fire safety program is growing with an increasing focus on the teaching and research of the human behavioural aspect of fire safety. With regards to structural fire engineering, our students and researchers are studying the fire performance of a wide range of systems including; connections, engineered timber, masonry, reinforced concrete, and even glass fibre reinforced polymers. In fire dynamics, our students and researchers have been giving attention to atrium smoke conditions, and travelling fires for use in Canadian steel design. New and exciting fire safety projects and collaborations are just around the corner!

Students participated in a simulated fire drill in a 20-storey building on Carleton University's campus. Various data was collected for them to analyze in class as part of an experiential learning activity.

Human Behaviour in Fires Course Re-launched

The biggest news to come from Carleton University is the re-introduction of the Human Behaviour in Fires class in the Fire Safety Engineering program. This useful class was taught this spring by Dr. John Gales, who has recently joined Carleton after coming from the University of Edinburgh's BRE Centre for Fire Safety Engineering. The course was guided with the advice from the National Research Council of Canada's Dr. Steven Gwynne and Arup's Dr. Michael Kinsey. Both of whom delivered guest lectures at Carleton University to over 50 invited undergraduate and registered graduate students this March (St Patrick's Day of all sorts!). The course teaching style uses novel experiential teaching techniques – get the student moving! In one example, students participate

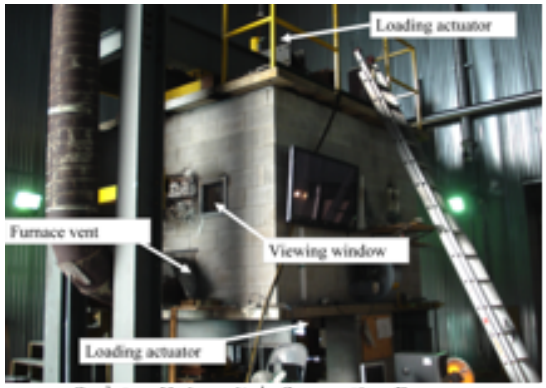
in simulated drills where they also are involved in data collection of movement of themselves and class mates. Their own data is then used for discussion and analysis in class. Results and impacts of those teaching methods will be presented as a case study paper by Dr. Gales at the *Canadian Engineering Education Conference* held in Halifax this year titled; "*Fire Safety Engineering Education using Experiential Learning*". The paper is co-authored by research students Lauren Folk and Claudia Gaudreault. The course will continue next year at Carleton University, and is expected to grow in enrolment from 24; interested experts in the field who may wish to speak as guest speakers in the future are encouraged to contact Dr. John Gales (john.gales@carleton.ca).

Graduating Students

Atrium Smoke Condition Test at Carleton's Fire Test Facility

Amir Rafinazari successfully defended his PhD thesis titled "*Investigation of the Effects of Make-up Air on Atrium Smoke Conditions*". Full-scale testing was conducted in Carleton University's ten storey fire atrium and applied a Computational Fluid Dynamics (CFD) model. With the supervision of Dr. George Hadjisophocleous, Amir investigated the effect of make-up air velocity on smoke conditions in the atrium under various opening arrangements as well as the rotational environment created by said opening arrangements. The results of the tests and CFD model can be used by engineers to better design the smoke management systems for atria and account for the effect of higher make-up air velocities.

Sabah Ali, also under the supervision of Dr. George Hadjisophocleous, successfully defended his PhD thesis titled "*Fire Performance of Hybrid Timber Connections*". This study investigated the effect of different parameters on the fire performance of connections between a glulam beam and a steel column. The research consisted of a series of full-scale tests conducted in compliance with the standard fire. Three different types of connections were investigated with different bolt arrangements: concealed shear tabs, exposed shear tabs, and seated connections. Three empirical formulas were proposed to calculate the failure times for the different connections.



Carleton University's Connection Furnace

Continuing Students

Natural Sciences and Engineering Research Council of Canada (NSERC) has recently committed to a research grant for Dr. John Gales on a study called: "*Advancing Engineered Structures for Canada's Aging Population*" in collaboration with Arup in Canada. The funding will be used primarily to continue to support research of Carleton student, Lauren Folk. Lauren has been investigating fire evacuation procedures in long term care and senior homes since last autumn. Lauren's preliminary results are discussed in her Interflam paper: "*Design for Elderly Egress in Fire Situations*" which is with contributions from her supervisor Dr. John Gales, Arup's Dr. Michael Kinsey and National Research Council of Canada's Dr. Steven Gwynne. As part of the continuing research, Lauren is currently looking into applications with the MassMotion evacuation modelling software. NSERC Canada, in their competitive national post-graduate funding program, has also extended funding to new graduate student, Hailey Quiquero. Hailey is studying the behaviour of engineered timber beams in fire and presented a paper at Interflam on the topic: "*Behaviour of Char Layer in Fire-Damaged Box Section Timber Beams*". That work is supervised by Dr. Gales and the paper was aided by Prof. George Hadjisophocleous. Carleton students Lauren Folk, Hailey Quiquero, and Claudia Gaudreault attended Interflam to present their research, along with professors John Gales and George Hadjisphocleous. The students planned to also visit industry collaborators and the University of Edinburgh.

We can also announce that Carleton graduate student and professional engineer Matthew Smith was recently awarded a prestigious and competitive Ontario Graduate Scholarship for his 2016 academic studies. Matt's research focuses on developing and demonstrating performance-based fire design solutions for composite steel structures in the context of the Canadian objective-based code and regulatory environment, which he is aiming to apply to Canadian consultancy practice. The work is really to get Canadians talking in their largely prescriptive design atmosphere. That research is supported by various industrial partners including: the Canadian Institute of Steel Construction, Entuitive and so on. Carleton summer student Benjamin Nicoletta was the recipient of a competitive NSERC student research award to begin work on assessing fire damage to glass fiber reinforced polymers. Ben is also collaborating with Carleton's doctoral candidate Josh Woods as supervisor with mentorship provided by Dr. Gales. Finally PhD student Hamish Pope, supervised by Dr. Ehab Zalok, has

recently been awarded the SFPE National Capitol Region Chapter Scholarship for Fire Safety Engineering for his work on masonry structures in fire.

Signed, John Gales and Benjamin Nicoletta.

