

Newsletter



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LETTER FROM THE CHAIR

IN THIS ISSUE

With the 30th September paper submission deadline approaching, planning for the 10th IAFSS Symposium is well underway. I am happy to say that the organization of each symposium has been better than the last and that trend is continuing with this symposium. I am looking forward to an excellent symposium at the University of Maryland next June. Anthony Hamins, the Vice Chair for Program, and I visited the University of Maryland last month. They have some excellent campus facilities lined up and a very experienced support staff. The meeting will be a full one, but they have some great ideas brewing for some fun outings as well.

The IAFSS Committee had one of its “between symposia” meetings at Interflam in June. This will be followed by a meeting at AOFST in December. This dual meeting approach has become something of a tradition to assure the IAFSS Committee members from around the globe have the opportunity to attend. Two significant proposals were discussed at the recent meeting. Should IAFSS paper online access be changed from a member benefit to open access? The second proposal was for the development of an IAFSS online Fire Information Services facility to include a federated search engine for fire safety science, as well as other possible resources like a wiki for fire safety science; information on ongoing research, job openings, etc, aggregated blogs, forums and newsletters, and a calendar of events. The Executive Committee will be studying these proposals over the coming months to provide recommendations to the full committee. The original idea for the Fire Information Service was to develop a federated search engine that would support searches of all the available fire safety science resources via a single search. A prototype of the search engine has been developed by Terry Fay, Amanda Robbins, Bryan Klein, Jason Averill, and Anthony Hamins. It’s an excellent prototype and shows the potential power of a search engine focused on fire safety science.

There has been a great deal of excellent news on the educational front this year. In the last newsletter the new two-year educational programme “International Master of Science in Fire Safety Engineering (IMFSE)”, involving the universities of Edinburgh (UK), Ghent (Belgium) and Lund (Sweden) was announced. In this newsletter, the new Master’s Course in Fire Science and Technology, at the Tokyo University of Science and the new MS Fire Protection Engineering program at California Polytechnic State University at San Luis Obispo, CA are announced. Any one of these would be wonderful news. To have three new programs in place is exceptional. Congratulations to all three!! I’m also happy to say that there is renewed interest in the IAFSS Educational Subcommittee. Patrick van Hees, Bjorn Karlson, Bart Merci, and Fred Mowrer are planning a educational workshop for the next symposium. Our academic community is doing well. It bodes well for the future.

Craig Beyler, USA
cbeyler@haifire.com



Letter from the Chair

IAFSS News

10th IAFSS

Call for nominations for the Kunio Kawagoe Gold Medal Federated Information Search Digital Archive Site Updated

Awards

News from Other Organisations

FPRF

Biggestone Award

Research Activities

Recent Reports

SP

New Head

Upcoming Events

Publications

Conference Reports

Calls For Papers

Educations News

Erasmus Mundus

Lund University

University of Canterbury

Kingston University

Cal Poly, US

Tokyo University of Science

UCAL, Berkeley

University of Edinburgh

WPI

Hong Kong Polytechnic

Polytechnic Sao Paulo

Current Research

Hot Topics In Video Fire

Analysis

IAFSS NEWS

10th International IAFSS Symposium



The IAFSS Symposium will be held at the University of Maryland, College Park (USA) on June 19 – 24, 2011. The deadline for submission of papers to the 10th international IAFSS Symposium is **30th September 2010**. Detailed information for authors on style, including paper length, format, *etc.*, and a paper template are also available at the Symposium author web page <http://www.haifire.com/iafss/index.htm>. Registration materials and general information about the meeting will be available in December 2010 at: www.iafss.org.

The University of Maryland is located in the Washington DC area and benefits from convenient air travel access. The campus is close to many tourist attractions and places of interest, in Washington, Baltimore and Annapolis. There is much to see in the Washington DC region.

The Symposium is the premier fire safety science meeting in the world and has been organized triennially since 1985 by the IAFSS. The program will include fully peer-reviewed papers over the five days of the symposium, including invited lectures from the world's top fire science researchers. Symposium activities will begin on Sunday, 19 June with several workshops in the afternoon and a Welcome Reception Sunday evening. Poster sessions will provide an excellent opportunity to interact individually with researchers about their most recent work. Students are encouraged to participate and awards will be made for the Best Student Posters. In addition to the technical sessions, numerous social activities are planned, which will provide opportunities to informally meet with colleagues and friends.

Research of Interest

The International Association for Fire Safety Science (IAFSS) sponsors the world's premier symposium for the dissemination and discussion of peer reviewed scientific research focused on the prevention and mitigation of fire losses. You are invited to submit a contribution that advances scientific understanding and presents or advances new ideas on any topic in the entire spectrum of fire safety science. See the list of topics below. Papers and poster abstracts will be accepted on the basis of their quality and originality in the science of fire safety and its applications. Questions about the technical program should be directed to the Committee Chair, Nick Dembsey. (iafss10@wpi.edu).

Symposium Topics:

- Structural Fire Performance
- Compartment Fires
- Suppression

- Ignition and Flame Spread
- Flames and Fire Dynamics
- Toxic Hazards
- Fire Chemistry
- Material Burning
- Measurement and Test Methods
- Detection
- Evacuation and Human Behavior
- Statistics, Probability, and Risk Analysis
- Smoke Control
- Special Applications (explosions, industrial fires, post-earthquake fires, standards, safety codes, fire safety management, fire investigation and reconstruction, fire service needs).

Full Papers

30 September 2010 – Submission Deadline for Full Papers NB: **Paper limit increased to 14 pages.**

15 January 2011 – Letter to Authors Announcing Paper Acceptance/Declination

15 February 2011 – Deadline for Technical Approval of the Final Manuscript by Program Committee

15 March 2011- Final Submission Deadline for Photoready Copy

Posters

Late May 2010 – Call for Poster Abstracts

22 February 2011 – Submission Deadline for Poster Abstracts

22 March 2011- Poster Acceptance/Declination

May 2011- Poster submission for web posting

Symposium

May 2011- web publication of all papers and posters

19 to 24 June 2011 – 10th IAFSS Symposium

All accepted and presented papers will be included in the symposium proceeding, Fire Safety Science, and will be electronically published by IAFSS. All papers will have DOI's assigned and will be part of the CrossRef system, including citation indexing. This assures the best possible dissemination of the contributions and assures that citations of the papers will be fully recognized. More than 150 IAFSS members and others have already volunteered to assist by reviewing the Symposium paper submissions. If you are able to help by providing one or more reviews and have not responded to the Request for Reviewers, please contact the Technical Program Committee Chair, Nick Dembsey (iafss10@wpi.edu). The Symposium cannot be successful without the help of the international fire research community.



Keynote Speakers

A number of keynote lectures at the Symposium will serve to highlight the results of leading researchers in the field of fire safety science. Keynote speakers will address emerging issues and a range of interesting topics. The full list of keynote speakers will be announced on the Symposium website by September. The Howard Emmons lecture will be presented by Takeyoshi Tanaka of Kyoto University (Japan). Dr Tanaka has been a pioneer in many areas of fire safety science. He joins a short list of distinguished researchers to be presented the Emmons Award.

Workshops

Due to popular demand, a series of Workshops are planned on special topics. The Workshops are designed to allow researchers to discuss latest findings in an informal setting that promotes constructive discussion. Each of the Workshops will explore the boundaries between research fundamentals and practical applications. Six workshops are planned with three on Sunday, June 19 and three on Friday morning, June 24. Workshop topics tentatively planned include human response, fire suppression, model integration, structures in fire, wildfires, and fire science education needs. Detailed information on the workshops will be posted on the Symposium website by December 2010. Questions about the Workshops should be directed to the Committee Chair, Steven Gwynne. (sgwynne@haifire.com).

