International Association for Fire Safety Science

A charity registered in England and Wales no 800306

Fire Safety Science News

http://www.iafss.org

December 2014, Issue No. 37

Rita Fahy, Editor

Associate Editors: Michael Gollner (USA), Nils Johansson (Sweden), Naian Liu (China), Ai Sekizawa (Japan), Michael Spearpoint (New Zealand), and Jack Watts (USA).

https://www.flickr.com/photos/iafss/12559450373/

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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TABLE OF CONTENTS

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.

EDITOR'S NOTE

The cover photo was taken at the 11th IAFSS Symposium last February in Christchurch NZ. In this newsletter, we have details from the Symposium, including a report from the Arrangements Committee, the Program Committee Report, the list of awards presented at the symposium, and reports from four of the workshops. Following the Symposium, IAFSS members were surveyed to see if they were interested in a printed copy of the proceedings – the results of the survey are presented in the Symposium report. A final decision will be announced soon by the Executive Committee of the IAFSS.

I'd like to take this opportunity to thank Guillermo Rein for the excellent work he's done over the years as Editor of this newsletter. He has left big shoes to fill but with the help of the great team of Contributing and Associate Editors he assembled, I hope we'll continue to put together a useful and informative newsletter.

I'd also like to thank Jack Watts for his work on the newsletter over the years, as past Editor and current Associate Editor. Jack is now fully retired and stepping down as Associate Editor – we wish him a long, happy and healthy retirement!

As we look toward the newsletters in 2015, in addition to the usual news and events pieces, we are planning to include a special feature on the founding of IAFSS. As Prof van Hees mentions in his letter, in 2014 we lost several of the 'founding fathers' of the Association. This special feature will be jointly offered by some of our members who knew these 'founding fathers' best. If you have any material, reminiscences or thoughts you would like to contribute to this historical issue, please contact me.

And finally, I would like to thank the Associate Editors, Contributing Editors and all the members who contributed material for this newsletter. News from members, notification of planned events or conferences, reports of those events, and/or any news relating to fire safety science and engineer are welcome for the next issue!

Signed: Rita Fahy, Editor, National Fire Protection Association, USA.
rfahy@nfpa.org

LETTER FROM THE CHAIR

It has been nearly 10 months since our 11th IAFSS Symposium in Christchurch and I am pleased to report that the Symposium, and its organisation, was a real success. Many researchers travelled from all over the world to New Zealand to obtain the latest state-of-the-art in fire safety science. All of us who attended could see the immense and tremendous efforts made by the local organising committee. Setting up a whole city and its logistics after an earthquake is not an easy task and organising an international symposium might not be the first priority in the aftermath of such a dramatic and tragic event. However, Prof Fleischmann and his team made it all possible and we thank and congratulate them for hosting the unforgettable event. We all enjoyed being in Christchurch.

The 11th Symposium meant for the IAFSS Committee a change in officers and Executive Committee. New people came on-board and other people left the Committee. I hereby would like to thank all the officers who left the Committee for their efforts during the years they served. From among the new members, a slightly changed Executive Committee was selected and it was an honour for me to be elected as the new chair. However, it is not only an honour but also a challenge. Our organisation is based on volunteerism, and today's reality is that more and more people are fully busy with their daily tasks of research, teaching, commercial activities, etc. It is not so easy to find time gaps in a full agenda. So each of us needs to share the workload. If you want to help, please let me or anybody else on the Executive Committee know this. Many helping hands make life easier for everybody.

Apart from electing officers to their new positions, the latest IAFSS Committee spent a lot of time discussing the openness of our organisation, getting a correct balance of participation, etc. From now on, our minutes will be available on the website so that each of you can consult them.

This brings me to the visions I have for the organisation, which I presented to the IAFSS Committee and would like to put forward here.

In order to survive today, growth is essential. We have to grow in members, both student members and full members. Our membership fee is not so large that it should be a hindrance. All the benefits, even non-economic ones, make it worthwhile to become a member. So look around your network and introduce IAFSS to your colleagues and network partners. Growing means not only growing in numbers but also in a balanced way. Issues such as gender balance, age balance and regional balance should be taken into account and this is important.

Growing also means that we must be successful in establishing fire safety science better in the overall scientific community. A first initiative, started by Prof Chow, is to convince the Institute for Scientific Information (ISI) to set up an 'area' called Fire Science and Engineering. Another ambition is to get our proceedings in Web of Science catalogues. Today, we are visible in Scopus but many universities and funding agencies use Web of Science listed articles for promotion and for providing research funding. It is my opinion that the peer review system we have established is of very high quality and the articles from our symposia should be included in the above-mentioned process. I see this as very important for our younger generation so that they will have the exposure and a solid basis for career development.

Growing is only possible by having more activities, so it is a pleasure to announce that as a result of the workshop on fire modelling at the 11th Symposium, an initiative was started by Prof Merci and Prof Trouve to establish a more continuous, on-going effort. A first meeting was organised this past summer and a proposal is now on the table for discussion in the Executive Committee. Other activities and initiatives are very much welcome.

In the same spirit, it is important to mention that 2015 will be the year of a number of regional activities. In June, the 2nd European symposium will be held in Cyprus and in September, the 10th AOSFST will be held in Japan. In both cases, we were successful in negotiating reductions for our members to participate in the conferences. Of course we will compensate the organisers for this kindness. For the AOSFST, there is a request for help in the English editing of the proceedings and articles. Anybody willing to help, please contact us.

My vision is for the IAFSS to become as visible as possible. As steps are taken to grow the membership of the IAFSS, it is important to let everybody know that we exist. An important part of this is the newsletter we issue twice a year. This issue is for the first time edited by Dr Rita Fahy, our new editor. Rita took over after Dr Guillermo Rein. Dr Rein put a lot of effort into increasing the input into the newsletter, which resulted in more

pages and a high level of articles and news. I would like to thank him for all his efforts and wish Dr Fahy good luck with her task as new editor. Other activities include our website, which is very active. Please inform your network about it. During the spring, we also issued a press release on our "Fire ReSearch Engine", an extremely valuable tool. We need further marketing of this tool and the best way is through our members.

My wish for the Association is to have activity not only flow from top-down but also bottom-up. To this end, we organized a first survey of the membership about the publication of the proceedings of our 11th Symposium. The survey results are given in this newsletter and the Executive Committee now needs to take a decision on printing or not. Due to the short time between the acceptance of papers and the conference, it was only possible to issue a draft version of the articles on our website at the conference. The editors needed to adapt many of them in order to accept them as final versions. The goal is to establish final DOI numbers by the end of this year.

Finally, I want to have a moment of reflection with you. During this year, a number of our founding fathers passed away. Shortly before the conference, Prof Thomas and Dr Friedman passed away, and during the 11th Symposium, Prof Hirano passed away. It is important for us to remember how they established our Association and what their principles were. They started the Association as a group of friends and gentlemen and were keen on the regional balance and on keeping the traditions of high-quality research. Let us remember them in our thoughts and continue with these ethical values.

Last but not least, I would wish you and your family happy holidays.

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

SPECIAL THANKS TO FORMER COMMITTEE MEMBERS

The IAFSS would like to express their appreciation to Committee Members who are now leaving the committee after years of helpful service:

- Dr Vytenis Babrauskas
- Dr Craig Beyler
- Mr. Dieter Brein
- Prof Nicholas A. Dembsey
- Ms. Carole Franks
- Prof Yuji Hasemi

OBITUARY Professor Toshisuke Hirano (1939-2014)

It is with great sadness that we have learned of the death on February 13, 2014 of Professor Toshisuke Hirano, aged 74. Prof. Hirano, Emeritus Professor at the University of Tokyo, passed away after 2 months of medical treatment at Tokyo Metropolitan Neurological Hospital in Tokyo, Japan. He has made enormous contributions to IAFSS continuing from the time of its founding. He has served as a secretary (1985-1991), vice chairman (1991-1997), and chairman (1997-2002) of IAFSS. He has increased the activities of the Association and especially put emphasis on the globalization of fire science. He worked as a bridge to areas of Asia, Oceania, and Russia, and expanded the IAFSS into a true international audience. He established Asia-Oceania Association for Fire Science and Technology as a branch of IAFSS in 1992 to promote the exchange of fire safety science within the Asia-Oceania section, and beyond.

Prof. Hirano was born in Shizuoka, Japan, on February 25, 1939. In 1970, he earned the Doctor of Engineering degree from research on ionization in flame in the University of Tokyo. After working for Ibaraki University, he made his way to the University of Tokyo as an associate professor in the department of reaction chemistry and was promoted to full professor in 1985. After he retired from the University of Tokyo in 1999, he served for National Research Institute of Fire and Disaster as a president from 2001 to 2004. He managed the researches at the National Research Institute of Fire and Disaster, which is a leading research institute on fire safety science in Japan. He also served for Chiba Institute of Science as a president from 2004 to 2010. Chiba Institute of Science was founded in 2004 and he was the first president.

Prof. Hirano has performed pioneering researches in fire safety science and engineering. For example, he has studied flame spread phenomena above combustible solid and liquid. He examined airflow near the flame carefully and succeeded in describing the flame structure exactly as a diffusion flame in boundary layer. Also he has studied flame propagation phenomena in the combustible particle clouds and flammable gas mixtures (dust explosion and gas explosion). The propagation mechanisms were analyzed by using aero-thermo dynamics. These fundamental studies present how the phenomena of flame spread and propagation are governed by mass and heat transfer, combustion reaction, and flow behavior. The results contribute to the scientific understanding of flame spread and propagation in fire and explosion. The results of this research were presented in more than 170 original papers, 65 review papers, and 27 books. By these achievements, he was presented with the Award for the Outstanding Paper (Japan Society for Safety Engineering, 1981), the Komo Prize (Tanikawa Fund Promotion of Thermal Technology, 1987), and other noted awards. His achievements in research are of great importance for the promotion of fire safety science and engineering, and also have had great impact on the other academic areas such as combustion science, transport phenomena, and energy engineering.

Prof. Hirano was an active person and his leadership was exceptional. He served not only for IAFSS, but also for the Combustion Institute (Executive Committee member, Secretary for Foreign Affairs, Board of Directors), Asia-Oceania Association for Fire Science and Technology (President), and Japan Association for Fire Science and Engineering (President). He has also served as a member of editorial board for Journal of Loss Prevention in the Process Industries, Journal of Japan Society for Safety Engineering, and Combustion and Flame. By these great contributions, he was awarded Bernard Lewis Gold Medal (Combustion Institute, 2004), Award for Prominent Contribution (Japan Association for Fire Science and Engineering, 1985), Dionizy Smolenski Medal (Polish Academy of Sciences, 1997), Award for Prominent Contribution in Sci. (Japan Institute of Energy, 1999), and International Science and Technological Cooperation Award of the People's Republic of China (2003).

Prof. Hirano made considerable efforts to bring up young generations. He was known as a strict teacher; however, he trained them with warm heart. Many of his pupils have played important roles in the research of fire safety science. He was an attractive person loving sports (association football) and flowers (especially roses). We believe his legacy will endure in many ways. He is survived by his wife, Kazuko, two daughters and a son.

Signed: Ritsu Dobashi, The University of Tokyo

NEWS FROM MEMBERS

News from Arup

Arup is delighted to announce the commencement of our latest EPSRC CASE award PhD project at The University of Edinburgh. This project, entitled "Novel Fire Testing methods in Support of Tall Timber construction" will be undertaken by Mr Alastair Bartlett under the supervision of Dr Rory Hadden. The aim of the project is to develop testing methodologies and protocols necessary to build a knowledge base which will allow Arup to challenge current regulations that prohibit the use of timber in high-rise construction. Specifically the project is intended to build on current knowledge to better understand engineered timber, such as cross-laminated timber, and characterise the response (in terms of ignition, flame spread, charring and delamination) to fire conditions; to evaluate the validity of, and scientific basis for, current design guidance; and to propose new testing and design methodologies. This project will provide an understanding of the behaviour of timber in real fire conditions and enable a rational approach to fire safety in the emerging market of tall timber construction.

Signed: Peter Johnson, Arup

News from University of Edinburgh

Prof Luke Bisby has been awarded the 2014 International Institute for FRPs in Construction (IIFC) Distinguished Young Researcher Award. The Distinguished Young Researcher Award is given every two years to an IIFC member, not older than 40 years of age, who has distinguished themselves from their peers through research contributions in the field of FRP composites for construction. Prof Bisby is recognised specifically for his research and building code development work related to the Fire Resistance of FRP Systems for construction.
Weblink: http://www.iifc-hq.org/wp-content/uploads/2014/06/FRP-International-Vol-11-No-3-July-2014.pdf

Alastair Bartlett, a 2014 MEng Graduate in Structural and Fire Safety Engineering, has been awarded the 2014 Student Scholar Award from the Educational and Scientific Foundation of the Society of Fire Protection Engineers. The award was made for Alastair's MEng Thesis, entitled "Charring Rates for Cross Laminated Timber under Standard and Non-Standard Heating Scenarios," which was supervised by Luke Bisby and Rory Hadden. Alastair presented his work at the SFPE Annual Conference in California during autumn 2014, and has recently signed up to undertake an Arup/EPSRC CASE PhD Studentship at the University of Edinburgh, supervised by Rory Hadden and Luke Bisby.
Weblink: http://www.eng.ed.ac.uk/about/news/20140723/alastair-bartlett-awarded-2014-student-scholar-award

Members of the group spent February in New Jersey working with the US Forest Service to undertake some highly instrumented prescribed fires. The three-year project, involving researchers from Edinburgh, in collaboration with the United States Forest Service, Rochester Institute of Technology (U.S.), and Tomsk State University (Russia), seeks to better understand the effectiveness of fuel treatment at the Wildland Urban Interface, while characterizing wildfire behaviour and investigating firebrand generation from real fires.
Weblink: http://edin.ac/1trdvt3

In May, the Centre celebrated its 40th anniversary with a 2-day symposium at the Surgeons Hall in Edinburgh. Over 150 alumni, staff, students and sponsors came together to celebrate the past and consider the future of our discipline. A programme of technical talks focused on the questions "Where are we? How did we get here? and Where are we going?". At the event, John de Ris gave the Rasbash lecture and the Philip Thomas medal was awarded to Professor Colin Bailey to commemorate their respective achievements in the field. Respects were paid to Dr Frank Rushbrook, CBE who had been a long-term friend and supporter to the group. The programme is available here: http://www.see.ed.ac.uk/FIRESEAT/2014.html

Signed: Rory Hadden, University of Edinburgh

News from the University of Cantabria

Rail car evacuation experiments

Last 8th August, the GIDAI Group at University of Cantabria carried out rail car evacuation experiments. A special facility was used which allowed to test different exit configurations (evacuation to walkway and/or track level at different exit heights and widths). A total of 77 participants took part in the experiments (48 % female and 52 % male). The age of participants varied between 18 and 74 years with an average of 48 years. Results will contribute to increase the knowledge of passenger train evacuations and will be used for the validation of an evacuation model which is being developed by the GIDAI group. The activity is included in the EvacTrain Project, founded by the Spanish Ministry of Economy and Competitiveness.