News from the Hong Kong Polytechnic University

A Big Long Fire in Mini-Storages, June 2016

A number 4 alarm fire broke out recently in an old industrial building with mini-storage facilities in June 2016 [1]. Over 120 firefighters and 30 fire engines were deployed to fight against the blaze. The fire size was observed to be about 2400 m^2 in burning 200 mini-storage cubicles. The big fire lasted for 108 hours before extinguished, much longer than the big Garley Building fire 20 years ago [2]. No occupants were trapped inside but two firefighters were killed while taking actions.

Many questions [3] were raised by different parties. The following are scientific points worthwhile to explore critically further:

- Fire load density over 1135 MJm^{-2} [4] to have a long fire of duration 108 hours.
- Limited ventilation fires of different flame colour, or burning flammable liquids.
- Operation of the positive pressure ventilation (PPV) as raised in the news [5-7] to drive in huge amount of air to give big fires.
- Protection of firemen by appropriate clothing [5-7].

Photographs about the fire are available on websites of the news [1, 5-7]. More research should be carried out on above.

References:

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2. South China Morning Post, Hong Kong, 21 November 1996.
3. W.K. Chow, "A big post-flashover fire in mini-storages", Department of Building Services Engineering, The Hong Kong Polytechnic University, Hong Kong, July 2016. Available at: http://www.bse.polyu.edu.hk/researchCentre/Fire_Engineering/Hot_Issues.html
4. Code of Practice for Minimum Fire Service Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment, Fire Services Department, Hong Kong Special Administrative Region, 2012.
5. "Shouting from frontier fireman", E Weekly, Vol. 935, p. 10-13, 30 June 2016.
6. "Big fire in mini-storage facilities for 108 hours reporting", Next Magazine, Vol. 1373. p. 16-21, 30 June 2016.
7. "Alarm four fire in mini-stores", East Magazine, Vol. 670, p. 8-15, 29 June 2016.

Signed: WK Chow, The Hong Kong Polytechnic University, Hong Kong, China

News from Imperial College London

The Imperial Hazelab led by Dr. Guillermo Rein keeps expanding, with two new additions. Dr. Nieves Fernandez-Anez, who recently obtained her PhD from the Universidad Politécnica de Madrid studying the flammability of biomass, has joined as a postdoc to work for the EMRIS project which investigates smoldering fire. Rui Feng, a PhD student visitor from Tsinghua University, will spend the next six months with us studying the ignition of solids for aircraft safety. Also, Xinyan has officially graduated from Imperial College and had his graduation ceremony on the 4th of May in the Royal Albert Hall.

The Hazelab group, from left to right: Yuqi, Izabella, Nieves, Nils, Franz (who was away on the day of the shoot), Guillermo, Francesco, Egle, Rui and Xinyan

Guillermo and Xinyan at the graduation ceremony

Hazelab PhD students have won three important awards. Egle Rackauskaite, sponsored by Arup won the 2015 Best Fire Research Project from the UK Chapter of the Society of Fire Protection Engineering for the work "Travelling Fires for the Structural Design of Modern Buildings". Francesco Restuccia won the EGU Early Career Scientist's Travel Award. Xinyan Huang and former visiting student Supan Wang from USTC won

the Excellent Poster Award at the 10th Asia-Oceania Symposium on Fire Science and Technology for the poster titled "Expandable Polystyrene Foam Spot Fire Ignition by Hot Metal Particle", along with their co-authors Haixiang Chen, Naian Liu from USTC and Guillermo.

Guillermo has also had a successful period since the last newsletter. He won a €2 million Consolidator Grant from the European Research Council (ERC) to study peat fires. This is an exciting global challenge for fire science and an emerging climate change topic. Our group will be hiring PhD students and postdocs for the next 5 years. He also won the Early Career Award given by the International Association of Wildland Fires, which recognizes a promising early-career professional who has demonstrated outstanding ability in any field of wildland fire.

Signed: Izabella Vermesi, Imperial College London

News from the University of Maryland

Dr. Stanislav Stoliarov, Associate Professor in the Department of Fire Protection Engineering at the University of Maryland, was recently named the recipient of the 2016 Mid-Career Researcher Award by the International FORUM of Fire Research Directors for his extensive contributions to the science of fire engineering. The award recognizes exceptional achievement of demonstrated leadership in the fields of fire safety science or fire protection engineering made by mid-career professionals. The Forum is recognizing Stoliarov's outstanding contributions to improving understanding of the complex physical and chemical phenomena involved in the heat transfer through and thermal decomposition of materials and products exposed in a fire, and to establishing quantitative connections between standard fire test results and the fundamental thermo-physical properties and structure of the material.

The Society of Fire Protection Engineers (SFPE) Foundation Board of Governors and Board of Directors selected UMD's Fire Protection Engineering **Professor and Chair, James Milke**, to be the SFPE 2016 Arthur B. Guise Medal recipient. This award was established in 1982, in memory of the achievements of Arthur B. Guise, who singularly developed dry chemicals for use as fire extinguishing agents. The medal is bestowed upon an individual for their eminent achievement in the advancement of the science and technology of fire protection engineering in areas of research, development, design, innovation, management, education or literature.

The National Fire Protection Association (NFPA) has awarded a University of Maryland (UMD) research team led by Fire Protection Engineering **Assistant Professor Michael Gollner** with the 2016 Fire Protection Research Foundation Medal. The award recognizes a project completed in the previous year that best expresses the foundation's safety mission, commitment to overcome technical challenges and the collaborative approach to execution that is the hallmark of all Foundation projects. The team's research project "Pathways for Building Fire Spread at the Wildland-Urban Interface" addresses the concerns over increasing wildfires in wildland urban interface (WUI) communities. According to their report, fires in the WUI communities are a rapidly growing problem in the U.S., and the last 15 years contain six of this century's top ten most damaging U.S. single fire events. All of which occurred in WUI communities. The team, which included UMD students Raquel Hakes, Sara Canton and Kyle Kohler, went on to present their findings at this year's NFPA's Conference and Expo held in Las Vegas, NV. The event was attended by more than 4500 individuals from across fire industry, government and research.

The UMD Department of Fire Protection Engineers was represented by five PhD students - **Eric Link** (PhD Candidate), **Sebastian Vilfayeau** (graduated PhD), **Lin Jiang** (visiting PhD candidate), **Wei Tang** (PhD candidate), and **Ajay Singh** (graduated PhD) - at the 36th International Symposium on Combustion, which took place July 31 - August 5, 2016, in Seoul, Korea. Each student had a paper accepted by the Symposium, and all will be published in the Proceedings of the Combustion Institute. The students are advised by Professors Arnaud Trouve, Andre Marshall, Peter Sunderland and Michael Gollner.