Posters and Images

Posters will be presented during a separate, less formal, session to allow authors to exhibit and discuss their most recent completed work or work in progress, including new and relatively undeveloped concepts. Students are especially encouraged to submit posters for presentation. This session is designed to foster a collegial environment where authors and attendees can discuss their research interests and make or renew relationships to help foster collaboration. The submission deadline for poster abstracts is **22 February 2011**. Poster abstracts will be reviewed by the Program Committee. In addition to the posters, fire science related images will be presented with awards going to the best images. More information about posters and images is available at the Symposium website. Questions about the Poster Session should be directed to the Committee Chair, Bart Merci (Bart.Merci@UGent.be).

English Language Mentoring

For papers that would benefit from English language editing, authors of accepted papers will be given the option of working with an English language mentor. This program ensures that authors for whom English is a second language have the language editing support that they may desire.

Technical Program Committee Members

- Dr NA Dembsey, Chair, USA
- Dr HZ Yu, co-Chair, USA
- Dr PA Beaulieu, USA
- Dr WK Chow, China
- Dr R Fahy, USA
- Dr S Hostikka, Finland
- Dr TR Hull, UK
- Dr H Ingason, Sweden

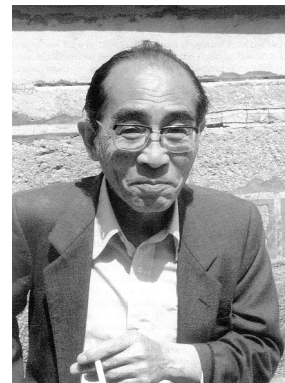
- Dr B Lattimer, USA
- Dr C Lautenberger, USA
- Dr A Robbins, New Zealand
- Dr A Sekizawa, Japan
- Dr Y Yamauchi, Japan
- Dr B Yao, China

Symposium Committee Members

- Dr A Hamins, Symposium Chair, USA
- Dr A Trouve, Local Arrangements Committee Chair, USA
- Dr M Spearpoint, Publication Committee Chair, New Zealand
- Dr S Gwynne, Workshop Session Chair, UK
- Dr B Merci, Poster Session Chair, Belgium
- Dr Y Hasemi, Emmons Award Committee Chair, Japan
- Dr R Alpert, English Mentoring Committee, Chair, USA
- Dr C Beyler, USA
- C Franks, UK
- Dr B Karlsson, Iceland
- Dr D Brein, Germany
- Dr C Fleishman, New Zealand
- Dr F Mowrer, USA
- T Fay, Symposium Website, USA
- G Baker, Publication Committee, New Zealand
- Dr D Gottuck, Publication Committee, USA

CALL FOR NOMINATIONS

Kunio Kawagoe Gold Medal



Professor Kunio Kawagoe

The picture taken by Dr Philip Thomas; it captures well Professor Kawagoe's character.

Professor Kunio Kawagoe

Professor Kunio Kawagoe pioneered the development and use of scientifically based fire analysis, developing the relationship between the compartment burning rate and the size of an opening ($R_b = 5.5 \cdot A \cdot h^{0.5}$), in a seminal paper on compartment fire modelling published in 1958. His contributions, especially on fuel-controlled compartment fires and the structural analysis of the fire induced effects in columns and beams, laid foundation to modern fire science and engineering, and underpinned the early development of performance-based fire safety design, especially in Japan. Professor Kawagoe was the Director of the Building Research Institute between 1969 and 1973, when he was appointed Professor in

the Faculty of Science and Engineering at the Science University of Tokyo. His career included appointments of the Deanship of the Faculty at the Science University of Tokyo in 1980 and, in 1986, the Directorship of the Centre for Fire Science and Technology. He served as an IAFSS Vice-Chairman from its founding in 1985 until 1991. Professor Kawagoe was a role model and dedicated teacher of young fire safety engineers. He passed away in 1994. (Extracted from T Ishii, *Fire Science and Technology* **14**, 1994, pp i-ii, and from In Memoriam, *Proceedings 5th Fire Safety Symposium*, 1997, p vii).

Award eligibility and its privileges

Kunio Kawagoe Gold Medal is awarded by IAFSS as a prestigious recognition of life-long contributions to and career achievements in fire science and engineering. The Award comprises Bronze Medal of gold appearance and Plaque. It entitles the recipient to free travel to and free registration at the Symposium, where the Award is formally announced and presented.

Nomination process

Please send nominations, including a justification (up to two pages in length), and contact details of the proposer and the seconder, to Professor W.K. Chow, bewk-chow@polyu.edu.hk, by **28 October, 2010, 5 pm, Hong Kong time**. Either the proposer or the seconder must be a member of IAFSS. Self-nominations will not be accepted. A nominee may or may not be a member of IAFSS. Each nomination is confidential and should not be disclosed to a nominee.

Selection considerations

The past recipients of the Kunio Kawagoe Gold Medal made significant and lasting contributions to fire science and engineering through innovation and impact of their publications. Their research findings frequently led to paradigm shifts in fire regulations, in fire standards and in practical applications of fire safety science and engineering around the world. Some trained research students and young fire safety engineers, produced important textbooks and monographs and often dedicated themselves to fire safety education. They were active in international fire safety community.

Selection body

The recipient of the Award will be selected by the IAFSS Awards Committee that consists of Professor Bogdan Dlugogorski (Chair, The University of Newcastle, Australia), Professor W.K. Chow (The Hong Kong Polytechnic University, HK, China), Professor Jim Quintiere (The University of Maryland, USA), Professor Takeyoshi Tanaka (Kyoto University, Japan) and Professor José Torero (The University of Edinburgh, Scotland, UK). It is intended that the recipient selected by the Awards Committee will be contacted in March 2011.

Past recipients

The Medal was first awarded at the 4th IAFSS Symposium in Ottawa in 1994. Its past recipients include:

- Dr Alexander Robertson (1994, 4th Symposium, Ottawa)
- Dr Philip Thomas (1997, 5th Symposium, Melbourne)
- Mr Harold "Bud" Nelson (1999, 6th Symposium, Poitiers)

- Professor Dougal Drysdale (2002, 7th Symposium, Worcester)
- Professor Sizuo Yokoi (2005, 8th Symposium, Beijing)
- Professor Geoffrey Cox (2008, 9th Symposium, Karlsruhe)

WORKING GROUP STARTUP: FEDERATED SEARCH OF FIRE SCIENCE PUBLICATIONS

In order to improve identification and access to relevant fire research and fire safety information, the first meeting of a group working to create an effective federated search capability of relevant electronic information repositories will be held online and via teleconference on September 16. If you are interested in contributing and being part of this international multi-organizational working group, please contact Amanda Robbins (Amanda.Robbins@nist.gov) by September 13.

What is a Federated Search? The simultaneous search of multiple online databases or web resources.

Why Contribute to Building It?

- create a singular search engine that provides a targeted narrowly-focused search capability.
- contribute to a community of fire information and increase the value of a comprehensive search engine.
- establish a primary high level resource that can optimize the effectiveness of a search.
- eliminate the need to search multiple sites for critical information.
- eliminate an excessive number of hits compared to a non-targeted search, like Google.

DIGITAL ARCHIVE SITE UPDATE

We have been developing the IAFSS Citation Creator, a new web tool designed to ease the effort needed by authors to create and format their citations lists. This tool will be available via the IAFSS web site by January to enable the authors selected for the 10th Symposium to begin using it. The tool will assist authors in locating DOIs for their references and to ensuring their reference lists match the style approved by the IAFSS. When the tool goes online, we will send an announcement to all authors via email as well as placing a notification on the authors IAFSS author's web site. We encourage all authors to start using the tool once it becomes available as the editor will be using this tool to make final approval on all papers.

The IAFSS Citation Creator will also serve to provide the IAFSS with detailed records of each citation that will enable us to submit the citations to CrossRef in a timely manner. We strive to submit the most accurate information to CrossRef to ensure proper credit is given to the authors cited. If you have any questions on the new tool please contact Terry Fay at iafss.bibDB@haifire.com.