Merging flows in tunnel evacuation simulation

Internship at NFPA and NIST

Virginia Alonso from the GIDAI Group at University of Cantabria had the opportunity to do internships in the National Fire Protection Association (NFPA) and the National Institute of Standard and Technology (NIST). During this time, she collaborated in different research projects. At NFPA, Virginia analyzed by computer modelling and simulation the impact of increasing the maximum allowable size of a smoke compartment in health-care occupancies, a change proposed in the NFPA 101 for 2015 (the report can be downloaded at: http://www.nfpa.org/research/fire-protection-research-foundation/reports-and-proceedings/building-and-life-safety/general-life-safety-issues/egress-modelling-in-health-care-occupancies). While at NIST, she collaborated with the Fire Research Division in research works related to the evacuation process in high-rise buildings through a multi-model approach methodology for analyzing occupant movement and behavior on stairs.

EvacTunnel 3.0 release

EvacTunnel 3.0 is a computer model developed by the Gidai Group to simulate the evacuation of road tunnels. This is freeware that can be downloaded at: http://www.gidai.unican.es/Download.html. The model is designed:

1) to run several simulations in real-time, 2) to consider random human behavior, and 3) to predict total evacuation times and the number of tunnel users affected by smoke in different fire scenarios. The evacuation of each tunnel user depends on the following parameters: pre-movement time, travel distance and walking speed. Monte Carlo methods are used to generate random samples. In each run, each tunnel user has different values of these parameters. After performing *n* runs, potential outcomes of the scenario are obtained. The model has been presented at events related to fire safety in tunnels such ISTSS 2014.

Signed: Mariano Lázaro, Universidad de Cantabria

News from Ghent University

The International Master of Science in Fire Safety Engineering (IMFSE) is officially included to the Erasmus Mundus Joint Master Degrees (EMJMD) Catalogue

The IMFSE (International Master of Science in Fire Safety Engineering: www.imfse.ugent.be) Management Board is proud to announce that the IMFSE program has been labeled 'a very interesting and valuable Erasmus Mundus Master course' as a result of an official Quality Review assessment by the European Commission. As a result, the IMFSE program has been formally included to the Erasmus Mundus Joint Master Degrees (EMJMD) Catalogue of EACEA (Education, Audiovisual and Culture Executive Agency). The IMFSE program scores particularly well in terms of 'relevance' and 'attractiveness'. The major challenge is the attraction of external funding from public/private partners. Interested parties are encouraged to contact the IMFSE program directors for more details: Prof Bart Merci (Bart.Merci@UGent.be), Prof Albert Simeoni (A.Simeoni@ed.ac.uk) and Prof Patrick van Hees (patrick.van_hees@brand.lth.se).

On the 23rd of June we held our third IMFSE Graduation Ceremony in Ghent, Belgium. Seventeen students graduated on that day, all fully ready to act as excellent Fire Safety Engineers out there. Celebrating their achievements together with family and friends, the official graduation was followed by a culinary guided tour through the medieval city center of Ghent and concluded with dessert and a splendid music performance by Ultra Violet (with IMFSE administrator Elise Meerburg as lead singer). Videos and pictures of that day can be found here:
http://www.imfse.ugent.be/index.asp?p=2164&a=1939

Applications are open through our website www.imfse.ugent.be for everyone interested in starting our program in September 2015.

1st IMFSE Fire Safety Engineering Day – 'Fire Safety Engineering as Solution Finder'

On Thursday, 18 September, 2014, The International Master of Science in Fire Safety Engineering (IMFSE) consortium held its 1st IMFSE Fire Safety Engineering day, in the Antwerp Fire Service Station (Noorderlaan 69, 2030 Antwerp, Belgium). The central theme of the day was 'Fire Safety Engineering as Solution Finder'. Different stakeholders (industry, fire service, AHJ, academia) testified how FSE enabled a fire safe design where compliance with prescriptive codes turned out impossible.

The meeting provided a unique 'meet and greet' opportunity with approximately 30 IMFSE students and lecturers from all partner institutes (The University of Edinburgh, Lund University and Ghent University). The event was supported by the financial partners of the IMFSE program: BRE; IFIC; FPC; Promat International; Rockwool.

More than 60 participants enjoyed the program, which consisted of brief presentations and an intensive panel discussion. Given the success, there are already plans for a 2nd IMFSE Fire Safety Engineering day. More info will follow in due time.

Signed: Lies Decroos, Ghent University

News from The Hong Kong Polytechnic University

Professor W.K. Chow was invited to be the Executive Editor of the *Journal of Applied Fire Science* in September, 2014. The editorial board will be extended and announced later. Further, three PhD degrees were conferred to

the following candidates at Department of Building Services Engineering (BSE), The Hong Kong Polytechnic University (PolyU) in November 2014:

Dr Andy W.C. Tam with a thesis titled "Analysis of heat transfer in a building structure accounting for the realistic effect of thermal radiation heat transfer", under the supervision of thermal radiation expert, Professor Walter Yuen, Chair Professor of Thermal Science and Engineering at PolyU, and Professor Emeritus at University of California, Santa Barbara, U.S.A., together with Professor W.K. Chow funded by a Hong Kong PhD Fellowship. The thesis was examined by Professor Carlos Fernandez-Pello at the University of California, Berkeley who had visited the new campus of PolyU-BSE.

Dr Miao Wu with a thesis titled "Smoke toxicity and thermal hazards of fire resisting glass with high fire resistance rating"; and Dr Na Cai with a thesis titled "Fire safe elevator used for evacuation in supertall buildings", both were supervised by Professor W.K. Chow and funded by the General Research Grants of Research Grants Council, Hong Kong. The project by Dr Wu was also sponsored by a glass manufacturing company in the U.K.

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

News from Technical University of Denmark (DTU)

In-Situ Burning of Oils

Laurens van Gelderen started his Ph.D. on the project entitled "In-Situ Burning of Crude Oils under Arctic Conditions" (www.isboil.dtu.dk) in January 2014. From January to April of 2015, he will visit WPI to work on a research project with his co-supervisor Ali Rangwala.
Wilson Ulises Rojas Alva started as a research assistant in the DTU Fire Group in November, and will focus on a project from the Oil and Gas Producers. The project focuses on the efficiency and environmental aspects associated with the use of herders in in-situ burning experiments.

Composite Materials for Superstructures

Pierrick Mindykowski (Post-Doc) has developed a test apparatus that will be used to test composite materials that are relevant for the project entitled "Composite Materials for Superstructures of Passenger Ships (COMPASS)". In 2015, there will be opportunities for MSc projects related to these tests.

Spacecraft Fire Safety

The French National Center for Space Studies (CNES) arranged a Parabolic Flight Campaign, operated by Novespace, out of the Merignac airport (Bordeaux) in October 2014. Grunde Jomaas (DTU) participated in a project for which Guillaume Legros from Université Pierre et Marie Curie was the PI. The experiments entitled "Flame Spread over a Set of Electrical Wires in Microgravity" went well, although some of the team members will remember certain physical aspects of the flights. More information and some nice movies can be found on the following webpage: http://www.dalembert.upmc.fr/home/legros/index.php/publications
The picture shows, from left to right, K. Kizawa (Hokkaïdo University, Japan), G. Jomaas (DTU, Denmark), G. Legros (UPMC, France), O. Fujita (Hokkaïdo University, Japan), M. Kikuchi (JAXA, Japan), J.-M. Citerne (UPMC, France), and H. Dutilleul (UPMC, France).

Signed: Grunde Jomaas, Technical University of Denmark

News from CESARE (Victoria University)

The Centre for Environmental Safety and Risk Engineering (CESARE) is part of the College of Engineering and Science at Victoria University, in Melbourne, Australia (http://www.vu.edu.au/about-us/academic-colleges/engineering-science)

Recent Appointments

Prof Vasily Novozhilov joined CESARE in March 2014, and has been recently appointed CESARE Acting Director.

Major Activities

CESARE is looking to expand its activities in the key areas of Fire Dynamics, Fire Suppression, Structural Response to Fires, and Computational Fire Modelling.

In 2014, CESARE obtained major funding from the Australian Bushfire and Natural Hazard Cooperative Research Centre on computational bushfire modelling. It is essential that emergency and disaster management organisations are able to predict the rate of spread and intensity of bushfires under a wide range of topographic and weather conditions. In this project, a state-of-the-art CFD fire model is being refined to simulate ignition, growth and spread of bushfires.

The activities in the fire suppression area have been supported by a Victoria University grant to install a major Water Mist Fire Suppression System. This area of research is also supported by the Defence Science and Technology Organisation (DSTO) through a postgraduate research scholarship. The project involves numerical modelling of water mist distribution and interaction with fire.

The research on concrete spalling progresses with the view to address the lack of studies that have been conducted into the effect which aggregate size has on spalling within both Normal Strength Concrete (NSC) and High Strength Concrete (HSC). The present research aims at understanding the effect of aggregate size on the spalling mechanisms within high strength concrete (HSC) under fire conditions. The intent of this study is to contribute to the wider understanding of high strength concrete behaviour under fire conditions.
Another direction of research is the development of fire resistant geopolymer based concrete. Geopolymer is a new class of binder material that is believed to possess superior strength and resistance to both fire and chemicals compared to OPC concrete. Geopolymer technology is increasingly being considered as holding great potential in high temperature applications. The present project investigates the performance of geopolymer concretes in fire and the development of geopolymer concrete for application in high fire risk infrastructures.

Human behaviour in fire group has continued work on the project comparing factors in accidental residential fires where an individual died (using the *Victoria University Coronial Fire Fatality Database)* versus fires where all occupants survived *(Victoria University Residential Fire Survivor Database)*. In so doing, the key factors for fatality versus survival were sought. The key research question was whether fatal accidental residential fires share important characteristics with survived fires, or whether risk factors for fatal fires differ significantly from survived fires. The answer to the key research question is that factors for fatal fires do differ significantly from survived fires. On the basis of this project, a number of articles have been and will be submitted to top tier journals for potential publications.

Core staff at CESARE include:
Prof Vasily Novozhilovm A/Prof Khalid Moinuddin, Dr Maurice Guerrieri, Mrs. Debra Fitzpatrick, Mrs. Maria Penagandara, Dr Lin Xiong, Mr. Lyndon Macindoe.

Professor Wan-ki Chow (Hong Kong Polytechnic University) has been appointed Distinguished Visiting Professor at CESARE and is expected to provide advice on specific research projects and contribute to raising the international profile of the Centre.

Signed: Vasily Novozhilov, CESARE

News from EU International Master of Science in Fire Safety Engineering

The International Master of Science in Fire Safety Engineering is pleased to announce that our two associated partners, the University of Queensland (Australia) and ETH Zürich (Switzerland), will each be hosting one IMFSE master thesis in 2015. Two of our IMFSE students will spend their fourth semester at the above-mentioned universities and will be performing their thesis there under the guidance of Prof José Torero (the University of Queensland) and Prof Mario Fontana (ETH Zürich).

We are also proud of our five sponsors and the well-established partnership between IMFSE and each of these five companies: BRE, IFIC, FPC, PROMAT and ROCKWOOL. We are looking forward to many more years of steady and valuable collaboration.

Last but not least, we would like to inform you that the application forms for IMFSE intake 2015 are now online. For scholarship applicants there is one more month left until the application deadline of 9 January 2015; self-sponsored applicants can apply until the end of April. This should be sufficient time for anyone interested to submit all necessary documents and fulfill the application process. For more information, please visit our website at www.imfse.ugent.be.

As a reminder for recently joined IAFSS Members: IMFSE is commonly organized by the Universities of Ghent (Belgium, coordinator), Edinburgh (Scotland) and Lund (Sweden). The main objective of this two-year full-time educational program is providing the required knowledge for a professional fire safety engineer in a Performance Based Design environment. Besides inter-university cooperation, student mobility in Europe is one of the main points of interest of the overall program. The mobility structure, with possible change in study location after each semester, gives the students the opportunity to gain from the strengths and expertise of each of the three universities.

Signed: Lies Decroos, IMFSE, Ghent University

News from Lund University

Education

The semester at Lund University started on the 1st of September and this year we welcomed the 28th class of students in our FPE program. Our new students immediately come in contact with fire science in an introductory course on fire and risk. The course contains theoretical parts on fire dynamics, fire protection systems and risk analysis. There are also practical parts, which includes laboratory work in one of our two fire labs.

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 projects is given here.

Residential fires

The department is currently involved in a four-year research project together with SP Fire Research on residential fires. There are 90-100 fatalities in residential fires in Sweden every year, corresponding to about 10 fatalities per million inhabitants. There have been several initiatives in the country during the years to reduce the number of fatalities but so far without any success. The various conducted efforts and future possible efforts will be analysed in the project in order to find determinates behind residential fires and the effectiveness of different technical measures that can be used to reduce or mitigate the consequences of residential fires.