A team of five Clark Engineering School students won second place at the 2016 ANSI-NIST Standards Simulation Student Competition. The competition took place Oct. 24, 2016, in Washington DC. The team members were Paul Anderson (ME Ph.D. student), Julie Bryant (FPE undergrad), Selena Chin (FPE undergrad), Peter Danis (FPE undergrad), and Nate May (FPE M.S. student). The team faculty advisor was Peter Sunderland (FPE). The American National Standards Institute (ANSI) hosted the competition as part of the 2016 World Standards Week series of meetings and celebrations.

Signed: Michael Gollner, University of Maryland

News from Lund University

Education

The large fire lab at the Division of Fire Safety Engineering at Lund University is now up and running at full capacity. This was evident during the spring semester when approx. 60 students conducted labs in the courses Fire Dynamics and Advanced Fire Dynamics. Furthermore, the lab was used for extensive testing in master thesis projects on elevated fires in enclosures and hot gas cooling. At the same time there are always on-going activities in our two fire labs related to our current research projects.

During the spring 2016, a new cohort of IMFSE students visited Lund. The cohort is within the new 3-year contract of Erasmus+, which was granted to the consortium last year. The consortium of Edinburgh, Lund and Gent University has also since last year a third new associate partner. After University of Queensland, Australia and ETH Zurich, Switzerland, University of Maryland, USA joined us as associate partners. For more information on this unique and prestigious international master visit the website www.imfse.ugent.be. It contains a lot of information on how you can start the studies and what possible scholarships exist.

Research

There are several on-going research projects and many of them are reported in open access Lund University reports. You can access our publications through our webpage: www.brand.lth.se/publications. A short presentation of some of our on-going research projects is given here.

Residential fires

The Division is engaged in three research projects dealing with residential fires. In these projects we have a lot of collaboration with other universities, research institutes and agencies in Sweden. The largest of the three projects is dealing with determinates behind residential fires and the effectiveness of different technical systems that can be used to reduce or mitigate the consequences of residential fires.

Fire safety in multi-storey timber buildings

The Division is involved in a larger research project on fire safety in multi-storey timber buildings. The main objective in this project is to provide information and guidance on property loss prevention in multi-storey timber buildings to be complementary to the present and existing knowledge on building design for life safety. The project is led by SP Wood Building Technology and the Division of Fire Safety Engineering is responsible for a part of the project that includes risk analysis of tall timber buildings.

Reliability of fire barriers.

Together with DBI, VTT, Espoo University and Ringhals AB the Division has obtained a project grant from the Nordic Nuclear safety research board with focus on reliability of fire barriers. The scope of the project is to investigate and assess the reliability of fire barriers in NPPs during realistic fire scenarios to support the plant-scale risk assessment. The objective is to establish data and methods to determine the conditional probabilities for failure of fire barriers. The methods used will be statistics, literature review, calculation and specific unique designed fire tests.

Interflam

The Division had a large delegation to this summer's Interflam conference in London. Professor Patrick van Hees was a member of the program committee and people connected to the Division of Fire Safety Engineering were involved in a total of 12 paper presentations and three poster presentations. The conference was held 4-6 July at the Royal Holloway College University of London.

Guest researchers at the Division

The Division of Fire Safety Engineering at Lund University hosted several guest researchers/lecturers during the spring. Professor Bart Merci from Ghent University visited the Division and gave lectures on CFD and fires in car parks for students and staff. Dr Tomonori Sano, Professor at the school of Human Sciences at Waseda University (Japan) stayed during the spring as visiting professor in Lund during his sabbatical, he was involved in the research areas of human behaviour in fire and evacuation modelling. Dr Rita Fahy from NFPA (USA) was guest lecturer in the human behaviour in fire course held by Dr Daniel Nilsson. Hana Najmanová was a visiting PhD student from the Department of Building Structures at the Czech Technical University in Prague (Czech Republic), working in the area of pre-school children evacuation. Ruggiero Lovreglio from the Polytechnic University of Bari (Italy) was visiting PhD student in the area of evacuation modelling and in April he successfully defended his PhD thesis entitled "Modelling decision-making in Fire Evacuation based on Random Utility Theory" under the co-supervision of Dr Enrico Ronchi.

Appointments and awards
Dr. Håkan Frantzich is back as a researcher at the Division. The rest of the staff is very happy to work with him again after his stay at a Swedish consultancy company.

The paper "Evacuation of a Metro Train in an Underground Rail Transportation System: Flow Rate Capacity of Train Exits, Tunnel Walking Speeds and Exit Choice" authored by Karl Fridolf (SP), Daniel Nilsson (Lund University) and Håkan Frantzich (Lund University) was selected for the *Change the World: One Article at a Time* award by Springer. The paper was published in Fire Technology in 2015.

Upcoming events
The Division has produced a short YouTube clip that introduces the upcoming IAFSS Symposium, the University and city of Lund. You can watch the movie on the symposium website: iafss2017.org. The website is continuously updated!

The Division is planning to give a 2-day course for post-graduate students on experimental methodology in fire safety science in connection (June 8-9) with the symposium. More information will come.

For more information, please visit the Division website, (www.brand.lth.se) that is continuously updated with news from the Division.

Signed: Nils Johansson, Lund University

News from NFPA and Fire Protection Research Foundation

Proceedings available
The proceedings from several workshops and symposia are now available free for download on our website at http://www.nfpa.org/news-and-research/fire-statistics-and-reports/research-reports/proceedings/2016-proceedings.

- Alternative Fuel Vehicle Safety Summit
- Big Data and Fire Protection Systems Workshop
- Fire Hose Workshop in Support of the Technical Committee
- Fire Protection for a Changing World
- Resiliency and Emergency Preparedness Workshop
- SUPDET 2016
- Workshop on Energy Storage Systems and the Built Environment

New report: *Carbon Monoxide Toxicology: Overview of Altitude Effects on the Uptake and Dissociation of COHb and Oxygen in Human Blood*
This Research Foundation report was released in August 2016. NFPA's requirements for installing Carbon Monoxide equipment relies on Carboxyhemoglobin (COHb) curve calculations for assumptions of equipment installation. However, at higher elevations (10,000+ ft), the NFPA technical committee has learned that listed equipment performs differently than at sea level. This raises the question of whether the COHb curve in humans is the same at high elevations than at lower altitudes. If it is different, installation instructions may need to be adjusted for higher elevations.