CALL FOR NEWS

The Editorial Team of the IAFSS Newsletter is now ready to start work on the January 2011 Issue. We strive to make the Newsletter informative and inclusive; therefore your contribution is important. All IAFSS members are invited to submit short articles for consideration. These may

include: general news, awards, grants, new activities, projects, progress, conference and workshop announcements, conference reviews, PhD defenses, etc. News items may cover individuals or organization / institutions. We seek any information that will be of interest to the membership.

IAFSS Member Awards

Professor Fernandez-Pello appointment Endowed Chair.



Prof Carlos Fernandez-Pello has been appointed to the 'Almy C. Maynard and Agnes Offield Maynard' Endowed Chair in the Department of Mechanical Engineering at the University of California at Berkeley for a five-year term. Such an honor is made in recognition of Carlos' scholarly achievements; the endowed chair will help support his research and support graduate students.

The Almy C. Maynard and Agnes Offield Maynard Chair in Mechanical Engineering would support a distinguished faculty members' teaching and research activities in the College of Engineering.

The endowment was established through a bequest from Patricia Offield Jovick. She earned a B.A. (International Relations) in 1936 from the Berkeley campus. The chair is named in honor of her brother-in-law, Almy C. Maynard, who attended the Berkeley campus in 1916 and majored in Mechanical Engineering and her sister, Agnes Offield Maynard.

Professor Jose Torero - elected FREng

Prof Jose Torero from the University of Edinburgh has been elected a Fellow of the Royal Academy of Engineering (FREng). FREngs are UK's leading engineers and a unique national resource. This is an incredibly competitive award and reflects Jose's personal engineering achievements related to advances in structural behaviour in fire, material flammability, tunnel fire safety, contaminant remediation technology and sensor driven emergency response. It also recognises Jose's engineering contributions as an advisor to industry and governments worldwide.



The Royal Academy of Engineering is Britain's national academy for engineering, bringing together the country's most eminent engineers from all disciplines to promote excellence in the science, art and practice of engineering. Its strategic priorities are to enhance the UK's engineering capabilities, to celebrate excellence and inspire the next generation, and to lead debate by guiding informed thinking and influencing public policy.

NEWS FROM OTHER ORGANIZATIONS

Fire Protection Research Foundation *Bigglestone Award announcement*

The 2010 Harry C. Bigglestone Award for Excellence in Communication of Fire Protection Concepts was presented at the NFPA Conference & Expo in Las Vegas. Recipients

were Paul Mason, Charles Fleischmann, Chris Rogers, Alan McKinnon, Keith Unsworth and Michael Spearpoint for their paper, "Estimating Thermal Radiation Fields from 3D Flame Reconstruction".

The Harry C. Bigglestone award is presented annually, along with a \$5,000 cash prize, to the authors of the most outstanding paper submitted to *Fire Technology* during the previous calendar year, as voted by the International Editorial Board. This award is named after the late Harry C. Bigglestone, a trustee of the Fire Protection Research Foundation and a fellow and president of the Society of Fire Protection Engineers. This is the 25th anniversary of the Bigglestone Award. A special issue of *Fire Technology* will include retrospective papers by previous award winners.

Current Research Foundation research projects by category

Building Fire Safety

Evaluation of Health Care Operating Rooms as Wet/Dry Locations.

Fire Load Survey Methodology.

Structural Fire Resistance Experimental Research – Priority Needs of U.S. Industry.

Technology Review for Cooking Fire Mitigation.

Hazardous Materials

Installation Guidance for CSST Gas Piping.

Dust Explosion Hazard Assessment Methodology.

Hydrogen Research Advisory Panel.

Suppression

HVLS Fans and Sprinkler Operation.

Home Fire Sprinkler Incentives Study.

Addressing Barriers to Residential Sprinkler Systems Created by Water Supply Issues.

Antifreeze and Home Fire Sprinkler Systems.

Fire Service

Stair Descent Devices for Firefighters.

Firefighter Cardiovascular Study.

Developing Friction Loss Coefficients for Modern Fire Hose.

Firefighter International Injury Study.

Whole Glove Testing Technologies to Advance Performance Standards for Structural Firefighting Gloves.

Hazard Assessment of Training Fire.

Electrical

Smart Grid and the NEC.

Non Linear Loads and Power Quality.

NM Cable Arcing.

Emergency Responder Safety Training for Advanced Electric Drive Vehicles.

Detection and Alarm

Best Practices for Emergency Communication Messaging.

General standards development

Tomorrow's Codes and Standards Volunteer.

Reports issued in past 6 months (all available at no cost on our website www.nfpa.org/foundation)

Analysis of the Performance of Residential Sprinkler Systems with Sloped or Sloped and Beamed Ceilings.

Antifreeze Solutions in Home Fire Sprinkler Systems: Literature Review and Research Plan.
Quantitative Evaluation of Fire and EMS Mobilization Times.
Fire Fighter Safety and Emergency Response for Electric Drive and Hybrid Electric Vehicles.
Fire Fighter Safety and Emergency Response for Solar Power Systems.
Profiles on Residential Power Consumption: Phase 1
Measuring the Impact of Fire Extinguisher Agents on Cultural Resource Material.

SP – NEW HEAD OF FIRE TECHNOLOGY

SP Technical Research Institute of Sweden Fire Technology



After having been heading the department of fire technology for many years Ulf has decided to withdraw from that position. Björn has taken over as head of the fire department from the 1st of July. Björn's position as head of the section of fire dynamics is taken over by Tommy Hertzberg. Tommy will have two group leaders, Per Thureson for reaction to fire and Maria Hjohlman (new) for fire protection. Patrik Johansson becomes deputy head of the section for fire resistance.

Ulf continues to work full time as senior scientist focusing on research, consulting, teaching and development of courses in his favorite area heat transfer and temperature calculation.

Fire Technology is in a phase of rapid growth of research as well as testing. We are very happy with these changes and believe that our new organization will continue to widen and strengthen our activities. We hope for a continuously good and beneficial cooperation with you.
 - Björn Sundström and Ulf Wickström

UPCOMING EVENTS

A fire-related conferences directory website is maintained at the University of Edinburgh: <http://www.see.ed.ac.uk/fire/conferences.html>. Anyone can send to <Fire.Research@ed.ac.uk> the details of conferences not listed.

Chronological Summary

International Symposium on Flame-Retardant Materials & Technologies (ISFRMT 2010) Sept.17-20, 2010, Cheng-du, China http://chem.scu.edu.cn/ISFRMT2010/index_e.htm

FIVE (Fires In Vehicles) September 29 - 30, 2010 in Gothenburg, SWEDEN. <http://www.firesinvehicles.com>

Eighth International Symposium on Hazards, Prevention, and Mitigation of Industrial Explosions (8th ISHPMIE) September 5-10, 2010, Keio University, Yokohama, Japan. <http://www.dobashi.t.u-tokyo.ac.jp/ishpmie8>

SFPE Annual Meeting 2010: Professional Development Conference and Exposition, New Orleans, U.S.A., 3-8th October 2010. <http://www.sfpe.org/Education/2010SFPEProfessionalDevelopmentConferenceandExposition.aspx>

International Congress Combustion and Fire Dynamics, Santander, Spain 20th-23rd October, 2010. <http://www.gidai.unican.es>

2010 International Symposium on Safety Science and Technology (2010 ISSST) 26-29 October 2010. Hangzhou, Zhejiang Province, China. <http://www.issst.com.cn>

3rd Fire Behavior and Fuels Conference, Spokane, Washington, October 25-29, 2010 <http://www.iawfonline.org/spokane2010>

Fire Safety Engineering in the UK: State of the art - A FIRESEAT symposium, Edinburgh, UK, 10th November 2010. <http://www.eng.ed.ac.uk/FIRESEAT>

VI International Conference on Forest Fire Research, Coimbra, Portugal, 15-18 Nov, 2010. <http://www.adai.pt/icffr/2010>

8th Asia-Oceania Symposium on Fire Science and Technology, Melbourne, Australia, 7-9 Dec, 2010 <http://www.vu.edu.au/events/8th-asia-oceania-symposium-on-fire-science-and-technology>

Fire and Materials Conference 2011. San Francisco, USA 30 Jan-1 Feb 2011 <http://www.intersciencecomms.co.uk/html/events/fm11cfp.htm>

11th Wildland Fire Safety Summit, Missoula, Montana April 5-7, 2011 <http://www.iawfonline.org/missoula2011>

1st International Conference in Safety and Crisis Management, Nicosia, Cyprus, June 2011. <http://www.euc.ac.cy/easyconsole.cfm/id/1131>

14th International Conference on Aerodynamics and Ventilation of Vehicle Tunnels, Dundee, UK, 11-13 May, 2011 http://www.bhrconferences.com/isavt_14.aspx

10th International Symposium on Fire Safety Science (IAFSS10), University of Maryland, U.S.A., 20-24th June 2011. <http://www.iafss.org/html/Maryland/marylandhome.htm>

The Science of Suppression - A FIRESEAT symposium, Edinburgh, UK, 9th November 2011 <http://www.eng.ed.ac.uk/FIRESEAT>

9th International Conference on Performance-Based Codes and Fire Safety Design Methods will be held in 2012 in Seoul, South Korea. More details can be found at www.sfpe.org.