Research project on ascending stair evacuation

In late 2013, Lund University was approved funding of a 2-year research project on ascending stair evacuation (total budget approximately €240 000). The project was initiated with a literature review, summarizing the (at the time) current knowledge on the topic of ascending stair evacuation. This literature review was published during the spring, and a condensed version will be presented at this year's PED conference in Delft (PED'14). Following the literature review, an evacuation experiment was carried out in Ideon Gateway, a tall building in Lund (Sweden), in which approximately 70 participants either individually or in-group evacuated the twelve-story building. Apart from measuring walking speeds, behaviour and other traditional engineering parameters, measurements of the participants' heart rate, breathing frequency and oxygen consumption was also done in order to enable a quantification of the workload during the evacuation. An additional two experiments (similar to the first one) were conducted in the autumn of 2014, one in a 30-story building in Stockholm and one in one of Sweden's longest escalators in the Stockholm metro system. The overall goal is to increase the knowledge within the field of ascending stair evacuation, and to reduce the uncertainties in future egress assessments by also incorporating the potential effects of fatigue in this type of evacuation scenarios. The project ends Q3, 2015, and is jointly funded by the Swedish Fire Research Board and the Swedish Transport Administration. If you have any questions about the project, please contact enrico.ronchi@brand.lth.se.

New evacuation experiment in a smoke filled road tunnel

Lund University continues its research efforts to improve the understanding of human behaviour in smoke filled environments. In the beginning of July, a full-scale evacuation experiment was carried out in the soon-to-open Northern Link road tunnel in Stockholm, including in total 66 participants. The experiment was performed partly to verify a proposed emergency exit portal design for the Bypass Stockholm road tunnel project, and to examine how people in a road tunnel fire can be directed to the emergency exits by means of different technical installations at, or in the vicinity of, the emergency exit portal. In addition, measurements were made of the participants walking speed in the smoke (visibility between 2,5-4 m) as well of the corresponding walking speed

in smoke-free conditions (i.e., their unobstructed walking speed). Hopefully, this information can improve our understanding of how individuals reduce their walking speed in smoke. An interim report was presented at the end of September 2014, including a partial analysis of the data. A full report will be published at the end of 2014. If you have any questions about the experiment, please contact hakan.frantzich@brand.lth.se.

Within the same project, a set of evacuation experiments were carried out during May and June 2014 in the Cave Automatic Virtual Environment (CAVE) laboratory at Lund University. The experiments consisted in the study of the individual behaviours of 96 participants during a tunnel evacuation simulated in Virtual Reality. The scope was in this case to provide recommendations on the design of flashing lights (i.e. flashing frequency, type of light source, colour of the lights, etc.) on emergency exit portals for road tunnel emergency evacuation. Virtual reality is a novel tool for laboratory experiments used by Lund University in its evacuation research activities. A full report on the results of the experiments will be published by Q1, 2015.

Picture of the virtual reality environment in an evacuation study at Lund University.

For more information, please contact enrico.ronchi@brand.lth.se or daniel.nilsson@brand.lth.se.

Appointments and awards

In May, Karl Fridolf was awarded with a scholarship from the Scanian Engineering Association (Skånska Ingenjörsklubben), that enabled him to travel to Brisbane and participate in the 10th International Conference on Performance-Based Codes and Fire Safety Design Methods. At the conference, Karl presented the work on a decision support tool for designers and rescue services, intended to aid decision making related to tunnel fires. Karl is now employed at SP Fire Research in Lund where he is active as an industrial PhD student connected to the department.

Three new PhD students, Silvia Arias, Marcus Runefors and John Barton, joined the department during the autumn. All three have degrees from the department. Silvia will be working with evacuation and human behaviour in fire, Marcus will be engaged in our project on residential fires and John will be working within a project on hypoxic air.

Michael Strömgren who works at SP Fire Research has also been enrolled as an industrial PhD student in August. This further strengthens the good cooperation that the department has with industry. Currently there are 19 PhD students enrolled at the department of which 13 are connected to the industry.

Upcoming events

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

Signed: Nils Johansson Lund University

News from Worcester Polytechnic Institute (WPI), Department of Fire Protection Engineering

Professors Brian Meacham and Nicholas Dembsey at WPI, along with Professors Michael Gollner and Andre Marshall of the University of Maryland, continue their 3-year, Department of Homeland Security (DHS) funded research on *Quantification of Green Building Features on Firefighter Safety*. The WPI team, which includes graduate students Michael Figueroa (CEE), Drew Martin, Minchao (Matt) Yin and Young-Geun You (FPE), is looking at structural fire performance of one- and two-family dwellings, where most fire ground firefighter injuries and deaths occur. The focus is on 'new' framing systems, including 'advanced' timber framing and structurally insulated panels (SIPs), which feature less timber and more (sometimes combustible) insulation than 'conventional' timber frame construction. The aim is to understand fire-induced collapse potential of these systems. Real-scale fire experiments on these systems will be conducted in 2015. The University of Maryland team, which includes PhD student Pietro Maisto, is focused on salt water modeling of smoke movement for various naturally ventilated building configurations, including atria and double-skin façades in commercial buildings, as well as sloped ceilings in residential buildings. The aim is to better understand smoke flows in

naturally ventilated buildings and how this might impact firefighting operations. Experiments and analysis will be conducted in 2015.

Prof Brian Meacham has been awarded a grant from the Fire Protection Research Foundation (FPRF) to conduct a literature search and scoping report on the issue of the *Environmental Impact of Fire*. The aim of this effort is to compile a list of resources on the topic, including methods which can be used to quantify environmental impact at various scales, from individual building to wildland fire, and to identify gaps in data and methods, which could be helpful in environmental hazard and risk mitigation decisions. The research team welcomes input from the IAFSS community which should be captured in this effort.

There is a lot more happening in the WPI Department of Fire Protection Engineering – look for a more extensive update in 2015!

Signed: Brian Meacham, Worcester Polytechnic Institute

News from University of Maryland

Fire Protection Engineering Appoints First Clinical Professor

The University of Maryland's Department of Fire Protection Engineering (FPE) is pleased to announce the appointment of its first endowed Clinical Professor, Kenneth E. Isman. Isman's appointment was made possible by FPE's Legacy Campaign for a Professor of the Practice. Launched in 2012 by a group of FPE alumni, departmental and Clark School leadership, the campaign has raised almost $1.3 million toward its $2.5 million goal. The addition of a Clinical Professor to the FPE faculty will ensure that it remains at the forefront of its field, cultivates future generations of industry-savvy graduates, and conducts applied research. The Clinical Professor's role is to bring hands-on field experience to the undergraduate curriculum and strengthen the department's and the Clark School's ties with industry.

From 1987 to 2014, Isman was an engineer with the National Fire Sprinkler Association (NFSA), where he ultimately rose to the position of Vice President of Engineering. He is a Licensed Professional Engineer in the State of Connecticut and is an elected Fellow of the Society of Fire Protection Engineers (SFPE).

Arnaud Trouvé Promoted to Full Professor

Arnaud Trouvé, previously an Associate Professor in the Department of Fire Protection Engineering at the University of Maryland, was promoted to the rank of Full Professor, effective August 23.

Trouvé's research interests include computational and physical modelling of a wide variety of fire phenomena, advanced simulations, high-performance computing, cyber infrastructure, and the application of data assimilation to fire and combustion. Recently, Trouvé organized a cross-college team that received a University of Maryland Council on the Environment (ConE) Seed Grant for Interdisciplinary Environmental Research. The award will fund the development of a new system capable of quantifying the atmospheric pollutants and aerosols produced by wildfires. The project will incorporate the use of FIREFLY, a data assimilation algorithm he created with collaborators in France that is used to reduce uncertainties in estimating fire dynamics.

He is currently Vice-Chairman of the International Association for Fire Safety Science (IAFSS). In 2010 he was the Host Committee Chair of the 10th IAFSS Symposium, and also served as the Program co-Chair of the 11th IAFSS Symposium in 2014.

New Video Features Wildfire Simulation System Co-Designed by FPE Professors

The National Science Foundation's *Science Nation* web site, which highlights scientific discoveries for the public, has produced a new video about WIFIRE, the real-time wildfire forecasting system designed by Department of Fire Protection Engineering (FPE) professors Michael Gollner and Arnaud Trouvé and their collaborators at the University of California, San Diego (UCSD).

WIFIRE is a cyberinfrastructure that produces real-time and data-driven simulation, prediction and visualization of wildfire behaviour. The scalable system, hosted at the San Diego Supercomputer Center, uses a combination of remote sensor data, satellite imagery, weather data, and computational techniques to predict how a wildfire will

spread. WIFIRE also enhances awareness and response by providing information tailored for specific audiences, such as firefighters, emergency management staff, and the public. The project is funded by a grant from the National Science Foundation.

Watch the video, "WIFIRE helps firefighters get a jump on wildfires," below or at the *Science Nation* web site. Visit the WIFIRE web site at wifire.ucsd.edu to watch the video.

Fire Protection Engineering PSAs Promote Campus Fire Safety
Through a new initiative sponsored by commercial and industrial property insurer FM Global, the University of Maryland's Department of Fire Protection Engineering is reaching out to an important but often overlooked population–college students–about the importance of fire safety on campus.

In service to the campus community, students from FPE worked with FM Global to produce a series of public service announcement (PSA) videos to educate students about fire safety in residential living environments. These videos provide the fire safety message through student interviews and narratives. The format is designed to engage students in thinking about the problem and educate them about common misconceptions. FPE undergraduates Binyamin Besser and Anthony Chung led the project, advised by Associate Professor Andre Marshall (FPE). Clark School Assistant Dean for Communications Ted Knight and Communications Coordinator Elise Carbonaro guided the students through storyboarding, scripting, and arranging the shoots.

The three PSAs, covering fire prevention, fire response, and fire technology, are available for use on any campus free of charge. The University Risk Management and Insurance Association (URMIA), which helps colleges and universities keep their students, campuses and assets safe, is spreading awareness of the project to its membership through the August issue of its newsletter, *URMIA Insights*.

MF Fire wins Second Place at National Competition
University of Maryland alumni-founded start-up company MF Fire, which has been working to commercialize the 93% efficient, almost emission-free Mulciber wood stove, took second place in the national RECESS Pitch competition, held in Las Vegas in May, 2014.

The young company was also recently featured in The Washington Post. The June 21, 2014, story covered the history and growth of Mulciber and MF Fire–including their performance at RECESS–and explored how the unique stove could benefit both homeowners and the environment.

Fresh off winning the $25,000 Energy Efficiency Track Prize and a People's Choice Award in the MIT Clean Energy Prize competition, MF Fire founders Taylor Myers (B.S.'12 and M.S. '14) and Ryan Fisher (B.S. '12 and M.S. '13) took the Mulciber stove to RECESS, where they went head-to-head with nine more of the country's best college-based start-up companies. The pair pitched their product to a panel of potential investors and mentors.

Signed: Peter Sunderland, University of Maryland

News from the National Institute of Standards and Technology

NIST's Engineering Laboratory (EL-NIST) is hosting "*Operation Tomodachi – Fire Research*" on March 16-18, 2015 in Gaithersburg, MD USA. 'Tomodachi' means 'friendship' in Japanese. This workshop is organized by Dr Samuel L. Manzello of EL-NIST in partnership with the Japan Association for Fire Science and Engineering (JAFSE). This is a formal continuation of the kickoff meeting held at EL-NIST in June, 2011. Due to the success of the kickoff meeting, EL-NIST signed a Statement of Intent with JAFSE to hold two more workshops, the first held in Tokyo in 2012 (see Manzello *et al*., [1] for a summary of that workshop), and the second to be held at EL-NIST, scheduled for March 16-18, 2015. The objective of the March, 2015 workshop at EL-NIST is to: (1) develop scientific knowledge and translate it to building codes and standards that will be of use to both countries to reduce the devastation caused by unwanted fires, (2) provide a forum for the next generation of researchers to present their work in order to develop research collaborations, and (3) allow participants a chance to visit EL-NIST's newly constructed National Fire Research Laboratory (NFRL).

Oral presentations will focus on two topics: Large Outdoor Fires (LOF) and Fire-Structure Interaction (FSI). The final program includes scheduled oral presentations from the following organizations in the USA: NIST, Insurance Institute for Business and Home Safety (IBHS), California Polytechnic University (CALPOLY), University of Maryland, United States Forest Service (Missoula and Seattle), Society of Fire Protection Engineers (SFPE), University of Michigan, Purdue University, Worcester Polytechnic Institute (WPI), University of Texas-Austin, and Michigan State University. Oral presentation from Japan will be delivered by: National Research Institute of Fire and Disaster (NRIFD), National Institute for Land and Infrastructure Management (NILIM),

Building Research Institute (BRI), Nagoya University, Toyohashi University of Technology, Tokyo University of Science, Kajima Corporation, Hilti Japan Limited, Takenaka Corporation, Chiba University, Taisei Corporation, University of Tokyo, Hirosaki University, and Kyoto University. (Organizations are listed based on the order of oral presentation.) In addition, poster sessions are planned in the areas of LOF and FSI, as well as two general fire safety science poster sessions.

All of the presentations will be documented in a NIST Special Publication (NIST SP). Papers that are presented orally are eligible for submission to a special issue of *Fire Technology*, to be Co-Guest Edited by Dr Sayaka Suzuki of NRIFD in Japan and Dr Samuel L. Manzello of EL-NIST. For more information, please send email to: samuelm@nist.gov (S. L. Manzello).

[1] Manzello *et al.*, Summary of Workshop for Fire Structure Interaction and Urban and Wildland-Urban Interface (WUI) Fires – Operation Tomodachi – Fire Research, *Fire Safety Journal* 59:122-131 (2013).

Signed: Samuel Manzello, NIST

News from National Technical University of Athens

People: The laboratory of Heterogeneous Mixtures and Combustion Systems (HMCS) is an accredited laboratory of the School of Mechanical Engineering of the National Technical University of Athens (Greece), established in 2002. The main research activities of the HMCS laboratory focus on the experimental investigation and numerical modelling of the fundamental chemical kinetics and momentum-, heat- and mass-transfer phenomena, occurring in multiphase and reactive flows (e.g. technical combustion systems, industrial burners, fire in buildings, high-temperature behaviour of building elements, pollutant formation, dispersion and control, fuel cells, erosion, drying). HMCS personnel comprise one faculty member (Prof Maria Founti), eight post-doc permanent research associates, six doctoral candidates, ca. 15 graduate students on an annual basis and two members of staff for administrative and technical support.