In addition, OSHA states that people at high altitudes (10,000+ ft) are more susceptible to carbon monoxide poisoning. In Carbon Monoxide and Human Lethality: Fire and Non-Fire Studies, edited by M.M. Hirschler, states "When persons at high altitude are exposed to low concentrations of CO, symptoms are experienced at much lower blood concentrations and the effects are more severe."

To provide the committee with additional information on this topic, the Research Foundation undertook a project with the goal of reviewing literature and data relating to the impact of altitude on COHb curve to serve as the technical basis for CO warning equipment installation requirements. Download the full report, for free, from the Foundation website.

New report*: LNG model evaluation protocol and validation database update*
Recent trends in use and production of natural gas has increased attention to liquefied natural gas (LNG). Dozens of LNG export facilities are currently under construction or seeking permits to build on U.S. shores. One important consideration for LNG facility design and siting is vapor dispersion modeling.

The Fire Protection Research Foundation had previously conducted projects on this topic, resulting in a including: Model Evaluation Protocol (MEP) Report and Model Validation Database Guide. Since the publication

of these reports and release of the database, additional requirements have been published and mistakes or omissions in the database have been found.

The goal of this project was to make corrections to the database and update in accordance with additional regulatory requirements. The objectives for this project included:

- Correct mistakes or omissions in data
- Incorporate changes required by the PHMSA Advisory Bulletin (Docket No. PHMSA-2016-0226)
- Provide clearer guidance to users on the calculation of statistical performance measures (SPMs) and other metrics
- Document changes made to the MEP report, MVD guide, and Excel spreadsheets

A copy of the LNG Model Validation Database Version 12 is available in Microsoft Excel Worksheet format. To request a copy of the database, please contact the Foundation. To obtains copies of the current reports, see Evaluating Vapor Dispersion Models for Safety Analysis of LNG Facilities" and "Guide to the LNG Model Validation Database Version 12".

New report: *Fire Safety Challenges of Tall Wood Buildings Phase 2: Task 1 - Literature Review*
This literature review is part of the Fire Protection Research Foundation project on Fire Safety Challenges of Tall Wood Buildings and focuses on the contribution of wood based construction to compartment fires. In order to provide a basis for experimental research, predictive models and comparative studies, this literature review includes a summary of 41 fire test of compartments comprising exposed or protected wood based construction and 4 reference tests of compartments comprising non-combustible steel frame construction. Additionally, overviews of test parameters, results and conclusions are provided. Download the full report for free from the Foundation website.

Request for proposals:
A Request for Proposals for Project Contractor (PDF) has been issued for the Marina Risk Reduction research project. Proposals should be submitted to Casey Grant by December 12, 12:00 pm ET.

A Request for Proposals for Project Contractor (PDF) has been issued for the Campaign for Fire Service Contamination Control project. Proposals should be submitted to Casey Grant by December 12, , 12:00 pm EST.

The Foundation periodically issues requests for proposals for the conduct of research. To automatically receive notification of these requests, please e-mail Eric Peterson.

Signed: Kathleen Almand, NFPA

News from Jensen Hughes USA

JENSEN HUGHES, the global market leader in the fire protection engineering, fire code consulting and related life safety services industry, acquired Aon Fire Protection Engineering Corporation (Aon FPE). Formerly known as Schirmer Engineering, Aon FPE is one of the leading global providers of fire protection engineering, fire code consulting and security services to commercial, industrial, and government facilities through 15 office locations in North America and a significant presence in the Middle East. JENSEN HUGHES now has over 1100 professionals in 66 offices in 12 countries serving thousands of clients around the world.

Hires
JENSEN HUGHES has grown the Research & Development team with the additions of the following experts:

Dr. Brian Lattimer has rejoined JENSEN HUGHES as VP of R&D to expand the company's work in the area of fire and safety research. This includes work on fire-structure interaction, material behavior in fire, advanced modeling, and robotics in firefighting.

Dr. Craig Weinschenk previously worked for NIST where he supported development of Fire Dynamic Simulator (FDS) and performed research for the firefighting service.


Brian Lattimer


Craig Weinschenk


Mark McKinnon

Dr. Mark McKinnon recently graduated from University of Maryland in Mechanical Engineering where he performed research on the determination of properties for pyrolysis modeling.

Dr. Christian Rippe (not pictured) graduated from Virginia Tech in Mechanical Engineering with a research focus on modeling and testing fire-structure interaction on aluminum structures.

JENSEN HUGHES is continuing to seek innovative and motivated engineers to advance the science of safety.

University Collaborations

JENSEN HUGHES sponsored the first Annual ENFP 429 Fire Protection "Shark Tank" class at the University of Maryland, Clark School of Engineering. Five junior-level students from the fire protection engineering program with the Clark School of Engineering prepared presentations introducing a new product to help solve a fire and life safety concern. They presented to several judges at JENSEN HUGHES on May 5, 2016. The chosen winner of the "Shark Tank" class will receive a $5,000 scholarship.

Morgan Hurley and Eric Rosenbaum just finished teaching a course on performance-based design at Worcester Polytechnic Institute. The course addressed developing fire protection design goals objectives and performance criteria, selection of fire scenarios, evaluation of performance including interaction of fire and evacuation models, and development of safety factors and required documentation.

JENSEN HUGHES continues its research collaboration with Virginia Tech. Brian Lattimer is working with Prof. Tomo Furukawa on the international competition Mohamed Bin Zayed International Robotics Challenge (MBZIRC 2017) for fully autonomous systems. This will include events with aerial vehicles as well as ground vehicles with manipulation.

Brian Lattimer also attended South by Southwest Technology Show with Virginia Tech to display the humanoid robot ESCHER and the development of exterior covers by visual artists Profs. Meghan Dee and Sam Blanchard.

Humanoid robot ESCHER

Christian Rippe and Brian Lattimer gave a seminar at NIST on the development of a fused thermography – digital image correlation system to simultaneously measure temperature and displacements fields in fire applications. This work was done in collaboration with researchers at Virginia Tech.