PUBLICATIONS

New publication can be announced here by sending the information to G.Rein@ed.ac.uk or jack@firesafetyinstitute.org.

Volume 1 of 'Coal and Peat Fires: A Global Perspective' <http://www.elsevierdirect.com/coalpeatfires>

We are delighted to inform you that Volume 1 of 'Coal and Peat Fires: A Global Perspective' - our four volume book series - will be on the market in October 2010.

Elsevier has hosted a microsite at <http://www.elsevierdirect.com/coalpeatfires>

where you can:

- Read more about the book series
- Find the table of content and download a sample chapter from Volume 1
- Learn about how you can contribute to the online archive of coal fires
- Order the book and receive discount for early purchase
- And much more

We hope you enjoy the book series and we look forward to your feedback.

Sincerely,

*Editors: Glenn Stracher, Anupma Prakash, Ellina V. Sokol,
Guest Editors: Rudiger Gens, Guillermo Rein*

See Also Recent Reports from FPRF

CONFERENCE REPORTS

The Newsletter editorial team is always looking for contributions from IAFSS members. Conference reports on fire related events are encouraged and can be sent for publication in the next issues to G.Rein@ed.ac.uk or jack@firesafetyinstitute.org.

5th International Conference on Pedestrian and Evacuation Dynamics, Gaithersburg, March 2010

<http://www.bfrl.nist.gov/info/PED2010>

"Understanding and predicting the movement of people within buildings and communities during emergency evacuation is critical to ensuring the safety and utility of the built environment. Establishing a technical foundation for this basic necessity, however, remains an emerging discipline. Recent technical progress is being driven by a diverse group of contributors, ranging from architects, engineers, and mathematicians to sociologists and psychologists. On March 8-10, 2010, NIST hosted the 5th International Conference on Pedestrian and Evacuation Dynamics. Over 130 practitioners and researchers from 20 countries participated in the three day event. The first day emphasized presentations on pedestrian and evacuation data, data collection methods, and theory. The second day included presentations on development and validation of people movement models on scales ranging from a single building to crowd management of outdoor festivals. The final day included analyses of real evacuation events, technical basis for regulatory policy, and a panel discussion on ensuring quality control in the development and application of egress models. A conference proceedings, including 70 technical papers and 30 posters, will be available this summer".

By Erica Kuligowski

Fire Protection Engineer

Fire Research Division/BFRL

National Institute of Standards and Technology

Gaithersburg, Maryland

Phone: 301-975-2309

Combustion Phenomena in Fire Science, Spring Meeting of British Section of the Combustion Institute, Edinburgh, March 2010

<http://www.eng.ed.ac.uk/fire/combustion2010>

Seven invited speakers from home and abroad represented research interests spanning experimental studies and modelling of fire phenomena. The meeting opened with a good context setting talk on "Enclosure fires modelling: where are we and where are we going?", by Prof Bart Merci of Ghent University. The capabilities of models are progressively advancing but equally if not more important is the knowledge of the user. Options to increase knowledge of FSE were discussed and the value of Masters programmes in Fire Safety Engineering emphasised. The complexity of fire phenomena and the strong dependence of fire development on details of the input must be recognised. The need for systematic validation exercises working up from simple cases, and recognising measurement uncertainties, remains vital. Discussion focussed on the problem of models validated for benchscale scenarios being misused in other large-scale applications.

The current limits of our knowledge became rapidly apparent in the next talk on the Buncefield incident by Dougal Drysdale, emeritus professor at Edinburgh University. Lavishly illustrated by impressive images of tank fires and explosion aftermath, Dougal highlighted a number of thought-provoking aspects of the incident: the possibility that the vapour had been ignited by the pumps turned on to disperse it, with initially puzzling damage features elucidated as pertaining to the reverse flow in the rarefaction wave, all pointing at the pumphouse, and the environmental impact of the use of remaining stocks of old foam concentrate, which had been banned from further use. The severity and exact nature of the explosion has still not been satisfactorily resolved via modelling studies that were completed with Cartesian hedgerows. Despite opinions expressed at the time that this incident was unique and could never happen again Dougal noted that there have recently been two more of a similar nature. Hedgerows may indeed have had a role in providing turbulence generation mechanisms and perhaps we need to consider their removal!



Dove-tailing nicely with Dougal's conclusions, Dr Savio Vianna of Cambridge University picked up the theme of dealing with complex geometries in accidental explosion modelling. Peak pressures have been well predicted in a range of applications using a Modified Porosity Distributed Resistance (MPDR) model for approximating the flow effects due to complex obstructions (thus potentially of value for Dougal's hedgerows?!). Work is ongoing on addressing further aspects of the combustion modelling and the impact of suppression phenomena via deluge and micromist systems.

With another slick progression Prof Kai Luo of Southampton University then took us deeper into the challenges of modelling fire suppression. Liquid phase effects tend to invalidate most of our existing modelling tools for diffusion flames and attempting to include them we are immediately confronted by severe computational challenges. Neverthe-

less, by adopting an Eulerian-Lagrangian Approach with an LES/DNS framework valuable insights into mechanisms have now been achieved – highlighting the need to supply sufficiently small drops which are able to effectively reach the reaction zones and the fact that the cooling effects are dominant over dilution and direct kinetic impacts. Thus fine mists with large evaporation enthalpies will tend to be most effective but optimum droplet size is dependent on the nature of the fire flows.

Having exhausted the topic of suppression we returned to fluid dynamics and the particular problems of entrainment of air into thermal spill plumes, studied in great detail by Dr Roger Harrison in his work at the University of Canterbury. These are very relevant practical problems for design of large public spaces but hitherto the spill plume formulae have been constrained by insufficient empirical knowledge, and the application of advanced numerical models, i.e. CFD, limited by other uncertainties. It was found that spill plume behaviour and entrainment are dependent on the characteristics of the layer flow below the spill edge. Roger's work has also resulted in a range of new and improved simplified design formulae for a variety of spill plume scenarios and new guidance on the use of CFD models for these applications.

Coming back to fundamental fire phenomena, Prof John Griffiths of Leeds University addressed the topic of lagging fires, a common problem in industrial environments when potentially flammable fluids leak from pipe work into the surrounding insulation material. Such fires may have devastating consequences, and are neglected at our peril! The participating phenomena are highly complex, but John's experimental, numerical and theoretical investigations have revealed the role of different processes related to the nature of the combustion (gas or liquid phase) and the dependence on the fluid properties in interaction with the heating environment, i.e. the energetic effects of vaporisation and the possibility of fluid and vapour movement and recondensation within the porous media. Thus fuel volatility, overlooked in previous studies with mainly involatile liquids, is a key parameter.