The Fire Research Unit (FRU) was established seven years ago as a specialized research group of the HMCS laboratory, focusing on fire phenomena; the FRU currently comprises two Post-Doctoral Research Fellows, two doctoral candidates and four undergraduate and M.Sc. students.

Research Activities: The current research activities of the FRU-HMCS include experimental and computational investigation of fire dynamics, fire spreading in buildings and façade systems, high-temperature behaviour of conventional (e.g. gypsum plasterboard, insulation) and innovative (Phase Change Materials, Vacuum Insulation Panels) building materials, solid reaction kinetics. The main aim of the FRU is to create a comprehensive fundamental and applied research infrastructure related to fire safety, which is currently lacking in Greece, aiming to upgrade the educational and research capabilities of the host institution (NTUA), as well as to create excellence and enhance the international research competitiveness of the HMCS laboratory.

FRU-HMCS employs experimental and numerical techniques to investigate fundamental phenomena associated with fire safety. The FRU is continuously extending the experimental facilities of the HMCS laboratory, which has been historically focused on fundamental combustion phenomena, aiming to accommodate new fire safety-related needs (e.g. high-temperature furnaces, thermal cameras, devices for DSC and oxygen bomb calorimetry analyses). An in-house developed 1-D heat and mass transfer simulation tool, named HETRAN, is used for detailed simulations of the fire behavior of multi-layered building materials; a variety of CFD codes (e.g. FDS, ANSYS CFX) are used for large-scale numerical simulations in various applications pertinent to fire safety, such as compartment fires, aircraft fires, fires in tunnels, pool fires.

FRU-HMCS currently participates in three E.U.-funded ("ELISSA: Energy Efficient Lightweight-Sustainable-Safe-Steel Construction", "MeeFS: Multifunctional Energy Efficient Façade System for Building Retrofitting", "COST Action FP1404: Fire safe use of bio-based building products", "FIRE-FACTS: Multi-scale Fundamental and Applied Research on Compartment Fires") and two industrial ("Thermal Behaviour of Buildings in Fire Conditions", "Fire Behaviour of Timber Construction Systems") research projects in the field of fire safety.

Compartment Fire Testing: In the frame of a research program in collaboration with the Greek Wood Association and the Greek Fire Academy, a full-scale compartment fire test was performed in 2011, for the first time in Greece, aiming to assess contemporary timber construction techniques under realistic fire loads. In addition, a series of medium scale compartment-façade fire experiments are currently being conducted, aiming to investigate flow and thermal characteristics of externally venting flames.

Education: FRU-HMCS is increasingly involved in fire-related educational activities, such as supervision of Ph.D. and M.Sc. theses, undergraduate laboratory exercises on fire testing of building materials, etc. There is an ongoing effort to prepare educational material for a series of seminars on fire safety engineering that will be held at NTUA, for the first time, during the next academic year.

Contact Information: Laboratory of Heterogeneous Mixtures and Combustion Systems, Thermal Engineering Section, School of Mechanical Engineering, National Technical University of Athens, Building O, Heroon Polytechneiou 9, Polytechnioupoli Zografou, Athens 15780, Greece.
HMCS director: Professor Maria Founti, e-mail: mfou@central.ntua.gr.
FRU-HMCS scientific coordinator: Dr Dionysios Kolaitis, e-mail dkol@central.ntua.gr

Signed: Eleni Asimakopoulou, National Technical University of Athens

News for the National Research Council of Canada

The National Research Council Canada (NRC) has recruited four new researchers to their Fire Safety Unit.

Dr Yoon Ko joined NRC in May, 2014. Her PhD is in civil engineering. She has worked as an instructor at Carleton University and as a fire safety engineer at Human Resources and Skills Development Canada. Yoon is experienced in large-scale fire experiments and CFD fire modelling.

Dr Cecilia Lam joined NRC in May, 2014. Her PhD is in mechanical engineering. She has worked as a research scientist at Natural Resources Canada, CanmetENERGY. She was also a visiting research scholar in the fire science and technology department at Sandia National Laboratories in 2005. Cecilia is experienced in large-scale fire experiments and combustion research.

Dr Steven Gwynne joined NRC in June, 2014. His PhD is in evacuation modeling. He was previously a consultant with Hughes Associates, Inc., a reader in FSEG at the University of Greenwich (UK) and a member of the adjunct faculty of the Department of Fire Protection Engineering at the University of Maryland (US). Steven is experienced in evacuation and pedestrian dynamics, with a focus on evacuation from fire emergencies and the development and application of modeling tools.

Audrey Roy-Poirier joined the NRC in August, 2014. She is completing a PhD in thermochemical engineering at the University of Edinburgh (UK). Audrey has worked in a number of civil engineering disciplines, including structural engineering and storm water management. In 2007, she completed an internship with NRC's Fire Safety Program. Her area of expertise is the thermal response and pyrolysis of materials.

The skills outlined will complement those already available at NRC and strengthen the set of competencies and services available.

Signed: Steven Gwynne, National Research Council of Canada

News from NFPA and Fire Protection Research Foundation

New Report: *Fire Hazards of Exterior Wall Assemblies Containing Combustible Components*
The Foundation initiated a project with an overall goal to report the results of a first phase project whose overall goal is to develop the technical basis for fire mitigation strategies for fires involving exterior wall systems with combustible components. It presents a compilation of information on typical fire scenarios, relevant test methods and listing criteria as well as other approval/regulatory requirements for these systems, and

knowledge gaps. http://www.nfpa.org/research/fire-protection-research-foundation/reports-and-proceedings/building-and-life-safety/general-life-safety-issues/fire-hazards-of-exterior-wall-assemblues-containing-combustible-components

Proceedings Available: *London Symposium on High Challenge Warehouse Storage Protection*
The Foundation's May 2014 Symposium featured a global insurance perspective on emerging issues and research solutions for lithium ion battery storage, high hazard plastic storage, and unique shuttle storage configurations. http://www.nfpa.org/research/fire-protection-research-foundation/reports-and-proceedings/proceedings/2014-proceedings/global-research-update-high-challenge-storage-protection

Signed: Kathleen Almand, NFPA

News from SP

New R&D manager at SP Fire Research

Our former R&D manager, Margaret McNamee, has become Chief Technical Officer for the SP Group. We are now very glad to announce the appointment of our new R&D manager, Michael Försth. Michael has been working with SP Fire Research since 2006 as a senior researcher. He has been leading numerous research projects predominately in the area of fire dynamics.

Michael holds a Ph.D in physics from Chalmers University of Technology. He worked as an optics engineer in the consumer electronics industry for four years before joining SP. Since then he has been working in various areas such as reaction-to-fire of cables, bus fire safety, and laser diagnostics of sprays. He is a professor in Fire Technology at Luleå University of Technology and he is also docent in Physics at Lund University.

signed: Björn Sundström, SP

Meeting of the Swedish nuclear fire safety group (NBSG)

On May 5-6, SP Fire Research hosted the annual NBSG-meeting in Borås with 60 participants. This meeting focuses on fire safety within the Swedish nuclear power industry. Examples of covered topics were PSA (probabilistic safety analysis) with MSO (multiple spurious operations), cable fire and cable regulations within the Constructions Products Regulation, and fires in tunnels.

signed: Michael Försth, SP

News from State Key Laboratory of Fire Science

MoU on Fire Research Cooperation between SKLFS and FM Global Signed

On Sept. 11th, 2014, a signing ceremony of MoU on fire research was held among FM Global, State Key Laboratory of Fire Science (SKLFS) and Hefei Institute of Advanced Technology (IAT) at SKLFS. The MoU signing will be a milestone for further international cooperation between SKLFS and FM Global on the frontiers of fire research. Representatives from FM Global were Dr Sergey B. Dorofeev, Research Director for Fire Hazards and Protection, and Dr Yi Wang, Group Manager of Fire Dynamics. Representatives from SKLFS were Prof Heping Zhang (Director of SKLFS), Prof Naian Liu (Vice Director of SKLFS), Prof Jinhua Sun (Vice Director of SKLFS), and Prof Weiguo Song. Prof Shouxiang Lu (Executive Director of IAT) and Prof Bing Wang (IAT Assistant Director) also attended the meeting. Prof Naian Liu hosted the ceremony.

Prof Heping Zhang spoke highly of this ceremony as a new and important start point for SKLFS-FM Global-IAT further cooperation. Dr Sergey B. Dorofeev reviewed past collaboration with SKLFS and looked forward to more cooperation for sound, economy, practical results in fire experiment, insurance, regulation codes and standards, modeling and fire protection technology, etc. In past years, SKLFS cooperated in many aspects with FM Global research center. Dr John de Ris, former principal scientist of FM Global, was selected twice as China Academy of Sciences Visiting Professorship for Senior International Scientists and worked full-time in SKLFS for over one year, during 2008-2011. Dr Changjian Wang collaborated with FM Global for the study of chemical and physical models for development of FireFOAM software.

Prof Naian Liu read out all the details of the MoU. Then Dr Sergey B. Dorofeev, Prof Heping Zhang and Prof Bing Wang signed the MoU. According to this MoU, three parties would cooperate on fire experiment and modeling, especially further development of fire measurement technology and advanced fire simulation software, aiming at setting up an international fire modeling center in SKLFS. Plans for mutual visiting, training, and academic communications are also outlined.

Ph.D student of SKLFS won the Best Student Award at the 10th Asian Microgravity Symposium (AMS)

The 10th Asian Microgravity Symposium (AMS), held in Seoul, Korea in October 2014, announced the recipients for the Best Student Award. Only one awardee was selected for each of the 10 disciplines covered by this symposium. The recipient was selected based on the quality of the research work, the effectiveness of the presentation, as well as the presentation skills, significance, attitude for research and artwork of poster.

Mr. Qiang Wang, Ph.D. student from the State Key Laboratory of Fire Science (SKLFS) of the University of Science and Technology of China (USTC), was selected for Best Student Award for his excellent work-in-progress poster "Lift-off behaviors and morphological characteristics of fuel lean laminar jet diffusion flames in microgravity". Mr. Qiang Wang was the first one to win this award for the fire research community. The rewarded work has been jointly carried out by the groups of Prof Longhua Hu (Mr. Wang's Ph.D. supervisor) from SKLFS, Dr Shuangfeng Wang from the National Microgravity Laboratory of the Chinese Academy of Science, and Prof Osamu Fujita from Hokkaido University. The work studied the flame height, volume, soot, lift-off and blow-out limit of turbulent jet diffusion flames in microgravity.

AMS Best Student Award, Mr. Qiang Wang

At this symposium, Prof Longhua Hu was invited to give a Keynote Oral Presentation entitled "Limiting Oxygen Concentration (LOC) of flame spreading over electric wire at different inclinations in normal gravity and difference from microgravity".

There were over 150 participants from Asia, Europe and America in the 10th AMS. AMS is now the biggest and important international symposium on microgravity science. The topics cover 10 different disciplines, including Combustion and Chemical Physics; Crystal, Colloid and Protein Growth; Electrostatic Levitation; Facilities and Techniques of Microgravity Experiments; Fundamental Physics; Heat and & Fluid Flow in Microgravity; Ground-based Microgravity Research; Life Sciences and Biotechnology in Space; Materials Sciences and & Functional Materials; and Thermophysical Properties.

Signed: LIU Naian, State Key Laboratory of Fire Science

News from AECOM

MSc Studentship and Summer Internship with Imperial College, London

Ed Ang, a Senior Fire Engineer from AECOM Australia, is currently taking a study sabbatical at Imperial College, London. Ed is studying for the MSc degree in Advanced Computational Methods for Aeronautics, Flow Management and Fluid Structure Interaction. Ed is now completing his research thesis on 'Investigation of a Computationally Efficient Multi-Scale Modelling Method in Long Tunnels for FDS6'. Ed is working with Dr Guillermo Rein as one of his supervisors.

We were delighted to welcome Stella Tsui, a 4th year Mechanical Engineering student from Imperial, for a summer internship at our St Albans office. Stella worked on a wide range of projects including the Glasgow 2014 Commonwealth Games, attended meetings with Approval Authorities, and carried out a comparison of CFD modelling with zone models for an atrium smoke management design. The internship gave Stella a good insight into the profession of consulting fire engineering.

Glasgow 2014 Commonwealth Games In July of this year, the Glasgow 2014 Commonwealth Games was one of the largest multi-sport events ever held in Scotland. AECOM teams, including the fire engineering team, were involved throughout and played their part in helping the city to prepare for the Games and to create a lasting post-Games legacy.

Providing fire engineering services across the whole of the Games, AECOM were involved in every competition and non-competition venue from the design stage, through development and implementation of the design, to the start of operations during the Games. The venues included the Athletes' Village, Hampden Park, Ibrox Stadium, Celtic Park and the Sir Chris Hoy Velodrome. The AECOM team extended its services during the overlay works period of the Games, working on the event management and the approval process for licensing. Two team members took their involvement even further by volunteering during The Games at the Scotstoun Sports Campus squash venue.

Kate Anderson volunteering at the Glasgow 2014 Commonwealth Games

New Hires

AECOM's UK team are delighted to welcome eight new recruits to their team in the past six months.

Joining our London office, Darren Faulkner is an expert in the rail and transit sectors. Previous to joining AECOM, he has worked on a number of high profile projects such as Crossrail, Northern Hub and High Speed 2. Also based in London, Adi Mehta brings multi-disciplinary wet and dry fire protection experience from the Australian Heavy Industrial sector, across the complete life cycle of large-scale infrastructure projects.

Marc Pawson, who has recently joined our Glasgow team, is a graduate of the Glasgow Caledonian Fire Risk Engineering degree course and comes to us with seven years' experience in running his own Fire Risk Assessment business. He will be joined in Glasgow by Mark Brady, who has over nine years' experience, throughout the UK and internationally, designing Fire Safety Strategies and Fire Protection Systems for a range of sectors.

Agustin Majdalani, joining our Edinburgh team, recently finished his PhD at the University of Edinburgh where he was researching holistic fire safety engineering specialising in compartment fires for contemporary architecture. He combines his knowledge with a background of consultancy experience in South America.