Brian Lattimer attended the 5th International Fire Behavior and Fuels Conference and was a co-author on the paper "High Fidelity Reduced Order Models for Wildland Fires" with collaborators in Applied Mathematics at Virginia Tech. This research is developing new techniques that decrease the runtime of fire models by 100-1000 times, depending on the type of model and domain size. The research has evaluated wildland fire spread models and two-dimensional plumes from FDS simulations. The talk was given by Dr. Alan Lattimer who recently finished his Ph.D. in Applied Mathematics on reduced order modeling of fires and joined JENSEN HUGHES in June.

JENSEN HUGHES signed a long-term agreement with the Jubail Industrial College in Saudi Arabia. We are collaborating to form a 2-year program in fire safety science. A total of 12 courses will be developed in conjunction with their faculty in addition to assisting with the design and outfit of a water based suppression lab as well as a fire detection and alarm lab. We are also teaching a variety of short courses to industrial clients to foster interest in the university program.

Signed: Brian Lattimer, Jensen Hughes

News from Olsson Fire & Risk UK

Olsson Fire & Risk (OFR) is delighted to welcome the new UK team into the group. Simon Lay and Sam Liptrott, who previously headed up the AECOM Fire Team, are now the OFR UK directors. They are joined by their previous colleagues James Perry, Alistair Henderson, Marc Pawson and Kate Swinburne in offices across Scotland, Manchester and London. The expansion into the UK builds upon the existing businesses in New Zealand and Australia, and brings with it new technical skills and project experience to the group. OFR in New Zealand and Australia are also expanding and welcome the following people into the team.

OFR New Zealand

- Tony Parkes has joined us as the Technical Director for New Zealand in our Christchurch office. Over the past 20 years, Tony has gained a wealth of experience in the fire safety industry with a background in academia, consultancy and as a reviewer Auckland City Council.
- Alan Page joined the team recently as a technical expert in passive fire protection. As a group, Alan will help us build on our existing skills and ensure we can provide best practice design and installation guidance to our clients and peers.
- Andrew Bethune has recently relocated from the UK to join us. His background in structural inspections and degree in Structures and Fire strengthen our structural fire engineering team.
- Tom Green joins us a graduate. He was awarded the OFR Masters Scholarship to support him to complete his fire engineering masters at the University of Canterbury, following completing his mechanical engineering degree.
- Geri Martin has joined us as a Graduate Engineer after recently completing her Master of Science at the University of Maryland in Fire Protection Engineering. Over the past 2 years she has gained experience as a Certified Fire and Explosion Investigator in the United States in addition to her involvement in academia.

OFR Australia

- Chris Chennell has recently joined the OFR Australia business as State Manager for WA. Originally from the UK, and with over 13 years' experience in fire safety, Chris brings to OFR knowledge in operational fire-fighting, building design, rail infrastructure, fire risk assessment, and, site safety management.
- Tim McClure and Gavin Grace have both joined our fast expanding fire protection team in Sydney. Tim and Gavin bring to the team technical skills in fire detection and alarm systems including aspirated detection, SSISEP and building occupant warning systems, and suppression systems.

Developing Skills and Knowledge Sharing

In May, David Fox attended the SFPE 11th Conference on Performance-Based Codes and Fire Safety Design Methods in Warsaw. He gave a presentation on fire testing procedures used for composite concrete floor slabs, and introducing aspects of his experiments assessing the perimeter reactions of slabs at high temperatures. His presentation will demonstrate how measuring thermal reactions can improve understanding of slab load-carrying mechanisms and failure behaviour, which are essential to the adoption of performance-based design.

Harriet Peel, fire engineer with Olsson Fire & Risk in Auckland, New Zealand, has undertaken research contributing to a Master of Engineering degree supervised by Associate Professor Michael Spearpoint of the University of Canterbury and Colleen Wade of BRANZ. The study investigated the contribution to fire of walls and ceilings in rooms which are only partially lined with plywood. The research included seven full-scale tests of various lining configurations using the ISO 9705 enclosure. These results were compared to the flame spread and fire growth predictions made using a modified version of the B-RISK fire model. Reasonable agreement was found between the experiments and predictions, and important factors influencing the predicted fire growth were identified. The experimental results were presented at the 11th Conference on Performance-Based Codes and Fire Safety Design Methods in Warsaw, Poland. The modelling analysis was presented by Harriet at the 14th International Conference on Fire Science and Engineering (INTERFLAM 16). The research was funded by BRANZ from the Building Research Levy and by the Ministry of Business, Innovation, and Employment, New Zealand. One of Harriet's experiments is shown here.

Jeremy Gaskin, based in the Perth, Australia office, recently attended a seminar by Wood Solutions to find out more about the new Deemed to Satisfy provisions allowing mid-rise timber construction in the Australian Building Code 2016 and the use of timber in bushfire prone areas. OFR are seeing an increasing number of timber framed building under construction in Australia and this is one of a number of activities to ensure they keep up to date with the latest academic and legislative developments.

Kate Swinburne, based in Scotland, gave a lecture to the final year and masters students studying fire engineering at Edinburgh University. She used the opportunity to discuss a number of innovative and unusual projects she has been involved with during her time as a fire engineer.

Signed, Kate Swinburne, Olsson Fire & Risk UK

ANNOUNCEMENT - IWMA Young Talent of the Year Award 2017

Since 2016, the International Water Mist Association (IWMA) has offered an award to promote young talent. The title of this award in 2017 will be: "IWMA Young Talent Award / Ph.D." The prize is awarded once a year. The prize itself will include:

- An invitation to the annual international water mist conference
- A slot to present the Ph.D. thesis
- Travel and accommodation expenses*
- A prize money of €1000
- One year free IWMA membership (starting on the day of the presentation of the award)

Please note: One year the best master thesis will be honored; the following year, the person having handed in the best Ph.D. thesis will be rewarded. In 2017 the best Ph.D. thesis will be rewarded! Deadline to hand in your submission for the 2017 prize will be: 30th April 2017.

For further details on the rules and regulations, please turn to the dept. of fire safety at your university or to: Bettina McDowell (International Water Mist Association) / Poststrasse 33 (im HBC), 20354 Hamburg, Germany / Tel.: +49 (0) 40 35085-215 / e-Mail: mcdowell@iwma.net

CONFERENCE REPORTS

Interflam 2016

We are pleased to report that the 14th international conference, Interflam 2016, was one of the largest technical programmes in the conference's 36-year history. The conference took place at historical Royal Holloway College, UK on 4-6 July 2016. The event attracted 325 participants from 28 countries from around the world. Over the 3 days, there were 120 oral presentations made within three parallel technical sessions along with 70 poster papers displayed and discussed in dedicated sessions.