The day concluded with a wide-ranging talk on Forest Fire Research by Prof Domingos Viegas of the University of Coimbra. We were informed of the fundamental experimental research on fire spread dependencies which have clarified basic sensitivities to effects of wind and slope. At full-scale level the role of convection is vital. The mechanisms involved in spot fires have been individually examined and fire tornados have been studied in the lab and at full-scale. The concept of eruptive fire behaviour was described, and the extreme dangers arising from sudden transitions in fire development illustrated by a number of sobering case studies. The talk concluded with lessons learned from the Australian fires in Victoria in 2009, which claimed 173 lives and destroyed 4000 km² within 10 hours.

All of the talks (downloadable at <http://www.eng.ed.ac.uk/fire/combustion2010>) raised our awareness of the potentially serious consequences of fire in various arenas and the challenge to the fire community in furthering our understanding and knowledge of the fundamental underpinning fire phenomena. We add to this our responsibility to educate and inform and clearly we have our work cut out and

much to do. In concluding the meeting the awards committee recognised some of the outstanding work already being done in these areas in conferring the best poster awards to Dr A Snegirev of Saint-Petersburg State Polytechnic University, for his work on modelling spray fires, and to Jamie Stern-Gottfried et al. of Edinburgh University/Arup, for his studies of non-homogeneous fire environments.

*By Stephen Welch
BRE Centre for Fire Safety Engineering
The University of Edinburgh*

8TH SFPE CONFERENCE IN LUND SWEDEN, JUNE 2010

The 8th International Conference on Performance-Based Codes and Fire Safety Design Methods was a great success, with an excellent technical program and representatives from 30 nations and a record attendance with 307 participants. The conference was held in Lund, Sweden, where the weather was wonderful and the days were long.

The first day of the conference featured presentations on the newest developments concerning performance-based code approaches. A common theme in the presentations was that many countries are developing codes that use quantitative measures of performance. Japan lead the world with the publication of their performance-based code in 2000, and now countries such as New Zealand and Sweden are considering similar approaches. This represents a generational shift in the profession of fire protection engineering.



The second day showcased the state-of-the-art in engineering design methods. New and more mature design methods are constantly emerging, reflecting the desire for increasing confidence in engineering predictions. The third and final day included presentations from representatives from seven countries where they demonstrated how they would approach a common design problem.

Photographs of the event can be accessed from <http://www.brand.lth.se/sfpe2010/live/>

*By Patrick van Hees
Lund University Sweden*

Interflam 2010, Nottingham <http://www.intersciencecomms.co.uk/html/events/if10d.htm>

The 12th Interflam conference took place from 5 to 7th July 2010 at Nottingham, UK. Some 130 papers and over 70 poster paper were presented. It was well attended by individuals both from research institutions and industry. There was only one plenary talk, the Keynote Lecture by M Janssens that opened the conference on Monday morning. It focused on Interflam's past, with plenty of statistics about old papers and historical topics. There were many excellent papers presented, but overall, the best ele-



ment at Interflam was the lively discussions experienced at most sessions. Event organisation was flawless and the venue very comfortable. Conference proceedings are available in two volumes (hardback) and as CD Rom. These are available from Interscience Communications Ltd.

<http://www.intersciencecomms.co.uk>

*By Guillermo Rein
BRE Centre for Fire Safety Engineering
The University of Edinburgh*

6th Fire and Explosion Hazards, Leeds

<http://www.engineering.leeds.ac.uk/cpd/feh6>

We attended the 6th Fire and Explosion Hazards conference in Leeds. The conference was well attended by academia as well as industry.

As usual, the topics covered many aspects of fire with a lot of emphasis on the best methods for extracting material parameters from experiments for use in fire models and the subsequent use of the newly developed FireFOAM code. Plenary lectures on the Buncefield explosion and the dynamics of forest fires related fire sciences to the real world and worked as a good basis for the conference.

An excellent banquet was provided in the rather unique Royal Armouries Museum.

*By Rory Hadden
BRE Centre for Fire Safety Engineering
The University of Edinburgh*

European Geosciences Union General Assembly 2010, Vienna

<http://meetings.copernicus.org/egu2010>

A conference on a different scale from anything in fire; 10,000 delegates descended on Vienna from all corners of the globe. I attended with fire group collaborator Claire Belcher. The conference programme was very dense including everything from climate change to sedimentology. It was interesting to see fire from the point of view of a geoscientist – these sessions were devoted mainly to satellite detection of fires and the role of fire in the earth system. This is fascinating work however, I am certain more could be achieved by raising the profile of fire science in this area and working together with the geoscience community.

*By Rory Hadden
BRE Centre for Fire Safety Engineering
The University of Edinburgh*

2nd International Conference on Coal Fire Research, Berlin

<http://www.coalfire.org/conference/index.php/iccfr2/2010>

This three day conference in Berlin was the second meeting of the coal fire community under the umbrella of the Sino-German coal fire project with the motto *Bridging the science, economics, and politics of coal fires*. As a relative outsider to the community, I found them inviting and willing to discuss new ideas. Talks covered the whole range of coal fire topics from fundamental fire dynamics to model-

ling to fire fighting with many interesting case studies in between. The conference also allowed me to meet with the editors of *Coal and Peat Fires: A Global Perspective*. It seems that over the 6 years that the community has been active, a great deal has been achieved in understanding these fires however, they still remain a challenging and diverse area of study.

*By Rory Hadden
BRE Centre for Fire Safety Engineering
The University of Edinburgh*

American Concrete Institute Spring Convention, Chicago

<http://www.concrete.org/Convention/spring-Convention/Front.asp>

Every year, twice a year, the American Concrete Institute (ACI) meets to discuss the latest developments in field of concrete construction and design. This year, the Spring Convention met in Chicago at the beginning of March. Spring had only just sprung, and visitors from around the world gathered to discuss new developments and improvements to the ACI codes and guidelines.

At every convention, the ACI 216 Committee discuss how the fire design guidance can be improved, updated and made more useful. This year, the committee meeting was also coupled with a presentation session where members of the fire research community could present their research.

The following day, Committee 216 got down to the serious business of discussing the latest modifications to the ACI 216.1 design document. Chaired by Prof Venkatesh Kodur, there were no major changes either approved or proposed. Discussion centred more on the future direction of the code, and how it compares to other international fire design codes.

There was some discussion of the relative merits of the design fire, E119, but also strong criticism of the Eurocode approach from some members of Committee 216. As someone who had not attended the conference before, I was fascinated to witness the process by which a code is written. I was particularly struck by how long and drawn out the process of changing a document is. Not only were there disagreements between committee members as to what should be changed and how, but there was also the very long process of having the changes and their format approved by the ACI governing body as a whole.

I left Chicago with two conflicting feelings: depression at the pace of change in the States, but also a feeling of respect and optimism for what has been achieved in Europe. The Eurocodes are not perfect, and they have many limitations, unconservatism and flaws; however, in terms of their philosophical approach, they allow engineers to think deeply and flexibly about the problems at hand.

*By Angus Law
BRE Centre for Fire Safety Engineering
The University of Edinburgh*

Hong Kong Polytechnic University, China

The Area of Strength in Fire Safety Engineering (AoS-FSE) & Research Centre for Fire Engineering (RCFE) at The Hong Kong Polytechnic University (PolyU) in Hong Kong regularly organizes Continuous Professionals Development CPD talks to provide suitable training for industry practitioners.

Recent CPD programs include *Alternative Water Suppression Systems for Tall Atria* held on 20 March 2010 by Professor W.K. Chow, and a lecture by Professor J. Dyke (from University of Southampton) on *Laboratory Experimental Techniques relevant to Combustion Chemistry* on 30 April 2010. Additionally, a short course on sprinkler design will be held on 24-26 August 2010 to enhance the knowledge of sprinkler system design of the practitioners.

Professor W.K. Chow
Chair Professor in Architectural Science and Fire Engineering
http://www.bse.polyu.edu.hk/researchCentre/Fire_Engineering/index.html

CALLS FOR PAPERS

Also See 10th IAFSS

FireSeat: Fire Safety Engineering in the UK, The State of the Art, Edinburgh, 10 Nov 2010
<http://www.eng.ed.ac.uk/FIRESEAT>

The University of Edinburgh is hosting a one day symposium on Wednesday 10th November this year. The symposium is entitled "Fire Safety Engineering in the UK: The State of the Art".