With degrees in both architectural design and structural & fire safety engineering, Andrew Ballantyne has recently joined us in St. Albans. Andrew's diverse skill set includes structural fire design of timber buildings and computer programming. Also based in St Albans, Austin Coyle has worked in the construction, health & safety, civil and fire engineering sectors in Ireland and Australia. This diverse combination of previous experience gives him a unique perspective when approaching modern engineering challenges.

Matt Whitehead joined AECOM in August 2014 as a Fire Engineer working with part of the Fire Engineering team based in the Manchester office. He has over 13 years' experience throughout the UK and a small section in the Middle East in the fire, security and electrical engineering industry working with contractors and the end user, predominantly working with fire alarm systems from installation, design, and commissioning.

If you would like to get in touch with any of our fire engineers, please contact Karen.hugh@aecom.com.

Signed: Roger Harrison, AECOM UK

11th IAFSS Symposium Program Arrangements Committee Report

Charles Fleischmann

We would like to open this report by thanking all of the delegates who travelled so far to visit our corner of the world. All of us on the organizing committee can empathize with those of you who came to Canterbury to participate in the 11th Symposium. With our recent natural events, we were heartened by the number of you that came to experience all that New Zealand has to offer. We had a total of 240 delegates from 26 different countries, which exceeded our expectations.

The technical program was expertly arranged by the program committee chaired by Yaping He and Arnaud Trouvé which simplified the local arrangements. It is acknowledged that the delegates attend the Symposium for the technical program but it is often during the social events where the real work gets done. Form the welcome reception on campus Sunday evening to our final banquet in the Transitional Cathedral made from cardboard, all of the events were well attended and enjoyed by all. The Maori welcome at the opening ceremony on Monday and at the banquet gave the delegates a snapshot of New Zealand culture.

The optional events were well attended and received very positive comments from many delegates. Participants enjoyed the educational experience and the cold of Antarctic Centre. Not surprising, it was the wine tasting in the staff club at the Ilam Homestead which received the most positive feedback from the delegates. Apart from a few misguided buses, all the arrangements seemed to go as planned.

The success of the event was the result of the efforts of many people at the university. Most notably Assoc Prof Michael Spearpoint, Dr Tony Abu and all of the fire engineering students who worked so hard doing anything and everything they were asked.

11th IAFSS Symposium Program Committee Report

Yaping He and Arnaud Trouvé

It is with great pleasure that we attended the 11th International Symposium on Fire Safety Science in Christchurch, New Zealand, earlier this year. This was also the time to see the work of the Program Committee being brought to what we think was a successful conclusion. We would like to present below a brief report on the structure of the Program for the 11th IAFSS Symposium, the paper selection process as well as some statistical information on papers submitted and accepted.

Symposium Topics

A few changes were introduced in the list of featured topical areas that was included in the Call for Papers. Some traditional topics in previous symposia were combined and merged; and the following new topics were introduced: Forest (Wildland) Fires; Explosions and Industrial Fires; and Fire Safety and Sustainable Design. The full list of topics included in the Call for Papers is presented in Table 1 below.

Table 1. Track number and topic areas for the 11th IAFSS Symposium.

Track Number	Topic
1	Ignition, Flame Spread
2	Compartment Fire Dynamics
3	Fire Chemistry and Toxic Hazards
4	Flame Retardants and Advanced Materials
5	Structural Fire Performance
6	Smoke Control and Detection
7	Suppression
8	Forest (Wildland) Fires
9	Explosions and Industrial Fires
10	Fire Risk Analysis and Statistics
11	Evacuation and Human Behavior
12	Fire Safety and Sustainable Design
13	Special Applications (Codes and Standards; Fire Safety Management; Fire Safety and Security; Fire Forensics)

Composition of the Program Committee

The Program Committee of the 11th IAFSS Symposium consisted of 45 members including a Chair (Yaping He) and a Co-Chair (Arnaud Trouvé), two Workshop Chairs (Bart Merci, Jorge Capote), a Poster Chair (Piotr Tofilo), an English Language Mentoring Chair (Ron Alpert), and 39 Track/Topic Chair and Co-Chairs (for a complete list, visit http://www.iafss.org/symposium/11th-symposium/).

Selection of Invited Plenary Speakers

The selection of invited plenary speakers started with initial nominations by members of the Program Committee subject to a set of criteria. In total, 14 nominations were received. The nominations underwent a ballot by members of the Program Committee. The nominees were then ranked according to the outcome of the ballot. The first six nominees were finally recommended to the IAFSS Executive Committee and Symposium Chair for a decision. Consideration was also given to the relevance and diversity of topics in the selection process.

Paper Review Process

The paper review process at the 11th IAFSS Symposium was managed using a free web-based platform called *EasyChair*. Thirteen tracks were established in the platform corresponding to the 13 topical areas listed in Table 1. In addition, a special track was created for submissions of conflicted papers authored/co-authored by members of the Program Committee. (Conflicted papers are defined as papers submitted by members of the Program Committee to the Track where they have oversight responsibilities.) The special track was administrated by the Program Committee Chair and Co-Chair.

The Program Committee was assisted by a pool of 263 reviewers. All submitted papers were reviewed by at least two reviewers; most submitted papers were reviewed by three reviewers; a small number of papers were reviewed by four or even five reviewers. The paper review process was a two-stage process. After the initial stage of review by reviewers, the authors were notified of a conditional acceptance or rejection. The conditionally accepted papers were then revised by the authors in response to the reviewers' comments and re-submitted for further evaluation. The second review stage was handled by the members of the Program Committee and ended with notifications of a final decision by the Program Committee Chair and Co-Chair.

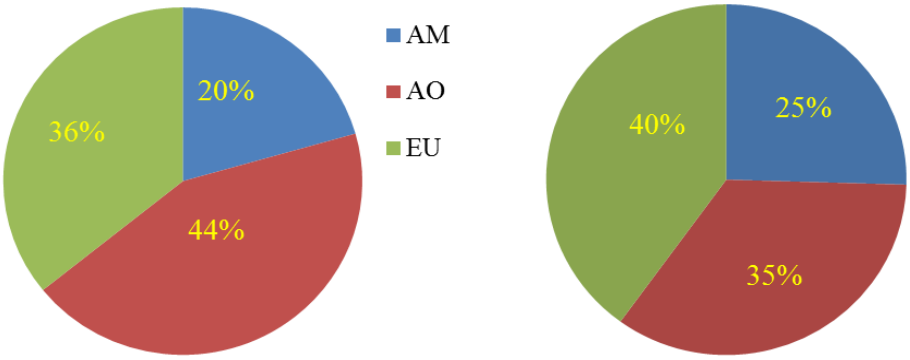
Submission Statistics

The 11th IAFSS Symposium generated great interest from the fire safety science community and received 205 regular paper submissions. (This number is comparable to the number of submissions at the 10th IAFSS Symposium.) Table 2 below gives an overview of the submission statistics.

Table 2. Submission statistics for the 11th IAFSS Symposium.

Submission Category	Number
Invited Plenary Paper	5
Regular Paper	205
Poster	82
Image	48
Invited Plenary (without a paper)	1
Invited Session Presentation (without a paper)	1
Total	342

The invited plenary papers and regular papers were subjected to a peer review process, as described above. After the initial review stage, 110 regular papers were conditionally accepted and after the second review stage, 107 regular papers (plus five plenary papers) were accepted for both presentation at the Symposium and publication in the Proceedings. Figure 1 presents the geographical distribution of submitted and accepted papers based on the origin of the first author affiliation over three major regions, namely America (AM), Asia-Oceania (AO) and Europe (EU, including Africa).



[a] [b]

Figure 1. Geographical distribution of (a) submitted papers and (b) accepted papers.

Geographical statistics on acceptance rates are presented in Figure 2. The total number of accepted regular papers was 107; the acceptance rate was 52%. (These numbers are comparable to those obtained at the 10th IAFSS Symposium, for which 111 regular papers were accepted and the acceptance rate was 53%.)

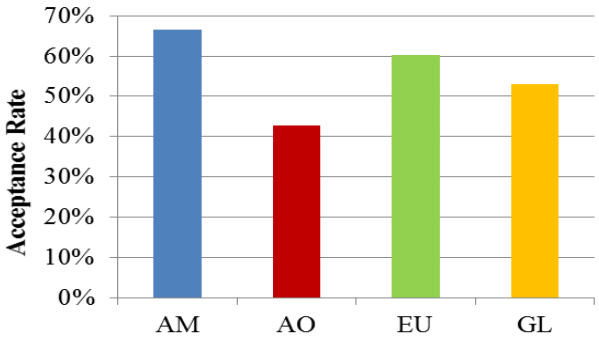


Figure 2. Geographical distribution of paper acceptance rate (GL = Global.)

Figure 3 presents the track/topic distribution of submitted and accepted papers. The topics with the larger number of accepted papers were: Compartment Fire Dynamics; Structural Fire Performance; Ignition and Flame Spread; Flame Retardants and Advanced Materials; Forest (Wildland) Fires; Suppression; Evacuation and Human Behavior; and Fire Risk Analysis and Statistics. In the final program of the Symposium, some papers were re-grouped for a special series of two sessions on Post-Earthquake Fires.

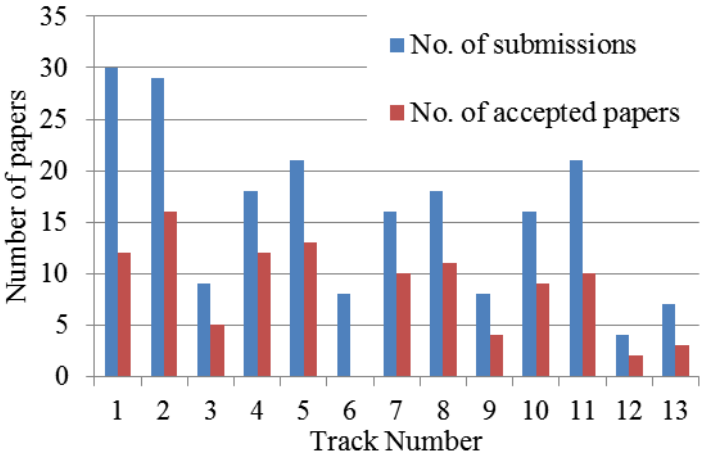


Figure 3. Track distribution of submitted and accepted papers.

Summary

The quality of the program of the International Symposium on Fire Safety Science depends on many factors, including the quality of the Program Committee, the relevance and diversity in featured topical areas, the number of paper submissions, the quality and rigor of the peer review process, and the quality of the accepted papers (both oral presentations and final manuscripts).

Some observation can be made from the geographical distribution of submitted and accepted papers. It is apparent that research activities in fire safety science are growing in the Asia-Oceania region, as shown by a large number of submitted papers. On the other hand, the paper quality remains high in the America region, as shown by a high acceptance rate. The EU-Africa region struck a balance and contributed the largest number of accepted papers.

Forest (Wildland) Fires is a new emerging topic for IAFSS that enjoyed significant interest and participation at the 11th Symposium. The interest in wildland fires was comparable or even larger to that in more traditionally dominant IAFSS topics. This trend may be explained by growing worldwide concerns on the effects of climate change.

Acknowledgements

We would like to acknowledge the contributions of all authors of papers submitted to the 11th IAFSS Symposium, whether accepted or rejected. We thank you for your interest and contributions and hope to see your work featured at the 12th IAFSS Symposium in 2017. We also would like to acknowledge the efforts of the Program Committee members and of the reviewers. The program of the Symposium is a community-wide effort and its successes (and occasional failures) are the result of our collective efforts. Finally, we would like to acknowledge the efforts of the IAFSS Executive Committee (chaired by Bogdan Dlugogorski), the Symposium Host Committee (chaired by Charley Fleischmann), the Symposium Awards Committee, the Symposium Proceedings Editors and the 10th Symposium Chair (Anthony Hamins).

11th International Symposium on Fire Safety Science Awards

Submitted by Dieter Brein, Awards Committee

Several awards were presented at the symposium banquet, held at the Cardboard Cathedral in Christchurch.

Emmons Award

- Professor Michael Delichatsios with a talk entitled "Enclosure and Façade Fires: Physics and Applications"

Kunio Kawagoe Gold Medal

- Professor Ian Thomas

Philip Thomas Medal of Excellence

- Dr Hong-Zeng (Bert) Yu, FM Global, USA, for his paper titled "Physical Scaling of Water Mist Suppression of Pool Fires in Enclosures" (presented at the 10th Symposium)

Best Thesis Award "Excellence in Research"

- (Europe and Africa) Dr Thomas Gernay, for the thesis titled "A multiaxial constitutive model for concrete in the fire situation including transient creep and cooling down phases," Université de Liège, Belgium (2012)
- (Americas) Dr Kristopher James Overholt, for the thesis titled "Forward and Inverse Modeling of Fire Physics Towards Fire Scene Reconstructions," The University of Texas at Austin, USA (2013)
- (Asia and Oceania) Dr Chao Zhang for the thesis titled "Reliability of Steel Columns Protected by Intumescent Coatings Subjected to Natural Fires," Tongji University, China (2012)

Honorable Mentions:

- Dr John Gales, for the thesis titled "Unbonded Post Tensioned Concrete Structures in Fire," University of Edinburgh, UK (2013)
- Dr Mélanie Rochoux for the thesis titled "Towards a more comprehensive monitoring of wildfire spread Contributions of model evaluation and data assimilation strategies (Vers une meilleure prévision de la propagation d'incendies de forêt: Evaluation de modèles et Assimilation de données)," CNRS et École Centrale Paris, France (2014)
- Dr Steven Verstockt for the thesis "Multi-modal Video Analysis for Early Fire Detection (Analyse van multimodale video voor vroegtijdige branddetectie)," Universiteit Gent, Belgium (2012)

IAFSS Best Poster Award

- Sung Chan Kim, Jung Yong Kim and Dong Myeong Ha for "An Experimental and Numerical Study of the Effect of Flow Angle on the Probe Constant of Bi-Directional Velocity Probe for Fire Testing" (Kyungil University and Semyung University, Korea).
- Sullivan Lechêne, Romain Morlon, Elizabeth Blanchard, Caroline Rebuffat, Gilles Parent, Zoubir Acem, Anthony Collin and Pascal Boulet for "On real radiative shielding effect when applying water mist in case of fire." (CSTB and Université de Lorraine, France).