A highlight at this year's event was the conference dinner held at the world-renowned Wentworth golf club. This year, along with the famous **Interflam Trophy,** several other awards were made, sponsored by FM Global. This is the first time these awards have been made and the recipients were chosen by the international Interflam Programme Committee. See the photos at http://www.intersciencecomms.co.uk/html/conferences/Interflam/If16/if16photogallery.htm.

Koichi Yoshida receives the Interflam Trophy from Stephen Grayson and Carole Franks

Interflam Trophy

The 2016 Interflam trophy was presented to **Koichi Yoshida** of Yokohama National University for his many years leading work in fire standardisation in the construction, electro-technical and plastics sectors. Also for his long service to the Marine standardisation group IMO. Yoshida is the world's most prolific participant across international fire standardisation and the award also recognises all those who work in this unglamorous but pivotal sector of fire safety that is the foundation of fire safety regulations.

The Interflam Awards

Best Paper Award
Fire Safety of Façades with Polystyrene Foam Insulation
Anja Hofmann, S Kaudelka, BAM, Germany

Anja Hofmann

Best Paper Runner-Up Award
Efficient Method for PROBABILISTIC Fire Safety Engineering
Ruben Van Coile, Ghent Univ, Belgium, G Balomenos, M Pandey, Univ of Waterloo, Canada

Ruben Van Coile

Best Paper by a Young Researcher Award
Experimental Assessment of Bench-Scale Ignitability Parameters
Frida Vermina Lundstrom, Lund Univ, Sweden

Frida Vermina Lundstrom

Signed: Carole Franks, Interscience Communications, UK

IFireSS 2015, Coimbra, Portugal, April 20-22, 2015

The CIB Commission CIB W014 Fire Safety, the University of Coimbra and Albrasci–Luso-Brazilian Association for Fire Safety organized the International Fire Safety Symposium IFireSS 2015, which took place at the University of Coimbra in April 2015. The proceedings are available for free here.

Report on "Fire Toxicity 2016"

Although the inhalation of toxic smoke is the biggest killer and the largest cause of injury in fires, it is very much the neglected area of fire science and fire safety engineering. However, this conference, held in March 2016, was special for another reason, it highlighted the health concerns in a unique, multidisciplinary way: on the first day scientists described the evolution and measurement of toxic products from fires, while medical practitioners described dealing with the short and long-term care of fire victims; the second day was devoted to the issues of fire fighter safety and the abnormally high rates of cancers amongst them; the third day focused on the regulatory framework that fails to protect fire victims from smoke inhalation, and how this problem may be addressed.

On the first day, the session on fundaments of fire toxicity covered the generation, analysis and effects of fire toxicants and medical treatment of victims. Professor Richard Hull from the University of Central Lancashire began the program with an introduction to the chemical and physical aspects of smoke toxicity, showing the importance of material composition (such as whether the polymer contained nitrogen and thus produced hydrogen cyanide on burning, or used halogenated flame retardants which increased the yield of carbon monoxide (CO) and hydrogen cyanide (HCN), as well releasing acid gases), and the fire condition (if flaming was under-ventilated the yields of toxic products, such as CO and HCN are typically a factor of 10 to 50 greater). Other speakers in the session were Professor David Purser CBE, Dr Mark Sabbe, and Mr Ken Dunn. Dr Anna Stec, Associate Professor in Fire Toxicity at UCLan, outlined the methods and challenges of quantifying the toxicity of fire effluents. This was followed by two presentations quantifying the toxicity in experimental studies of large scale fires from Richard Walker and Professor Beth Weckman. Dr David Crowder's presentation closed the first day.

On the second day, the session on firefighters and cancer featured presentions by Mr Peter Holland CBE, the Chief Fire and Rescue Advisor to HM Government, Mr Tommy Kjaer, a practicing firefighter and founder of the Danish Fire Fighters' Cancer Organisation, Dr Donald Lucas, an expert on environmental energy technologies from the Lawrence Berkeley National Laboratory in California, Professor Jeff Burgess a qualified physician, whose research at the University of Arizona has specialized in occupational health of firefighters, Dr Robert (Doug) Daniels an epidemiologist working at the National Institute for Occupational Safety and Health (NIOSH) in the U.S., Professor Susan Shaw, State University of New York-Albany and Director, Marine and Environmental Research Institute, and Mr David Wales, Research Manager for Kent Fire and Rescue Service, and Dr Francine Amon, a scientist at SP Fire Research.

The final day was focussed on the regulation and control of fire toxicity. Dr Björn Sundström, Director of Fire Research at SP, Sweden, and a key player in the development of the European Construction Products Regulations, described the measures for ensuring safety in the case of fire. Beth Dean, Technical Lead, Exova Warringtonfire, described the development and validation of the toxicity test methods for European railways, EN 45545-2. Dr Eric Guillaume, Technical Director of Effectis France, described the development of FTIR spectroscopy for the analysis of fire gases, and explained the detailed calibration and validation requirements necessary to produce a valid analytical data for the main gases normally considered in acute toxicity assessment. Ciara Holland described the UK building codes and their relationship to fire safety. Professor David Purser compared the different methods for assessment of fire effluent toxicity and related the results of each to large-scale fire behaviour. Mr Gwenole Cozigou, Director, DG Growth (DG Internal Market, Industry, Entrepreneurship and SME's) at the European Commission, announced that DG Growth is launching a study, to consider the need as well as the costs

and benefits of regulating fire toxicity under the Construction Products Regulations, expected to start in June 2016, to run for nine months." Mr Stuart Winter, senior fire engineer for Arup, outlined the UK's regulatory framework, which sets out the broad requirements for fire safety, without specific reference to fire toxicity.

In the closing discussion, Professor Hull highlighted the value of having all the fire safety professionals working together, from material's scientists, fire scientists and toxicologists, to emergency medical teams for the protection of the public, to the medical specialists who had identified the causes of cancer clusters and other occupational diseases in firefighters.