In order to make the event as widely accessible as possible, there will be no fees associated with the event.

It is intended that there will be opportunity for about 15 to 20 presentations throughout the day. It is hoped that the oral presentations would be accompanied by a number of poster presentations as well, demonstrating the diversity and scope of the state of the art.

The aim is for representatives from across the range of institutions to present recent research and advances within the broad field of fire safety engineering; including structural fire safety, CFD, flammability testing, structural modelling, fire-fighting practice, fire dynamics, etc.

In order to be considered for one of the oral presentation slots or the poster session, please submit a mini-paper of no more than four pages by 31st August 2010 via the conference webpage [<http://www.eng.ed.ac.uk/FIRESEAT>]. Full details of the paper format are given on the website. As many as possible of the submitted papers will be selected for oral presentation, the selection will be made in order to present the whole spectrum of activities in the field. Authors selected for oral presentation will be given the opportunity to expand their papers up to ten pages. All other submissions will be invited to prepare posters for the conference. All mini-papers and expanded papers will be reproduced in the book of proceedings.

If you would consider coming to this event, you can submit a mini-paper based on your recent or current work and also recommending this event to your colleagues. It would be great if each institution was represented by both established and junior members.

EDUCATIONAL NEWS

Educational news for this newsletter can be sent to: Patrick.van_Hees@brand.lth.se or orjack@firesafetyinstitute.org.

ERASMUS MUNDUS PROGRAMME – update

The "International Master of Science in Fire Safety Engineering (IMFSE)", organised by the Universities of Ghent (Belgium), Lund (Sweden) and Edinburgh (Scotland) and funded in the Erasmus Mundus framework of the European Commission, is about to start. 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. In total, 13 non-European students and 8 European students have already been awarded a European scholarship. These future Fire Safety Engineering experts will arrive in September in Belgium and Scotland for their first semester in the IMFSE. We are thus proud to report that the efforts for promoting the program have been quite successful. Nevertheless, it is already time to spread the news for the next edition. For non-EU scholarships, the new deadline for application is in December forthcoming.

The application forms and all other information can still be found on our website: <http://www.imfse.ugent.be>.

LUND UNIVERSITY - Sweden

On March 23, 2010, Jerry Nilsson successfully defended his PhD titled "Conceptions of crisis management capabilities – Municipal officials". Faculty opponent was Dr. Marit Boyesen from the University of Stavanger, Norway. On April 13, 2010, Henrik Hassel defended also successfully his PhD titled "Risk and vulnerability analysis in society's proactive emergency management – developing methods and improving practices". Faculty opponent was Dr. Seth Guikema, Assistant professor at John Hopkins University in Baltimore, USA.

The PhD thesis's can be downloaded from the Lund website <http://www.brand.lth.se/english/publications/>. This link also includes links to previous PhD dissertations as well as research reports, licentiate theses and master theses.

From November 2010 to June 2011 the department will offer the course "Fire evacuation". The course is mainly designed for fire consultants and people working with fire safety issues at companies, municipalities and government agencies. Examples of topics that are included in the course are human behaviour theories, toxicology, pedestrian dynamics, egress modelling, accident investigation/analysis

and ethics. The course will be given as a distance learning course with two seminars in Lund, one in November and one in March/April 2011. For more information about the course please visit www.brand.lth.se/english/evacuationcourse or contact Associate Senior Lecturer Daniel Nilsson (e-mail: daniel.nilsson@brand.lth.se, tel: +46 46 222 95 93).

Daniel Nilsson received the distinction Excellent Teaching Practitioner (ETP) at Lund University in April 2010. ETP is given to teachers at Lund University who have contributed to and systematically developed their own pedagogic competence and their courses.

Patrick van Hees, professor at the department, became visiting professor at the University of Gent in Belgium June 1, 2010, which tightens the links between the partners in the Erasmus Mundus master programme (Lund University, Ghent University and the University of Edinburgh).



Just before the summer Karl Fridolf and Jonathan Wahlqvist were appointed as research assistants. They both will start their PhD studies later this year and join Nils Johansson who started his PhD studies last September in research projects dealing with arson fires in schools and a project called "Why small fires become large?"

Karl Fridolf has previously studied at both the fire protection engineering and risk management programmes at Lund University. His area of research is tunnel fire evacuation, and he is currently working in Work package 2 about evacuation (WP2 - Evacuation) in the METRO project (www.metroproject.se).

Jonathan Wahlqvist finished his fire safety engineering education almost two years ago and has been working actively as fire consultant before he joined the FSE group at the department. He will work with validation of CFD models primarily in the PRISME project which is a research project within the nuclear power industry (www.nea.fr/jointproj/prisme.html). He also will work with the introduction of new innovative laser techniques in fire test.

By the end of the year the Fire Safety Engineering group within the department of Fire safety engineering and systems safety will have 9 PhD students of which 5 industrial PhDs.

Some of the areas of ongoing project at Lund University are arson fires in schools, fire spread phenomenon in schools, attics and nuclear power plants, validation of CFD packages, underventilated fires in nuclear facilities (PRISME project), implementation of new laser techniques in fire tests, evacuation in underground facilities (METRO project), evacuation in high rise buildings (KESØ – EU Interreg project), evacuation in tunnels under construction.

CANTERBURY UNIVERSITY – New Zealand

Dr. Mike Spearpoint has taken on a permanent continuing position in the Department. After a world-wide search, the New Zealand Fire Service Commission Lecturer position

has now been filled by Dr. Anthony Abu (right). Tony obtained a Bachelor's degree in Civil Engineering from Eastern Mediterranean University, North Cyprus and then completed his PhD in Structural Fire Engineering at the University of Sheffield, UK where he worked on the mechanics of tensile membrane action of composite slabs at elevated temperatures.



He also worked with Buro Happold Engineers, UK on a number of structural fire engineering projects including the London 2012 Olympic stadium, The Everton Football Club Stadium and the Edinburgh Airport Lounge Extension.

Ph.D. projects

Dennis Pau's research is to assess the accuracy of FDS 5 in predicting the mass loss rate and heat release rate of small and medium scale test methods involving polyurethane (PU) foam by extracting and optimising suitable inputs from PU foam experimental data. Dennis also has carried out a series of thermogravimetry (TG) experiments which involves heating a small PU foam sample within an oven under a constant heating rate. The TG results indicate the number of reactions during PU foam degradation and oxidation. Quantitatively, it provides the kinetic parameters of each reaction. The kinetic parameters consist of constants called pre-exponential factor and activation energy and they are inputs of FDS 5. By knowing these values, parameter optimisation will be more accurate as the boundaries of the search domain become more refined. (Supervisors – Dr Fleishmann and Dr Spearpoint).

Jeong-Ki Min is investigating the fire resistance of precast prestressed concrete floor systems. He has used the SAFIR software to predict the fire performance of hollow-core concrete floors, and is now investigating the fire performance of Double Tee floors. This work follows on from the PhD of Dr Jerry Chang, and will be extended to include a wide variety of floor systems and support details and analytical models which are much less time-consuming. This work is in collaboration with the Future Building Systems project funded by FRST. (Supervisors – Dr Buchanan, Dr Moss and Dr Dhakal).

Dan Madrzykowski (right) is examining the repeatability of burn patterns on gypsum wall board exposed to a range of source fires and to develop the input data needed to examine the ability of Fire Dynamics Simulator (FDS) CFD model to re-create burn patterns. The study includes real-scale, replicate fire experiments which will include measurement of heat release rate, heat flux, mass loss and temperature. The experiments have been completed and the results when combined with results from a series of bench scale tests will provide input to the FDS model. NIST is providing financial support and a majority of the work will be carried out at NIST. (Primary supervisors – Dr Fleishmann / Dr McGrattan, NIST).