Best Student Poster Award

- Xinyan Huang and Guillermo Rein for "Computational Modelling of Smouldering Peat Fires: Predicting the Role of Moisture and Inert Contents" (Imperial College, London)
- Cristian Maluk, Luke Bisby and Jose Luis Torero for H-TRIS: Quantified, reproducible and rational thermal exposures for fire testing

Best Fire Science Image Award

- Egle Rackauskaite, Xinyan Huang and Guillermo Rein (Imperial College, London, UK) for the image entitled "Fire Watch Constellation."
- James White, Eric Link, Taylor Myers, Andre Marshall and Peter Sunderland (University of Maryland, College Park, USA) for the image entitled "Oxidizer Dilution Quenching of a Turbulent, Methane Line Flame."

Dougal Drysdale Award for Extraordinary Service to the IAFSS

- Dr Amanda Robbins: "In recognition of her development of a new federated search tool, the IAFSS Fire ReSearch Engine"
- Dr Ron Alpert: "In recognition of his work leading the English Mentoring Program."
- Dr Craig Beyler: "In recognition of his long service to the IAFSS Committee, especially for initiating open access to Association archives, expanding the IAFSS membership, leading the 2014 Nominating Committee, and for mentoring members of the IAFSS Committee."

Awards sponsored by the International FORUM of Fire Research Directors:

The Sheldon Tieszen Student Award

Sponsored by: the International FORUM of Fire Research Directors

Recipients:

1. Franz Evegren (SP Technical Research Institute of Sweden), for "Fire Testing of External Combustible Ship Surfaces," in the area of Test Development, Diagnostics and Large Scale Experiments.
2. Frida Vermina Lundström (DBI - Danish Institute of Fire and Security Technology), for "The Effect of Raised Walkway Design on Evacuation Behaviour in Rail Tunnels," in the area of Human Factors and Risk Assessment.

3. Patrick Summers (Virginia Polytechnic Institute & State University, USA), for "Residual Constitutive Behavior of Aluminum Alloys after Fire Exposure," in the area of Fire Chemistry and Fire Toxicity.
4. Mélanie C. Rochoux (CERFACS, France), "Towards Predictive Simulation of Wildfire Spread at Regional Scale Using Ensemble-Based Data Assimilation to Correct the Fire Front Position," in the area of Fire Physics and Fire Modeling.

The FORUM Student Travel Award
Sponsored by: the recipients of the 2012 Sjölin Award and the International FORUM of Fire Research Directors
Recipients:

Nicholas L. Brogaard and Martin X. Sørensen, for "A New Experimental Rig for Oil Burning on Water – Results for Crude and Pure Oils," in the area of Test Development, Diagnostics and Large Scale Experiments.

The Sjölin Awards
Sponsored by: the International FORUM of Fire Research Directors
Recipients:

2012 FDS Development Team - K. McGrattan, H. Baum, G. Forney, R. McDermott, R. Rehm (NIST), J. Floyd (Hughes Associates Inc.), S. Hostikka, T. Korhonen (VTT), W. Mell (U.S. Forest Service).
2013 John deRis (FM Global).
2014 John Hall (NFPA).

The Mid-Career Researcher Award
Sponsored by: the International FORUM of Fire Research Directors
Recipient:

2014 Patrick van Hees (Lund University).

Workshop Sessions

The Sunday workshops have become a tradition at the IAFSS symposium with each workshop arranged by three or more world leaders. Each workshop included a panel of experts who engaged with the audience discussing and debating the pertinent issues in the topic. The reports from four of the workshops held on February 9 are included here and they, along with some of the presentations, can also be found on the IAFSS website.

Benchmarking / Data Sharing - Workshop Report

Panel: Michael Spearpoint (University of Canterbury, New Zealand), Assaad Masri (University of Sydney, Australia), Anthony Hamins (NIST, USA), Sergey Dorofeev (FM Global, USA), Kevin McGrattan (NIST, USA), Ed Galea (University of Greenwich, UK)

The workshop was opened by Mike Spearpoint and then started off with Dieter Brien (chair of ISO 16730) explaining the work of the ISO group who are developing verification and validation guidelines for fire models. This was followed by presentations by Kevin McGrattan (NIST) and Sergey Dorofeev (FM Global) who explained the experimental data they use to benchmark their FDS and FireFOAM CFD models. These presentations highlighted the fact that the current experiments used for benchmarking fire models were not typically devised for that specific purpose and that the experiments are 'scenario driven'.

Following the three presentations there was a discussion about how best to openly share the data from experiments in a comprehensive manner. The participants also discussed whether there is a need to do more experiments to benchmark fire models and if so, should the experiments be examining aspects of the fundamental physics of the model rather than specific scenarios. At this point Assaad Masri presented the work he has been involved in as part of the TNF workshops. The presentation illustrated how a specific area of interest can be tackled in detail where the experimenters and model developers are able to work together to understand each other's needs and challenges.

Following Assaad's presentation there was considerable debate by the participants about the practicality of applying the methodology to fire models. Issues such as where the money would come from, what specific aspects should be investigated and who might do the experiments were discussed. The key message in Assaad's presentation was the focus on specific research issues to enable the advancement of fire modelling. The discussion pointed to possible areas where there may already be good experiments and sufficient data to initiate

such efforts. Pool fires could form such a starting point although it is suggested that a thorough survey of existing data sets could be conducted to identify experiments that could address other issues.

The establishment of a Founding Committee that could guide such processes and set the directions for future workshops was also recommended.

Overall the workshop generated a lot of interesting debate and discussion.

Wildfires and Climate Change - Workshop Report

Panel: Naian Liu (USTC, China), Mark A. Finney (Missoula Fire Sciences Laboratory, USA), Samuel L. Manzello (NIST-EL, USA), Hiroshi Hayasaka (Hokkaido University, Japan), Dominique Morvan (Aix-Marseille University, France) and Albert Simeoni (University of Edinburgh, UK)

Research on wildfires covers different areas such as combustion physics and chemistry, fluid mechanics, heat transfer, forestry, ecology, geography, remote sensing and statistical mathematics. The workshop of "Wildfires and Climate Change" was held on Feb. 9 at Kirkwood Village at the University of Canterbury. The major goal of this workshop was to create an interactive discussion among experts from different domains and young researchers, in order to discuss the fundamental research needs for extreme fire behaviors and WUI fires, to clarify the needs in fire modelling, and to understand the effect of climate change on wildfire trends. The major conclusions acknowledged by the participants of the workshop include:

1) Extreme fire behaviors usually play essential roles in the acceleration of large wildfires, and basically involve significant interactions among heat transfer, fluid mechanics and combustion, leading to new challenges for wildfire researches. Until today, extreme fire behaviors have been poorly understood. Challenges on extreme fire behaviors include physical mechanisms and dynamics of different extreme fire behaviors in steady states, critical conditions for transition among different extreme fire behaviors, and applied models for fire management under practical conditions of fuel, meteorology, and topography.
2) Wildland-Urban Interface (WUI) Fires are an emerging problem in fire safety science. Spot fires and radiation ignition have been recognized to be the major fire spread modes in WUI fires. A series of challenges were delineated that make WUI fires a hard problem to tackle. A pragmatic solution to the WUI fire problem will be hardening communities to WUI fire exposures. A series of presented research needs were outlined in order to provide a scientific foundation to harden communities to these fires. It was recognized that WUI fires are an important international problem and require extensive research going forward.
3) Fire is a climate-influenced ecosystem process recorded in paleoclimate and paleoecology records. Climate, humans and other factors have shaped fire regimes. The atmosphere can affect the occurrence and the intensity of wildfires at different time scales. Cyclic anomalies of the surface temperature of oceans significantly affect weather conditions and consequently can induce perturbations in fire regimes. The first signs of global warming, with long periods of drought, and insect infestations, have affected forest health in different part of the world, and especially in boreal regions where the effects of climate change are more pronounced. Other ecosystems such as peatlands, will also be greatly affected by global warming. The increase of fire hazard in these ecosystems will pose great problems, with great consequences upon the health of populations. These constitute the major challenges for the future research on fire trends under rapid climate change.
4) In wildfire modelling, numerical simulation is a growing area of research with models ranging from fully empirical to detailed CFD-based. However, the models still used in simulators by end-users (firefighters, foresters and scientists) are empirical or semi-empirical models derived some 40 years ago. The numerical tools available today were not sufficient to answer the challenges of tomorrow. It is necessary to develop deeper studies of the fundamental phenomena that drive fire behavior and develop ambitious research programs that will allow developing the numerical studies that are necessary to further advance wildfire science and applied fire prediction tools.

Multi-Objective Fire Safety System Design – Economy, Sustainability, and Aesthetics – Workshop Report

Panel: David Barber (Arup, Australia), Margaret Simonson MacNamee (SP, Sweden) and Brian Meacham (WPI, USA)

Background People use buildings every day, and want to do so comfortably in a building that is attractive and inviting. Sustainability has immediate and lasting impacts, and lifecycle design of a building should consider

impacts on the environment while serving the needs of the occupants. Fire is a rare event, but consequences can be considerable if not properly mitigated, and in some cases, mitigation may be contrary to openness, sustainability and other such objectives. This set of widely varied and sometimes competing objectives raises several questions for building fire safety design. A number of different issues relating to this were discussed at the workshop including but not limited to:

- Do we need a comprehensive, holistic and integrated 'building performance model' for building performance analysis and design across multiple objectives?
- If so, which discipline should take the lead, how do we identify and engage the 'right' stakeholders to address the breadth of needs, and what must be done to develop and implement such a model?
- Are all societal objectives of equal weight, and if not, how should they be weighted?
- How far should we be going in trying to 'assure' safe buildings, given the low frequency of fires, relative to the daily use and sustainability impact objectives of buildings?
- Would we approach future building fire safety analysis and design differently than we do today if we have a holistic, risk-informed and performance-based approach?
- What is an appropriate role for benefit-cost analysis, and how do we measure associated benefits and costs?

Findings To open discussion, perspectives were provided by Margaret S. McNamee, David Barber and Brian Meacham which can be downloaded from the IAFSS website. Can we balance fire safety and health effects? Can fire safety be sustainable? Can architecturally interesting buildings be fire safe?

Three break-out groups discussed these issues and more from a variety of professional and cultural backgrounds. The main findings of each group are outlined below:

Group 1: This group started their discussion based on relative fire problems in different countries and differing building regulations. Specific questions or ideas which were discussed (not solved) included:

- Can we agree on how to estimate the carbon foot-printing from fires in buildings? Do we need several categories, e.g. commercial and industrial?
- To develop action items needed to move us towards a more holistic, multi-objective analysis and design framework, and the role the fire science and engineering community can play in the process. We will then come together and produce a list of key action items to be addressed within our community.
- One problem with introduction of fire safety into green building schemes is whether a fire event in a building is sufficiently common to include in a sustainability rating system, bearing in mind that the face of fires in buildings changes over time as building practices change.
- There may not even be a significant benefit environmentally from the inclusion of fire protection in green building codes. There is simply not enough information to state with any certainty whether or not there is an inherent environmental advantage to fire safety in buildings. MORE RESEARCH IS NEEDED!

Group 2: This group presented a summary of their focus on building code changes rather than on green building tools. Questions which were raised included:

- How can building codes be better designed to take into account the sustainability drivers to avoid unforeseen repercussions of building changes to sustainability?
- Should fire scientists participate in writing green building codes? There is a general feeling that the interest from these groups for participation from fire scientists is low. Similarly, the feeling in the fire community is that there is very little possibility to obtain support for inclusion of fire safety in these systems which means that they are reticent about participating. A traditional Catch 22 situation.
- Should we organize a Building Code Workshop?

Group 3: Group 3 had similar discussions to those expressed by the previous groups. They also felt there was a need for an open dialogue between green building codes and fire safety specialists to foster a discussion of possible trade-offs. How to evaluate these? How to incorporate countervailing objectives into performance based design?

Clearly there is a need for a multi-objective framework. There needs to be a dialogue both at a high level as part of high-level decision-making, e.g. political decisions concerning performance objectives, and at a low level as part of low-level decision-making, e.g. as part of peer review.

Evacuation Modeling – Issues and Challenges – Workshop Report

Panel: Weiguo Song (USTC, China), Daniel Nilsson (Lund University, Sweden), Rita Fahy (NFPA, USA), Arturo Cuesta (University of Cantabria, Spain)

This workshop, moderated by Ed Galea (University of Greenwich, UK), featured short presentations by the panelists on several broad themes, which were then discussed by the participants. These themes were:

- How do we build and validate evacuation models, as they include increasingly complex behaviors and choices?
- How and when should a model be used?
- How do we deal with uncertainty in data?
- What should be the focus of future model development, and what are the challenges?

Weiguo Song led off the discussion on the first theme. The group discussed the mechanism of evacuation models, quantification of personal characteristics, consideration of human behaviors and fire environment, validation of evacuation models and reliability of model validation. During the discussion, the panelists and participants summarized the following outcomes:

1. The decision-making process of occupants is important in evacuation modeling.
2. Parameters of real scenarios should be further considered.
3. Consideration of the fire environment is necessary, especially in the near-fire area.
4. Both verification and validation of models are needed.
5. Both simple models for fast estimation and complex models for accurate prediction are useful.

Daniel Nilsson followed with a discussion on the use of models. He pointed out that certain phenomena that are too complex for hand calculations can be better handled by computer models. These phenomena include complex occupant flow (e.g., influx of people into a metro station from trains), interaction between different occupant flows, and crowding. The participants discussed when and why they would and would not use a model – depending on complexity of the design and resources of the client – as well as how they would use the results.

Next, Rita Fahy presented some issues concerning the data to be used in evacuation models and the group addressed questions related to their specific issues, how the issues of model developers might differ from those for model users and what steps the modeling community needs to take to address these issues and reduce data uncertainty (e.g., safety margins or sensitivity analyses).