The organizers gratefully acknowledge support from the EU FLARETEX COST Action MP 1105, and the University of Central Lancashire. The full report on the conference can be found at: https://www.uclan.ac.uk/news/assets/Annas_Report_on_Fire_Toxicity_2016.pdf

Signed: Anna A Stec and T Richard Hull, University of Central Lancashire, UK

UPCOMING CONFERENCES

10th US National Combustion Meeting – April 23-26, 2017, University of Maryland, College Park (USA)

The US National Combustion Meeting is the premier combustion science meeting in the US and has been organized biennially since 1999 by the joint US Sections of the Combustion Institute (the Eastern States Section or ESSCI, the Central States Section or CSSCI, and the Western States Section or WSSCI). The 2017 10th US National Combustion Meeting is hosted by the University of Maryland at College Park and by the Eastern States Section of the Combustion Institute. Presentation abstracts are due January 13, 2017. For more information, please visit: http://blog.umd.edu/combustion2017/

Signed: Michael Gollner, University of Maryland

International Fire Safety Symposium 2017 (IFireSS 2017) – 7-9 June 2017, University of Naples Federico II (Italy)

This event, organized by the Department of Structures for Engineering and Architecture and CIB, represents the second edition of the International Fire Safety Symposium held in Coimbra, Portugal in 2015. The Symposium will be held at the Federico II Convention Center, Naples, Italy.

The Symposium aims at collecting and disseminating the advanced results of scientific research concerning fire safety. It represents an opportunity to share research, technology and expertise among peers in an international forum. The Symposium is addressed at the international scientific community but also at the most advanced industrial and professional representatives, in order to inspire debate on critical issues concerning fire safety.

CONTACTS: Visit the official conference website for more information: www.ifiress2017.unina.it or contact the iFireSS secretariat: ifiress2017@unina.it

2nd Nordic Fire & Safety Days – 17-18 August 2017, Aalborg University – Copenhagen

The Nordic Fire & Safety Days has grown to the largest conference on fire and safety in the Nordic countries. NFSD is a yearly event carried out by the Nordic universities and research institutes dealing with risk and fire safety. The conference is held by SP Technical Research Institute of Sweden in collaboration with Aalborg University in Copenhagen and the Technical University of Denmark, Lund University, Aalto University, Norwegian University of Science and Technology, University of Stavanger, University College Haugesund and Iceland University as well as VTT Technical Research Centre of Finland Ltd and the Danish Institute of Fire and Security Technology. The NFSD consortium agreed to hold the conference once more in Copenhagen, due to its central location.

The days put focus on risk and fire research in the Nordic countries. Contributions from other countries are more than welcome. The conference is in English.

The conference topics include: fire dynamics, fire chemistry, education curriculum, forensics, structural fire safety, off-shore fires, management of rescue services, residential fires, fires in transportation, safety management, healthy and environmental risks, societal activities and resilience, risk and innovations, decision-making, evacuation, crowd management and human behaviour.

The deadline for abstract submissions is January 31, 2017. Please submit nominations for the NFSD master thesis award and a corresponding abstract before March 8th, 2017. The requirements can be found on the conference web page - http://www.conferencemanager.dk/NFSD2017/nordic-fire---safety-days.html. The website will be open for registration on December 16, 2016.

The consortium of the Nordic Fire & Safety Days has decided to invite all delegates to two brokerage events. They also ask anyone who has a project idea they want to realize to submit a one-page project description by January 30th. The NFSD consortium will select two topics. With the brokerage event, they seek to initiate Nordic projects. The selection criteria are:

- the topic shall give the opportunity for involvement of different aspects of fire and safety, such as fire dynamics and chemistry, structural fire safety, risk management, evacuation and the intervention of the fire brigade.
- the topic shall offer involvement of actors within research, development and application.

The chosen topics will be sent to all delegates and introduced by the initiator of the workshop. Suitable sources for funding will also be presented at the workshop. Thereafter, projects will be formed.

Signed: Anne Dederichs (SP, DTU) and Lars Schiøtt Sørensen (AAU) on behalf of the NFSD consortium

Suppression, Detection and Signaling Research and Applications Symposium (SupDet 2017) – 12-14 September 2017, Hyattsville, MD, USA

The 2017 Suppression, Detection, and Signaling Research and Applications Conference (SUPDET 2017) will be a joint conference with the 16th International Conference on Automatic Fire Detection (AUBE '17). The joint conference will be held September 12-14, 2017 at the College Park Marriott Hotel & Conference Center, Hyattsville, MD. See the Call for Papers at http://nts.uni-duisburg-essen.de/aube/aube17/aube17.html. Further information about the program and registration will be coming soon.

Papers are sought on new developments with focus on topics listed in attached Call for Papers. Please submit abstracts to aube@uni-due.de by Dec. 31, 2016.

Signed: Eric Peterson, Fire Protection Research Foundation

8th International Symposium on Scale Modelling (ISSM8) – September 12-14, 2017, Portland Marriott Downtown Waterfront, Portland, Oregon, USA

The 8th International Symposium on Scale Modelling (ISSM-8) will be held in Portland, Oregon, USA in September 2017. The conference will be hosted by Dr. Mark Finney from the US Forest Service, and co-sponsored by the Institute of Research for Technology Development (IR4TD), University of Kentucky and Scale-modeling division at JSEM (Japanese Society of Experimental Mechanics).

Scale modeling covers almost all fields of engineering and is often applied to fire, medicine, meteorology, biology etc. How to find the scaling law has been separately developed in various areas of engineering, although it should be commonly applicable. In this symposium, we bring all ideas/strategies to find scaling laws and how to operate/design the scale model experiment (even numerical experiments).

At ISSM-8, will have three keynotes speakers in fire by Prof. Forman Williams (UC San Diego), Dr. John DeRis (FM global), Prof. Jim Quintiere (U Maryland) and two topical review speakers. Two special sessions on Forest Fire (coordinated by Mark Finney, Sara McAllister, and Michael Gollner) and Material research (coordinator: Yang-Tse Cheng) will be planned, in addition to the general session.

For more information please visit the website, http://www.me.tut.ac.jp/ece/issm8/index.html

Signed: Michael Gollner, University of Maryland

CALLS FOR PAPERS

SUPDET 2017 / AUBE '17

The 2017 Suppression, Detection, and Signaling Research and Applications Conference (SUPDET 2017) will be a joint conference with the 16th International Conference on Automatic Fire Detection (AUBE '17) in Hyattsville, MD. Papers are sought on new developments with focus on topics listed in the Call for papers that can be found here: http://nts.uni-duisburg-essen.de/aube/aube17/aube17.html. Please submit abstracts to aube@uni-due.de by Dec. 31, 2016.