Greg Baker's PhD research forms part of a wider project to integrate significant enhancements into BRANZFIRE that will result in a new probabilistic model that generates outputs in the form of probability distributions. Greg's work is to develop and experimentally validate a physics-based

multiple-item fire spread sub model applicable to room fires and implement the sub model in the BRANZFIRE software. From there he is going to develop a methodology for quantifying total uncertainty associated with residential fire scenarios and the spatial arrangement of items or objects in a room and use the fire spread sub model to generate probabilistic design fires. This will include a Quantitative Risk Analysis (QRA) simulation procedure that uses statistical sampling techniques. (Supervisors – Dr Spearpoint and Dr Fleishmann).

News

Professor Andy Buchanan was elected a Fellow of the Society of Fire Protection Engineers in July 2009.

Charley Fleishmann and Mike Spearpoint, as part of the development of a web-based teaching resource for high school teachers on the science of fire, were interviewed and filmed burning pieces of furniture (<http://www.sciencelearn.org.nz/contexts/fire>)

Charley and Mike were honoured to receive the 25th Harry C. Bigglestone award for the paper “Estimating Thermal Radiation Fields from 3D Flame Reconstruction” published in Fire Technology. The work involved contributions from researchers from Lincoln University, Tufts University as well as the University of Canterbury. (<http://nfpa.typepad.com/conference/2010/06/six-receive-bigglestone-award-nfpa-conference.html>)

KINGSTON UNIVERSITY - UK

The Centre for Fire and Explosion Studies at Kingston University has joined forces with Pilkington to tackle the challenge of modelling glass behaviour in fire. As reported in Fire Risk Management Journal, April 2009, the cooperation of two world-class research centres - one specialising in fire modelling and the other in the fracture mechanics of glass - has been a particularly fruitful one.

The KU-GLAZ model has been developed to predict spectral radiation and conduction heat transfer, thermal stress and strain, and the probability of failure of a glass pane in fire conditions. The approach could represent an alternative to Pagni's criterion in particular where non-uniform exposure of the glass pane is expected. It also provides a better understanding of the stress distribution prior to breakage. Numerical simulations have been carried out in order to verify the accuracy of the model. The temperature, stress and strain predicted agree reasonably well with the predictions of ANSYS. The work so far has shown the importance of accounting for spectral radiation and the probabilistic nature of glass failure. Further work is ongoing to predict the propagation of the crack and glass fallout.

For more information contact Professor Jennifer Wen, Email: j.wen@kingston.ac.uk

CALIFORNIA POLYTECHNIC STATE UNIVERSITY - USA

California Polytechnic State University (Cal Poly) in San Luis Obispo, CA, is pleased to announce the establishment of a new graduate program Fire Protection Engineering leading to the Master of Science degree. This is only the third MS degree program in FPE in the United States and is

the only program located in the western US. The 45-unit (quarter system) degree program includes ten 4-credit courses and one 5-credit culminating project experience. The program is offered both on-campus and on-line. For more information on the FPE program at Cal Poly, please visit the program's website at www.fpe.calpoly.edu.

For more information contact Prof. Frederick W. Mowrer, Email: fmowrer@calpoly.edu.

TOKYO UNIVERSITY OF SCIENCE – Japan New Master's Course in Fire Science and Technology has started as of April, 2010

The transformation of urban areas accompanying rapid, high-density development in cities throughout Asia has led to an acute increase in the risk of disasters incurred by fire and others. In this surroundings, the Master's Course in Fire Science and Technology at the Tokyo University of Science (TUS) has started in a timely manner as of April 1st, 2010 and this Graduate School of Global Fire Science & Technology seeks to address this risk by leveraging cutting-edge research on fire safety problems and its associated fire protection systems in order to foster highly trained experts capable of selecting effective risk prevention measures and policies.

Aimed at students and other members of society, the course places emphasis on developing experts highly trained in areas of crucial social importance, namely, building and urban fire prevention and control along with fire-fighting techniques. Target domain and students in this course are as follows:

1) Training of fire science experts and technicians.

The course will develop highly-trained experts and technicians, intimately acquainted with building and other fire safety assessment and associated design systems, who are capable of meeting ISO and other international standards pertaining to fire safety.

2) Career enhancement for fire relief administrators.

The course will provide fire officers, fire prevention officials, and insurance assessors with enhanced career skills.

3) Education opportunity for overseas students from East Asia.

This course is open to enrolment by students from East Asian countries currently developing fire prevention technologies and administrative procedures. It will provide fundamental education on fire science as well as practical training through simulations in order to foster personnel, who can make valuable contributions to the mitigation of fire risks in countries outside of Japan.

The course will operate from TUS' Kagurazaka Campus, while experiments and exercises will be conducted in Noda Campus. For more information contact Prof. Ai Sekizawa, Tokyo University of Science, email sekizawa@fse.t.u-tokyo.ac.jp

UNIVERSITY OF EDINBURGH – UK

During the first semester of 2010, 2 people have joined the group. Dr Claire Belcher, a geoscientist studying Fire in the Earth System, is joining us as a Marie Curie Experienced

Research Fellow after her postdoc at the University College Dublin. Agustin Majdalani is a new PhD student from Argentina with extensive industrial experience in suppression technology.

In this same time, six students received the PhD degree: Charlotte Roben, Hubert Bitea, Thomas Steinhuis, Cecilia Abecassis Empis, Wolfram Jahn and Francisco Colella. Dr Albert Simeoni, who has been a visiting scholar for the past three years, took recently a position as Associate Professor in the Department of Fire Protection Engineering at Worcester Polytechnic Institute, USA.

Other news:

Dr Adam Cowlard was awarded a 2010 Post-doctoral Fellowships from AXA Research Fund for a proposal to study the burning behaviour of wildland fuels and improve wildfire risk calculations. AXA grants are to "uphold the emergence of the world's scientific leaders".



Sam Grindrod who has been awarded 2010 J M Lessells Travel Scholarship from the The Royal Society of Edinburgh. The funding (£8,750) is for Sam to travel to Lund University, Sweden for seven months, where he will be collaborating on project M*E*T*R*O, mainly on the medium-scale tunnel fire experiments.

Jamie Stern-Gottfried is the recipient of the 2010 David B. Gratz Scholarship from the National Fire Protection Association in USA. The funds (\$5000 USD) are to travel to international conferences overseas and present his thesis work on the role of travelling fires in the structural design of large buildings. This is the fourth Gratz Scholarship that goes to Edinburgh since it was created in 1997.

A recent high impact paper was published in Nature Geoscience (issue July 2010) using flammability tests to show that a change in vegetation contributed to a five-fold increase in natural wildfires 200 million years ago. The work, "a truly innovative test of Geoscience's hypothesis" used the Fire Propagation Apparatus calorimeter to test the flammability of modern plant analogues to the Triassic and Jurassic vegetation. This research brought together scientists from very different backgrounds (fire, geology, palaeontology and biology), and doing so has given insights into ancient wildfires that otherwise would not have been found. Link to the paper <http://dx.doi.org/10.1038/ngeo871>

WORCESTER POLYTECHNIC INSTITUTE – USA

The WPI FPE DEPARTMENT is pleased to Announce Dr. Albert Simeoni joined our faculty in July, 2010.

Dr. Simeoni comes to WPI with a decade of teaching and research experience. Dr. Simeoni is currently a visiting scholar at the University of Edinburgh and a "Maître de Conférences" (professor) at the University of Corsica, France. Dr. Simeoni holds a B.Sc. (Maîtrise) in Applied Physics from the University of Corsica, an M.Sc. (D.E.A.) in Mechanical Engineering from the Uni-



versity of Provence, and a Ph.D. in Physics, "Forest Fire Modeling" from the University of Corsica.

When asked to describe his research interests, Dr. Simeoni says, "My research is geared towards the understanding, modeling, simulation and experiments of wildfires with special consideration on combustion and heat and mass transfers. The fundamental aspects of my research cover the understanding of the basic phenomena that drive the fire behavior. The applied aspects aim to the development of scientific tools useful for firefighting and land management. My students and I develop experimental and analytical techniques to understand better the fire dynamics and to be able to forecast the fire behavior under diverse conditions".