Although Arturo Cuesta was not able to attend, he did provide discussion points on the last theme that were presented by Ed Galea. In addition to future developments suggested by others, including a comprehensive database, inclusion of a more comprehensive theory of human behavior and more integration with fire models, he pointed out two other challenges for model development – the misuse of models and the need for a protocol for the verification and validation of evacuation models. He also proposed development of more models focused on other environments (such as hospitals and schools), as well as the use of models for decision support in real-time during emergencies. He posed a set of questions for discussion in these areas.

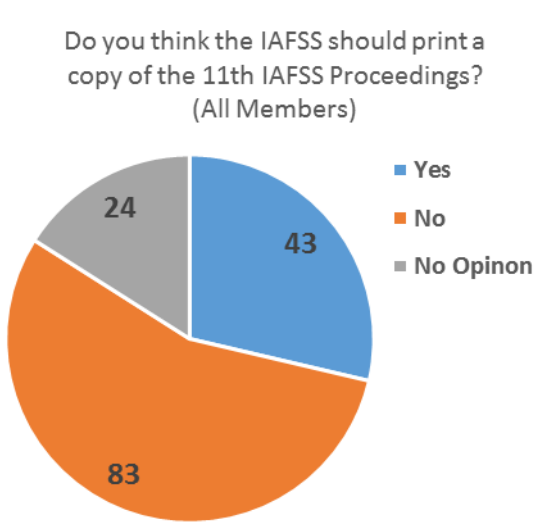
The workshop then opened up for general discussion, led by Ed Galea. Much of the discussion focused on the practitioner's perspective of what should be done in the area of evacuation modeling. Some of the points made included:

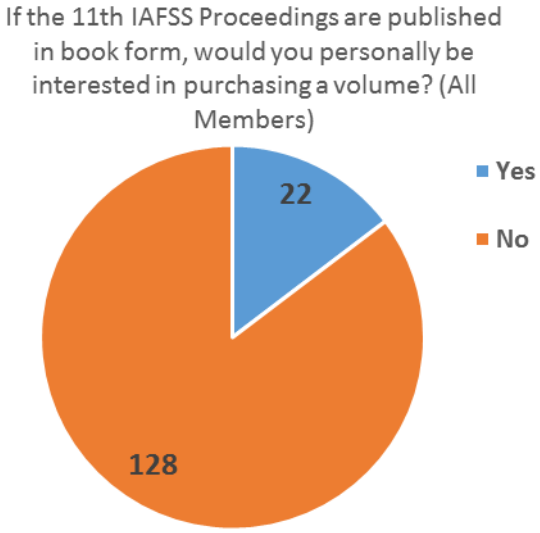
- Model output could include suggestions for optimizing results (such as making doors wider).
- Model output could include advice, for example on effect of low staffing in health-care facilities.
- There could be better resolution in modeling behaviour. For example, even a well-trained homogeneous group has some variability, but what about a less homogeneous group?
- We need more information about the effect of false alarms on occupant response.
- Models should address exit choice, recognizing that people tend to head to the main entrance.

Survey Results – Should the 11th IAFSS proceedings be printed?

Over a two-week period in July, 2014, an official survey was sent to the membership of the IAFSS on behalf of the IAFSS Management Committee as to whether the 11th IAFSS Proceedings should be printed. Of 150 total respondents, over half did not think that the proceedings should be printed. The rest were not in favour or had no opinion. Only 22 members indicated they were interested in purchasing the proceedings, which highlighted a big concern the Committee had in regard to printing, as these costs were not included in the symposium budget.

These results will be used to inform the IAFSS Executive Committee which should announce an official decision on printing close to the time of this newsletter's publication.





Signed – Michael Gollner, Assistant Professor, University of Maryland, College Park, USA.

CONFERENCE REPORTS

Event in Brazil discusses fire safety in buildings based on performance

On the 6th of August, an event about Fire Safety in buildings based on performance took place in the city of Recife, Pernambuco in Brazil. This event was sponsored by RMT Fire & Crowd Safety (www.rmtengineering.net). The main objective of this event was to bring to the attention of Brazilian society the importance of considering fire safety as one of the main aspects when developing performance-based designs for buildings within the sustainability context.

During the event, a seminar was presented, where relevant topics were covered, such as: the use of fire and evacuation models when developing performance-based solutions; the importance of using flame retardant materials; the advantages of water mist systems and the use of smoke control solutions via mechanical extraction. Important documents such as those developed by the NFPA (National Fire Protection Association), the SFPE (Society of Fire Protection Engineers) and the BSI (British Standards Institution) were also presented to the audience. After the seminar, discussions were promoted where local engineers, architects, the fire department amongst others participated.

In recent years, the concept of sustainability through the "green building certificates" has been increasingly influencing the building industry in Brazil as well. It is paramount that the Brazilian building industry identifies the importance of taking a holistic approach to building designs based on performance within the sustainability umbrella and encompassing all criteria such as comfort (thermal; acoustics etc.), maintainability, IEQ (Indoor Environmental Quality), and energy efficiency without compromising fire safety. This is a good time to start this process as the country´s flourishing building industry is moving towards to standards which cover principles found in performance-based designs.

Debate during the seminar

The seminar can be found on YouTube: https://www.youtube.com/watch?v=xmjCCH-Om1Y&feature=youtu.be

Signed: Rodrigo Machado Tavares, Ph.D., Consultant Engineer at RMT Fire & Crowd Safety

UPCOMING CONFERENCE – 10th Asia-Oceania Symposium on Fire Science and Technology – 5-7 October 2015, Tsukuba, Japan

CALL FOR POSTERS *still open*

The 10th Asia-Oceania Symposium on Fire Science and Technology (10th AOSFST) is to be held on **October 5-7, 2015** in **Tsukuba, Japan**. The 10th AOSFST will include presentations of peer-reviewed papers, key-note lectures by fire researchers invited from the world and poster sessions for a variety of topics and some exciting events.

The first AOSFST was held in 1992 by the Asia-Oceania Association for Fire Science and Technology (AOAFST), which was established under the umbrella of the International Association for Fire Safety Science (IAFSS). The AOSFST has been held periodically about 3-year intervals at the midterm of the IAFSS international symposia. The two most recent Asia-Oceania symposia were held successfully in Melbourne, Australia and Hefei, China in 2010 and 2012, respectively.

Asia-Oceania region is among the areas where fire science and technology are developing most rapidly. We heartily invite your participation, not only from Asia-Oceania region but also from regions in the world.

Symposium Topics

- Fire/Explosion Physics and Chemistry
- Human Behaviour in Fire
- Fire Safety Design and Codes
- Fire Properties and Testing Methods of Materials
- Urban, Wildland/Urban Interface and Forest Fires
- Fire Investigation/Fire Services
- Fire Protection of High-rise Buildings
- Fire and Smoke Modelling and Experiment
- Fire Statistics and Risk Assessment
- Structural Behaviour in Fire
- Industrial Fires
- Fire Detection and Suppression
- Fire Protection of Cultural Heritages
- Fires of Recyclable Fuels and Renewable Resources
- Miscellaneous (open technical)

The Call for Papers closed December 31; the review results will be communicated by April 1, 2015.

CALL FOR POSTERS

Posters may describe work in progress, or completed projects. To facilitate the inclusion of recent research, the submission due for poster abstracts is set at **April 30, 2015**. Poster abstracts will be reviewed by the Program Committee. The acceptances will be notified by May 31, 2015. Poster abstracts will be included in the book of abstracts; however will not be included in the Proceedings. The template for poster abstracts is available on the symposium homepage.

Venue

The Symposium will be held at the Tsukuba International Congress Center, located in the central area of Tsukuba City. The city is conveniently accessed from central Tokyo by express train or highway bus and limousine bus from Narita International Airport. Travel information is available at the symposium website.

Symposium Organizer

The symposium is organized by Building Research Institute (BRI), National Research Institute of Fire and Disaster (NRIFD), Tokyo University of Science (TUS) and Japan Association for Fire Science and Engineering (JAFSE).

Additional Information

If you would like more information on the Symposium, please visit the symposium website (http://aosfst2015.com) or contact by email (contact@aosfst2015.com).

CALL FOR PAPERS

The 2nd European Symposium on Fire Safety Science (under the auspices of the International Association of Fire Safety Science – IAFSS)

Date and Venue: EUC Cultural Center, Nicosia June 16th – 18th 2015

Symposium Aim

The 2nd European Symposium on Fire Safety Science aims to bring together young and experienced researchers from Europe and beyond in five interesting topics. The Symposium will be revolved around five themes, with the following keynote lectures:

- Fire Hazards with New Energy Carriers – Guy Marlair (INERIS)
- Fire Suppression in Large Facilities – Bert Yu (FM Global)
- Probabilistic Structural Fire Engineering – Luke Bisby (The University of Edinburgh)
- Forest Fire Research – Domingos Viegas (Coímbra)
- Fire Research for the Fire Service – Stefan Svensson (Lund University)

Five half-day sessions will be organized, one in each of the above mentioned themes. Each session starts with a keynote lecture, followed by a poster session and finalized with a workshop with summarizing discussions. The conference language is English.

Call for Papers

Practitioners, Researchers and Policy Makers are invited to submit papers related to one of the following themes:

- Fire Hazards with New Energy Carriers
- Fire Suppression in Large Facilities
- Probabilistic Structural Fire Engineering
- Forest Fire Research
- Fire Research for the Fire Service

Authors are invited to submit a 1-page abstract and, upon acceptance, a 6-page paper that fits within one of the five themes. The themes will be interpreted in a broad manner for the poster sessions, so authors are encouraged to submit their work, even if it does not fit perfectly into one of the themes. 'Work in progress' submissions are particularly encouraged.

Publication

The full papers will be collected in Conference Proceedings. Yet, the papers will not undergo a thorough review process. 'Work in progress' submissions are particularly encouraged.

A Special Issue of ***Fire Technology (Springer)*** will be edited. Authors who want to have their paper considered for publication in this Special Issue, will be able to indicate this at the time of submission. These papers will undergo an independent peer review process.

Important Dates

Abstracts due:	February 1st 2015
Notification of acceptance:	March 1st 2015
Paper submission due:	May 1st 2015
2nd ESFSS conference:	June 16th to 18th 2015

Cost of Participation

The cost of participation to the 2nd ESFSS is 250 Euro and this includes buffet lunches and coffee breaks, and the Conference Gala Dinner. A dedicated online payment link will be provided.

Abstract Submission

Please submit your abstract electronically in MS Word or PDF format at:
https://easychair.org/conferences/?conf=2ndesfss no later than February 1st 2015. **Receipt of abstracts will be acknowledged** and decisions on acceptance will be provided **no later than March 1st 2015**.

Travel and accommodation information can be found on the conference website: http://2ndesfss.com/

UPCOMING EVENTS - 2015

Feb 2-4	Fire and Materials 2015, San Francisco, California (USA) - http://www.intersciencecomms.co.uk/html/conferences/fm/fm15/fm15cfp.htm
Mar 3-6	Suppression, Detection and Signaling Research and Applications Conference (SupDet 2015), Orlando, Florida (USA) - http://www.nfpa.org/research/fire-protection-research-foundation/symposia/supdet-2015
Mar 30-Apr 2	7th European Combustion Meeting (ECM 2015), Budapest (Hungary) - http://www.ecm2015.hu/index.php/invitation/
Apr 15-16	3rd Annual Tunnels Fire Safety Forum, Amsterdam (The Netherlands) - http://hse.flemingeurope.com/tunnels-fire-safety-forum
Apr 19-22	15th International Conference on Numerical Combustion, Avignon (France) - http://www.nc15.ecp.fr/nc15
Apr 20-23	IFireSS 2015, Coimbra (Portugal) - http://www.ifiress2015.org/home
May 17-20	9th U.S. National Combustion Meeting, Cincinnati, Ohio (USA) - http://www.cssci.org/mtg/2015/
Jun 7-11	9th Mediterranean Combustion Symposium, Rhodes (Greece) – http://www.mcs-2015.org/
Jun 16-18	2nd European Symposium on Fire Safety Science, Nicosia (Cyprus) - http://2ndesfss.com/
Jun 18-19	Symposium on Structure Ignition in Wildland-Urban Interface (WUI) Fires, Anaheim, California (USA) - http://www.astm.org/SYMPOSIA/filtrexx40.cgi?+-P+EVENT_ID+2612+callforpapers.frm
Jun 22-25	15th European Meeting on Fire Retardancy and Protection of Materials, Berlin (Germany) - http://www.frpm2015.bam.de/en/home/index.htm
Jul 14-17	5th International Conference of Fire Effects on Soil Properties, Dublin (Ireland) - http://www.ucd.ie/ecomodel/fesp5/index.html
July 21-24	10th Asia-Pacific Conference on Combustion (ASPACC 2015), Beijing (China) - http://www.cce.tsinghua.edu.cn/aspacc2015
Aug 2-7	25th International Colloquium on the Dynamics of Explosions and Reactive Systems (ICDERS), Leeds (UK) - http://icders2015.org/
Sep 2-4	CONFAB 2015 (The First International Conference on Structural Safety under Fire & Blast), Glascow (UK) - http://www.fireandblast.co.uk/
Sep 28-30	6th International Symposium on Human Behaviour in Fire 2015, Cambridge (UK) - http://www.intersciencecomms.co.uk/html/conferences/hb/hb15/hb15.htm
Oct 5-7	10th Asia-Oceania Symposium on Fire Science and Technology (AOSFST 2015) – Tsukuba (Japan) – http://aosfst2015.com/

JOBS

Fire Assistant/Associate Professor of Fire Protection/Mechanical Engineering at Cal Poly San Luis Obispo, CA, USA

The Mechanical Engineering Department and the Fire Protection Engineering Programs at, California Polytechnic State University, San Luis Obispo, California, invite applications for a full-time, tenure-track, academic year faculty position at the Assistant or Associate Professor rank with a projected start date of September 14, 2015. This position includes a joint appointment in the Mechanical Engineering Department (ME) and the Fire Protection Engineering Program (FPE), with an emphasis on fire protection engineering and Computational Fluid Dynamics (CFD). The successful candidate for this position will have a strong background and interest in the professional practice of both ME and FPE as well as a passion for teaching at the undergraduate and graduate levels, engagement in scholarship and a serious commitment to engineering education. The successful candidate for this position will be expected to teach FPE courses in face-to-face and

distance education mode. The candidate will also establish a strong research program in FPE, including advising and supervision of graduate students, and will either possess or be expected to work towards their professional engineer's license. Specific assignments will depend on department and program needs. Outcomes assessment and Learn by Doing are important components of the university curriculum. Faculty members are also expected to engage in service activities at all levels of the university and to provide academic and professional advising to students. The successful candidate will be expected to communicate effectively and work cooperatively with students, faculty, staff and administration.