Nordic Fire & Safety Days 2017

The Nordic Fire & Safety Days, a yearly event carried out by the Nordic universities and research institutes dealing with risk and fire safety, will be held at Aalborg University Copenhagen, Denmark, on August 17th and 18th, 2017. The Call for Papers is open until January 30, 2017. Authors will be notified in March. Nominations for NFSD Master Thesis Award 2017 are also due by January 30. For details on submittals and on the conference, see http://www.conferencemanager.dk/NFSD2017/nordic-fire-safety-days-2017.html.

17th International Symposium on Aerodynamics, Ventilation & Fire in Tunnels (ISAVFT 2017)

ISAVFT 2017 provides the opportunity to explore operational issues, maintenance and plant failure, and experiences from tunnel fires and similar events. It will be held in Lyon, France, 13th-15th September, 2017. The Call for Papers is open until 19th December 2016. Authors will be notified in February. For details on abstracts and on the conference, see https://www.eventsforce.net/bhr/frontend/reg/tOtherPage.csp?pageID=35165&ef_sel_menu=1028&eventID=108&eventID=108.

12th IAFSS Symposium 2017 – Posters and Images

The Calls for Posters and Images are now open. To assure the inclusion of recent research, the submission deadline for poster abstracts is March 31, 2017 and for images is April 1, 2017. See full details in Symposium news item above and on the IAFSS website.

8th International Symposium on Tunnel Safety and Security (ISTSS 2018)

The Call for Papers for the 8th International Symposium on Tunnel Safety and Security (ISTSS 2018) is open. The symposium will be held at the Textile Fashion Center in Borås, Sweden, 14-16th, March 2018.

Manuscripts and posters will be reviewed on the basis of an extended abstract of at least one full page and not more than two pages. The abstract should be informative and contain a brief description of the background of the work, the work itself and include at least indicative results. Manuscript abstracts should be submitted to the Secretariat by email (istss@ri.se) by 5th May 2017, poster abstracts by the 1st September 2017.

ISTSS has a cooperation with the scientific journal *Fire Safety Journal* and some selected papers will be suggested to be included in a special issue. For more information see Call for Papers or visit the Symposium website where you can find Author instructions (http://istss.se/).

UPCOMING EVENTS – 2017-2018

2017

Jan 31	14th International Wildland Fire Safety Summit – Barcelona (Spain) - http://www.paucostafoundation.org/ICoPFires/wildland-fire-safety-summit/
Feb 6-8	15th International Conference - Fire and Materials 2017 – San Francisco CA (USA) - http://www.interscicencecomms.co.uk/html/conferences/fm/fm17/fm17.htm
Apr 9-13	Thermosense: Thermal Infrared Applications XXXIX: Fire Analysis and Detection Session (part of SPIE Commercial + Scientific Sensing and Imaging) - Anaheim, CA (USA) - http://spie.org/sic/conferencedetails/thermosense
Apr 23-26	10th US National Combustion Meeting – University of Maryland, College Park MD (USA) - http://blog.umd.edu/combustion2017/
Jun 7-9	International Fire Safety Symposium 2017 (IFireSS 2017) - University of Naples Federico II (Italy) - www.ifiress2017.unina.it

Jun 12-16 12th International Symposium on Fire Safety Science (IAFSS2017) – Lund (Sweden) – http://www.iafss2017.se

Aug 17-18 Nordic Fire & Safety Days - Aalborg University Copenhagen (Denmark) - http://www.conferencemanager.dk/NFSD2017/nordic-fire-safety-days-2017.html

Sep 6-8 7th International Conference on Safety and Security Engineering – SAFE 2017 – Rome (Italy) - http://www.wessex.ac.uk/conferences/2017/safe-2017

Sep 12-14 Suppression, Detection and Signaling Research and Applications Conference (SupDet 2017) – Hyattsville, MD (USA) - http://www.nfpa.org/supdet2017

Sep 12-14 8th International Symposium on Scale Modeling – Portland OR (USA) - http://www.me.tut.ac.jp/ece/issm8/index.html

Sep 13-15 17th International Symposium on Aerodynamics, Ventilation & Fire in Tunnels (ISAVFT 2017) – Lyon (France) - https://www.eventsforce.net/bhr/frontend/reg/thome.csp?pageID=35123&ef_sel_menu=990&eventID=108&eventID=108

Sep 25-26 17th International Water Mist Conference (IWMC) – Rome (Italy) - http://www.iwma.net/home/

2018

Mar 14-16 8th International Symposium on Tunnel Safety and Security – Borås (Sweden) - http://istss.se/

MEMBER ANNOUNCEMENTS

Awards

Fire Technology awarded Dr. Jason Floyd of Jensen Hughes with the 2016 Jack Watts Award for Outstanding Reviewer of Fire Technology. This award celebrates high quality and helpful reviewers, an essential component of our journal, and is presented annually to those whose reviews were most valuable in terms of the quality, in-depth, number and timeliness.


Jason Floyd

Also receiving the award in 2016 were Egle Rackauskaite from Imperial College London (UK), Jie Ji from the University of Science and Technology of China, and Pedro Reszka from Universidad Adolfo Ibáñez (Chile)

At Lund University (Sweden), Nils Johansson, Stefan Svensson and Patrick van Hees have been awarded the prestigious Jack Bono Award for Engineering Communications. The Jack Bono Award for Engineering Communications was awarded for their paper entitled "A Study of Reproducibility of a Full-Scale Multi-Room Compartment Fire Experiment" that appeared in 2015 in *Fire Technology* (Volume 51, Issue 3, pp 645-665, doi:10.1007/s10694-014-0408-3).

Job postings on the IAFSS Website

Remember, you can always check the website for current job postings at the bottom of the front page.

CALL FOR CONTRIBUTIONS

To continue succeeding with this newsletter, it is important that we receive contributions from the IAFSS membership at large. Please consider submitting articles, letters to the editor, images, news, announcements or job openings related to fire safety science of IAFSS members. These could be collected from your department, institution, country or region. Please send your contributions to the Editor (Rita Fahy, rfahy@nfpa.org).

Letters to the Editor are most welcome, anytime, in response to newsletter content or any other topic related to the IAFSS.

For the next issue (No. 41), the deadline for submissions is February 28, 2017.

http://www.iafss.org

2014-2017
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