Dr. Simeoni has taught a wide variety of courses from physics to electronics, fluids, heat and mass transfer, combustion, and mathematical modeling to students with quite diverse educational backgrounds. He will teach Combustion this Fall and FireDynamics in Spring 2011.

HONG KONG POLYTECHNIC UNIVERSITY– China

Master of Science in Fire and Safety Engineering (MSc in FSE)

The part-time program MSc in FSE at PolyU is taught by staff of The Area of Strength in Fire Safety Engineering (AoS-FSE) & Research Centre for Fire Engineering (RCFE) together with visiting professors and experienced engineers. There will be 35 students with their degree conferred in this November. This MSc program has been offered for 10 years, registering 50 students each year. Students are practising fire officers, architects, building officers, engineers, building surveyors and facilities managers.

Certificate Course

The PolyU AoS-FSE & RCFE also collaborates with Hong Kong Institution of Engineers (HKIE) - Building Services Division and other institutions to organize the Joint Comprehensive Certificate Course on Fire Services System which will be held in September 2010 for fire engineers and technicians. Topics would include fire services installation design practice; deluge foam water system in practice; fire safety management plan; sprinkler system in practice; overview of fire engineering approach & special fire evacuation training; problems in hose reel and fire hydrant design and management; structural response to fire in performance-based fire safety design; latest fire extinguishing technology and fire stopper; and hot smoke tests and smoke control system. CPD certificates will be issued.

Serving the Community

Staff at the PolyU AoS-FSE & RCFE also serves the Fire Safety Committee in the Buildings Department (BD) of the Hong Kong Government to assess building projects having difficulties to comply with prescription codes using fire engineering approach. This approach is same as performance-based design elsewhere. Professor W.K. Chow joined in 1998 and served for 6 years once the BD announced the Note to Authorized Persons on Fire Engineering Approach. Over the past six years, Dr. N.K. Fong had been a member of the Fire Safety Committee. His terms of service ended in

May 2010. From July 2010 onwards, Professor Chow is just invited to the Fire Safety Committee and continue to provide advice to performance-based fire safety design.

For more information contact Professor W.K. Chow, email bewkchow@polyu.edu.hk or visit the following website: http://www.bse.polyu.edu.hk/researchCentre/Fire_Engineering/index.html

POLYTECHNIC SCHOOL OF THE UNIVERSITY OF SAO PAULO– Brazil

On August 4th of 2010, was held in Polytechnic School of the University of Sao Paulo, Brazil, the first class of the subject "Structures fire design" (one semester, approx. 35 hours) for undergraduate students in civil engineering. I presume that it is the first time that this kind of subject is given in a regular undergraduate course in Latin America. Despite being an optional discipline, the demand has been great with more than 40 students. The program covers items such as: Considerations on fire safety. Relevance of architectural design. Requirements of fire resistance. Fire models. Actions and safety of structures. Concrete fire design. Steel fire design.



Fore more information contact Prof. Almeida Prado, Email: valpigss@usp.br

You can also visit: www.lmc.ep.usp.br/people/valdir or www.albrasci.com/1_cilasci_4.html.

CURRENT RESEARCH

Hot Topics In Video Fire Analysis

Steven Verstockt^{a,b}, Bart Merci^c, Bart Sette^d, Peter Lambert^a, Rik Van de Walle^a

Fire is one of the most powerful forces of nature. Nowadays it is the leading hazard affecting everyday life around the world. The sooner the fire is detected, the better the chances are for survival. Today's fire alarm systems, such as smoke and heat sensors, however still pose many problems. They are generally limited to indoors; require a close proximity to the fire; and most of them cannot provide additional information about fire circumstances. In order to provide faster, more complete and more reliable information, video fire detection (VFD) is becoming more and more interesting.

As recent research has already shown, vision-based detection of smoke and flames promises fast detection and can be a viable alternative or complement to the more traditional techniques. Especially in large and open spaces, such as shopping malls, parking lots, and airports, video fire detection (VFD) can make the difference. The reason for this expected success is that the majority of detection systems that are used in these places today suffer with a lot of problems which VFD do not have, e.g., a transport- and threshold delay. As soon as smoke or flames occur in one of the camera views, fire can be detected.

In order to actually understand and interpret the fire, however, detection is not enough. It is also important to have a clear understanding of the fire development and the location. Where did the fire start? What is the size of the fire? What is the direction of smoke propagation? How is the fire growing? The answer to each of these questions plays an important role in safety analysis and fire fighting/mitigation, and is essential in assessing the risk of escalation. Nevertheless, the majority of the detectors that are currently in use just ring the bell and are not able to model fire evolution.

Recently, video fire detection in non-visible light is also gaining importance. While ordinary video promises good fire detection and analysis results, the use of IR cameras in the long wave IR range (LWIR) can be of added value. The reason for this is that existing VFD algorithms have inherent limitations, such as the need for sufficient and specific lighting conditions. Thermal IR imaging sensors image emitted light, not reflected light, and so do not have those limitations, providing a 24 hour, 365 day availability. Also, due to the variability of shape, motion, colors, and patterns of smoke and flames, many of the existing VFD approaches are still vulnerable to false alarms. Since it is possible to integrate IR cameras into existing CCTV networks, the combination of both technologies can be used to reduce these false alarms.

Our research focuses on the evaluation of video fire detection techniques in visible and non-visible light using a performance evaluation framework. Based on this evaluation, an improved multi-sensor detector is created. This detector combines the most distinctive fire features of ordinary video and thermal infrared video (Fig. 1). The set of features is based on the distinctive geometric, temporal and spatial disorder characteristics of flame regions, which are easily detectable. By combining the probabilities of these fast retrievable local flame features we are able to detect the fire at an early stage. Experiments with different sequences of fire and non-fire real case scenarios show good results. Further, we also propose a multi-view fire localization framework (Fig. 2). The framework merges the single-view detection results of multiple cameras by homographic projection onto multiple horizontal and vertical planes, which slice the scene. The crossings of these slices create a 3D grid of virtual sensor points, called the FireCube. Using this grid and subsequent spatial and temporal 3D clean-up filters, fire localization, growth analysis, detection of smoke propagation, and retrieval of other valuable fire characteristics becomes possible.

Figure 1: multi-sensor fire detection by fusing visual and non-visual flame features

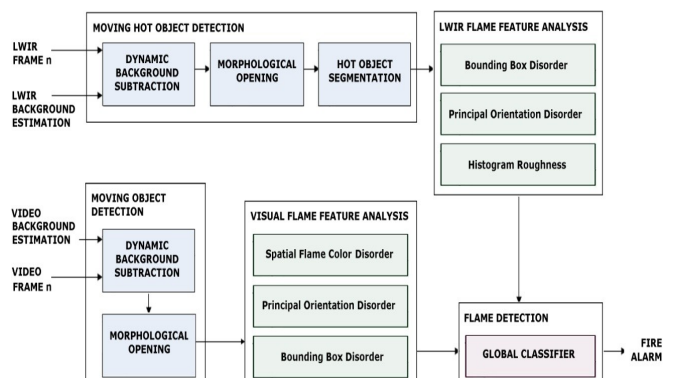
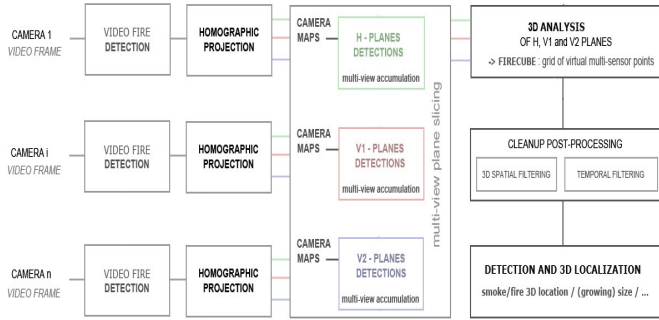


Figure 2: multi-view localization framework for 3D fire analysis



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