For more information please visit: www.calpolyjobs.org/applicants/Central?quickFind=164224

Advanced Research Scientist – Naval Research Laboratory, USA

POSITION RESPONSIBILITIES: Develop, conduct, and guide a general program of research in areas of relevance to the US Navy. Possible research areas include combustion, fire dynamics, fire protection, and safety. Principle responsibilities will be to conduct and direct currently funded projects in combustion dynamics (experimental and modeling activities) and seek funding and develop new programs of research in relevant areas.

ACADEMIC QUALIFICATIONS:

a. PhD with 5 or more years of experience in Chemistry, Physics, Mechanical Engineering, Chemical Engineering, Fire Protection Engineering or related fields with strong fundamental backgrounds in combustion, spectroscopy, and diagnostics.
b. Experience in and understanding of numerical methods and computational methods is desirable.
d. Salary is commensurate with qualifications and experience.

PERSONAL QUALIFICATIONS:

a. Self-motivated individual with demonstrated potential to conceive and carry out a productive program of research.
b. Ability to evaluate and document research studies in the refereed literature as well as ability to relate and apply this knowledge to conduct research that addresses US Navy needs.
c. Excellent technical writing and oral presentation skills, as well as demonstrated history of strong team performance.
d. Ability to work and communicate effectively with individuals with diverse backgrounds from basic scientists, engineers and administrators, to other Division personnel and military officers.
e. US Citizenship

GENERAL INFORMATION: The successful applicant will become a member of a team of scientists working on a variety of basic and applied research problems. The incumbent will select specific research problems from a variety of areas such as sensors, combustion processes, combustion diagnostics, energy, and safety and survivability. The incumbent will be responsible for initiating research ideas; formulating procedures; designing, constructing and assembling facilities for data collection; processing and analysis of data; and preparing scientific and technical reports and presentations of the program. The incumbent will be involved approximately 70% of his time in research work either alone or in conjunction with other staff scientists or postdoctoral fellows in which case the incumbent is expected to direct and supervise the day-to-day activities of the team.

ORGANIZATION MISSION: The Chemistry Division conducts basic research, applied research, and development studies in the broad fields of diagnostics, dynamics, synthesis, materials, surface/interfaces, environment, combustion, and fuels. Specialized programs currently within these fields include the synthesis and characterization of organic and inorganic materials, coatings, composites, nondestructive evaluation, surface/interface modification and characterization, nanometer structure science/technology, chemical vapor processing, tribology, solution and electrochemistry, mechanisms and kinetics of chemical processes, analytical chemistry, theoretical chemistry, decoy materials, radar-absorbing materials/radar-absorbing structures technology, chemical/biological warfare defense, atmosphere analysis and control, environmental remediation and protection, personnel protection, and safety and survivability.

Submit letters of interest, resumes, and academic transcripts to James.Fleming@NRL.NAVY.MIL.

Materials Research Engineer (fire) at the US Forest Products Laboratory

The Forest Products Laboratory, Madison, WI anticipates a vacancy announcement for a Materials Research Engineer in the Building and Fire Sciences Work Unit (RWU) to work on the fire performance of building materials. The mission of this RWU is to produce research that protects wood structures from the effects of fire

and moisture. This position will entail basic and applied fire engineering research on fire performance of new wood products, development of performance-based building codes, post-fire evaluation of wood structures, fire-related code requirements associated with the rehabilitation of structures, and improving survivability of wood structures threatened by wildfires. The Fire Test Lab at the Forest Products Laboratory is equipped to conduct a variety of ASTM fire resistance and fire retardancy tests as well as numerous non-standard test methods.

The annual salary for this permanent GS-12/13 position will range from $69,497 to $107,434 and is dependent on educational background and experience. Join our team and become part of the Forest Service Mission to promote sustainable use of our forest resources. The Forest Products Laboratory is an equal opportunity employer.

To be notified of this vacancy announcement, you will need to access the on-line system through http://www.usajobs.gov/ and create an account

Contact: Samuel L. Zelinka, Project Leader of Building and Fire Sciences
Phone: (608) 231-9277
Email: szelinka@fs.fed.us

Research Positions in Advanced Computational Modeling, NIST, USA

The Fire Research Division at the National Institute of Standards and Technology (NIST) announces two-year research opportunities for engineers, mathematicians, and computational scientists to address modeling challenges in fire protection engineering. Proposals are solicited on advanced computational modeling techniques in fire research, including:

- High-performance computing and visualization for direct numerical simulation (DNS) and large eddy simulation (LES) of turbulent flames and multi-phase flows
- Improved prediction of CO and soot concentrations and flame suppression
- Improved LES wall functions for heat and mass transfer
- Immersed boundary methods for complex geometry and fire-structure interaction
- Adaptive mesh refinement, LES quality assessment, and uncertainty quantification
- Pyrolysis, data assimilation, and wildfire modeling
- Coupling FDS (Fire Dynamics Simulator) and WRF (Weather Research and Forecasting model)

U.S. citizens who have received a PhD within the last five years may apply for a postdoc through the National Academies Research Associates Program: http://sites.nationalacademies.org/pga/rap/. Applications are accepted Feb. 1 and Aug. 1 each year. The annual salary is approximately $66,000.

Non-U.S. citizens may apply to the Foreign Guest Researcher Program. NIST pays a stipend to support living expenses of approximately $4,000 per month. The positions are subject to visa approval, which is handled in coordination with NIST's Office of International and Academic Affairs: http://www.nist.gov/iaao/.

For more information on research opportunities email randall.mcdermott@nist.gov. Information on fire research at NIST can be found at www.nist.gov/el/fire research. Information on the LES code Fire Dynamics Simulator and the visualization tool Smokeview can be found at https://code.google.com/p/fds-smv/.

Member Announcements

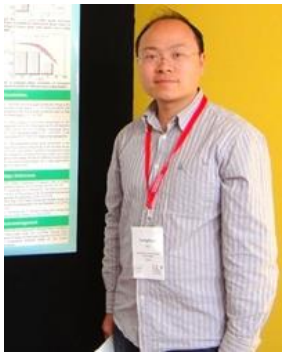
Dieter Brein presented with the Heinrich-Henne-Medaille.

At the annual meeting of the German Fire Protection Assn. (vfdb - Vereinigung zur Förderung des Deutschen Brandschutzes e.V.) in Dortmund, Germany, 16th – 18th June, 2014, the Heinrich-Henne-Medaille was presented to Dieter Brein in honour of his contributions in furthering development of the technical-scientific basis of fire safety.

During his 40-year tenure at the Research Centre for Fire Engineering at the University of Karlsruhe, Dieter's studies included the fire behavior of stored goods, the effectiveness of extinguishing agents an

how people behave in fires. In connection with the medal, the 38th bestowed since 1962, Dieter was appointed an honorary member of the Association for the Promotion of the German Fire protection (vfdb).

Prof Longhua Hu won 2014 National Natural Science Foundation of China (NSFC) Excellent Young Scientists Award.



The National Natural Science Foundation of China (NSFC) announced this September that Prof Longhua Hu from State Key Laboratory of Fire Science (SKLFS), University of Science and Technology of China (USTC) was granted the Excellent Young Scientists award of 2014 for his outstanding research on wind-blown pool fire behavior, facade fire characteristics as well as tunnel fire dynamics and engineering.

Prof Longhua Hu got his bachelor degree (2001) and Ph.D. degree (2006) from USTC, and then worked as postdoctoral fellow (2006-2008) and associate professor (2008-2014). He was promoted to be professor of USTC in December 2014. He has authored over 140 refereed journal and conference papers, seven patents and two books. His major contributions to the fire community include: (1) Quantified the evolution of heat feedback in pool fires with cross air flow and proposed theories to scale its burning behavior and flame characteristics; (2) Revealed the intermittent flame ejection behavior from opening of under-ventilated compartment and carried out comprehensive investigations on facade fire behaviors in different boundary conditions (facing wall, side wall and reduced ambient pressure at high altitude); and (3) Quantified the entrainment at the smoke-air layer stratification interface, the smoke layer characteristics as well as the criteria for the stability of stratification in tunnel fire with longitudinal ventilation, and applied these findings for tunnel fire safety engineering.

Prof Longhua Hu serves as Editorial Board Member of *Fire Technology*. He had also been awarded the JSPS Fellowship (2012), the Young Faculty Career Award of USTC Alumni Foundation (2012), the LuJiaXi Youth Talent Award of Chinese Academy of Science (2012), the Fellow of Youth Innovation Promotion Association of Chinese Academy of Science (2011), the New Century Excellent Talents in University of Ministry of Education of China (2009) and the Excellent Ph.D. Thesis Award of Anhui Province of China (2009).

The National Natural Science Foundation of China (NSFC) Excellent Young Scientists Award was set up by NSFC in 2012 to encourage excellent young scientists (less than 38 years old for males and less than 40 years old for females). Only 400 scientists are selected from all subjects of natural science each year. Prof Longhua Hu is the first one granted this award from the fire research community.

Prof Naian Liu elected to be Member of Board of Directors of IAWF

In November 2014, the International Association on Wildland Fire (IAWF) has recently gone through a selection process to fill a vacancy on our Board of Directors. Naian Liu, a professor at the State Key Laboratory of Fire Science (SKLFS), University of Science and Technology of China (USTC), was elected by IAWF to be a new member of the Board of Directors. His official Board term will start from January 2015.

Liu's research interests include fundamental researches of thermal decomposition of wildland fuels and extreme wildland fire behaviors such as fire whirl, multiple fires burning, eruptive fire and spot fire. In recent years, Prof Liu has authored over 100 peer-reviewed research papers. His papers were published in international journals such as *Proceedings of the Combustion Institute*, *Combustion and Flame*, *Fire Safety Journal*, *Fire Technology*, *Fire and Materials*, *Energy and Fuels*, *AIChE Journal*, and *Industrial & Engineering Chemistry Research*. He is the author of eight plenary/invited speeches of international conferences.

He is currently serving as the Member of the International FORUM of Fire Research Directors; Member of International Scale Modeling Committee; Editorial Board Member of several international journals, including *Fire Safety Journal* (Associate Editor), *Fire Technology*, and *Fire Science Reviews*. He also serves as an associate editor of IAFSS Fire Safety Science News. He even served as the Executive Organizing Committee Chair and Technical Program Chair of the 9th Asia-Oceania Symposium on Fire Science and Technology (2012), and the Organizing Committee Chair of the Annual Meeting of the International FORUM of Fire Research Directors (2012), the Topic Chair of Forest Fire of the 11th International Symposium for Fire Safety Science (2014), and the Colloquium co-chair of the 35th International Symposium on Combustion (2014). He is also a member of the Combustion Institute and IAFSS.

Homepage of Prof Naian Liu: http://en.sklfs.ustc.edu.cn/Faculty/201107/t20110730_116683.html

Robert Jönsson presented with the Royal Medal of Sweden

On May 21st, Robert Jönsson. Past President of the Society of Fire Protection Engineers, and member of the SFPE Sweden Chapter, was presented with the Royal Medal of Sweden. The Royal Medal was presented to Mr. Jönsson on behalf of the Swedish Fire Protection Association, in recognition of Robert's 30 years of service to the Swedish Fire Protection Industry.

A Tribute to Professor John L. Bryan

Dr John L. Bryan (1926-2014) was the founding Professor and Chair of the Department of Fire Protection Engineering (FPE) at the University of Maryland, from the department's initiation in 1956 until 1993. Following his retirement on August 1, 1993, he was granted the rank of Professor Emeritus, with 37 years of service in the department and 39 years of service with the University.

Under Dr Bryan's leadership, the Department of Fire Protection Engineering at the University of Maryland College Park evolved from a modest, one-person operation to a mature and vital program serving the fire protection needs of the nation.

Dr Bryan was not just a professor and chair, but was also a mentor to the FPE students. Known as "Prof" to the students and alumni, he knew each one by name. In fact, at an alumni gathering on campus in 1989, where usually guests provide self-introductions, he introduced virtually every one of the 200 alumni in attendance!

JOHN CRISMAN, CHARLIE WRIGHT, AND PROF AT THE STATION 12 TRAINING LABORATORY.

He was known by students for his dry wit, which served to liven up class discussions. Also, anyone who was late for class or dozed off would be identified, usually resulting in the individual (and the rest of class) being on time and awake for several subsequent class meetings. His 'snowmen' were legendary among students. He would draw a snowman on exam answers when he sensed that the student's response included extraneous information (usually by students hoping to have captured the desired answer somewhere in the essay).

Serving as a mentor for the students, he always made time to talk to them, and would show a personal interest in their concerns. In many cases, he'd intercede with various campus offices in support of the students. As a result of this connection, the allegiance of alumni to Prof is extraordinary. Signs of this allegiance are indicated by initiating a tradition of holding annual alumni dinners at the NFPA conferences, which continues today, and in the strong support for an endowed scholarship in the name of his wife, Sarah. His legacy is recognized through the endowed John L. Bryan Chair of Fire Protection Engineering, a named fire protection engineering laboratory and the student dormitory at the College Park fire station, which is in his honour.

For any of us who had a chance to work with him, he was the ultimate team player. He sought to develop a consensus for strategic initiatives and genuinely welcomed input from everyone in the department. He treated each faculty member with respect and went out of his way to introduce us to key individuals in the field and provide numerous opportunities for us to excel. One of the most memorable aspects of working with him was that he treated me as an equal, though I clearly was not.

Signed: Jim Milke, Ph.D., P.E., Professor and Chair, Department of Fire Protection Engineering, University of Maryland

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 offers related to fire safety science or 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. 38), the deadline for submissions is January 31, 2015.

http://www.iafss.org

2014-2017
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