

**inFIRE 2014, Guangzhou, China**  
**第28届国际消防信息会议日程表**

5月7日（周三）

Day 2 – Wednesday 7 May

**Morning session**

特邀报告 Plenary lecture

**赵钢 Intelligent fire hydrant system**

**Presenter:** Chao Kang, Chair, Chinese Association of Fire Protection, Taipei City, Taiwan

(Session delivered in Chinese, abstract taken from the conference booklet)

According to the fire code, buildings for public use that cover a certain area and floors shall be installed with indoor hydrants. These hydrants are mostly made up of a metal and opaque box, faucets, hoses and aimers. It is a passive fire facility, which is idle in normal times. When fire breaks out, authorities intend that people can use these hydrants to extinguish fire.

Indoor hydrants have been shown to be successful in extinguishing fires. However many people are unfamiliar with them, and do not use them when fire breaks out. People may mistake them for fire crew use. Installation of hydrants is therefore of no value, if people do not know they can use them.

In view of this, Intelligent fire hydrant systems can offer better protection. When a fire breaks out, the hydrant box on the fire floor signals with lights and high-decibel messages to inform people of the location of the hydrant. A screen display on the box and audio messages tell people how to use the hydrant. It is proposed that these features will encourage use of the hydrants by people in a fire.

**赵钢 Intelligent fire combination system**

**Presenter:** Chao Kang, Chair, Chinese Association of Fire Protection, Taipei City, Taiwan

(Session delivered in Chinese, abstract taken from the conference booklet)

World fire statistics show that home fires account for the majority of fire deaths. Usually the fire code in each country does not regulate that fire equipment be installed. In public buildings, regulations usually require that fire equipment and fire evacuation facilities are installed. These include automatic fire alarm systems, and fire extinguishing systems.

Firefighters often have trouble identifying the seat of the fire, the fire spread, and location of trapped people. This may mean that search and rescue is undertaken in uncertain conditions. Public buildings do not occur frequently, but there are occasionally mass casualties. This shows that public spaces are complicated, and there are many blind spots in protection and safety.

This study looks at the application of modern wireless communications and mobile devices and proposes an intelligent fire combination system. This system can be installed in public buildings. It incorporates early fire detection, false alarm screening, evacuation guide, addressable fire message notification, emergency response indication, and fire and rescue message display. Such a system would mean better protection and safer rescue than is currently available.

学术报告 Lecture

## **Supporting dynamic information needs of firefighter instructors in the digital age**

**Presenter:** 阮炼 Lian Jin Ruan, Ph.D., Head Librarian, Illinois Fire Service Institute.

Firefighters are emergency responders – ongoing training is important.

Dr Ruan's thesis looked at the information seeking behaviour of firefighter instructors at the Illinois Fire Academy. She looked at what they do, their world views, and what problems caused them to look for information.

It took a year to identify the right model to provide a framework for the research.

- Taylors information use environments
- Leckie's model of information seeking

Method – qualitative interviewing / semi- structured interview

Her previous research in 2003 and 2007 showed library was valuable.

Findings:

Trainers - have many roles, are life-long learners, try hard to find information, have multidisciplinary expertise, they solve practical problems, may have hobbies that are an extension of work (e.g. Interest in old buildings and architecture – can describe buildings for size up).

Trainers use formal (print / standards / library) and informal sources (people networks / street experience / own library at home)

Trainers love archives – and their own history.

Raises the issue of how the Library can help – when informal sources are so influential.

Value of teams – different experts come together to create new knowledge – Group network mediated sources of information.

Trainers / firefighters will keep looking for information – they work in a dynamic environment, dangerous, no fire is the same. Feel responsibility to have the right information – will keep looking, don't settle for “good enough” information.

Dr Ruan modified Leckie's model – to incorporate the “keep looking” approach – circular model.

Library's ability to help – the solution lies in helping firefighters integrate the information they have / share experiences.

Library as portal – knowledge management – organises and make accessible informal sources (street experience etc).

Example is the LODD database – lessons learned for instructors.

Limits of study include – under representation of younger instructors / small sample / one state.

Full dissertation

[https://www.ideals.illinois.edu/bitstream/handle/2142/24364/Ruan\\_Lian.pdf?sequence=1](https://www.ideals.illinois.edu/bitstream/handle/2142/24364/Ruan_Lian.pdf?sequence=1)

IFLODD, the Illinois Firefighter Line of Duty Deaths Digital Image Collection Database

<http://www.fsi.illinois.edu/content/library/IFLODD/>

## **After coffee break**

特邀报告 Plenary Lecture

**高伟 Study on characteristics and reproduction technique of the arc failure**

**Presenter:** Wie Gao

(Missed session as on Library tour. Abstract taken from the conference booklet)

Introduces the Key Laboratory of Fire Scene Investigation and Evidence Identification, Ministry of Public Security, China. Looks at the fire hazards and prevention index of the arc failure, with a frequency value of 50HZ and effective voltage value of 220V by test of entity ignition and data analysis. Time domain and frequency domain characteristics of the arc failure are obtained by wavelet analysis and fractal processing of current data on the occurrence of arc failure. Finally, function of the arc failure simulation generator developed are introduced. Usage and reproduction technique of the arc failure are realized by the arc failure simulation generator, and a database is established of arc failure.

徐志胜 **The status and prospect in credential education of fire engineering discipline in China**

**Presenter:** Professor Xu Zhisheng, College of Civil Engineering and Architecture, Central South University, Changsha City, Hunan Province.

(Missed session as on Library tour. Abstract taken from the conference booklet)

Fire safety is necessary for the sustainable, rapid, and healthy development of the national economy and social stability. Cultivating highly educated talent in fire engineering is needed to guarantee progress. Credential education of fire engineering is the key approach to cultivate professional fire engineers. This report shows the development of credential education in fire engineering internationally, and reviews the status of fire engineering in China. Some strategies to address issues in China are proposed.

**Visit to Sun Yat-sen University Library**

**Hosted** by Zhou Chun, Associate University librarian / Jenny, Librarian (translator)

Attended by Lian Ruan, Mats Bornström, and Emma Roache.

<http://library.sysu.edu.cn>

- Four campus libraries (Sun Yat-sen University has 4 locations).
- Walking tour of the reading rooms on first floor.
- Viewed exhibition of stones / head stones from throughout China, donations from previous University Chancellors.
- Rare books collection – Chinese and Western titles. Rare materials donated by previous heads of the University, preserved in special collections. Public users require a letter of recommendation to access these collections. Books kept safe from deterioration by storage in camphor wood shelves – this deters insects. Old technology triumphs!
- Visited the digitization room – several copiers, flat bed and one for books. One digitization project is the “Inscription Rubbing of the SYSU Library ” sponsored by American Lingnan Foundation.
- Visited the Conservation laboratory – saw exhibition of some of their preservation work – before and after photos. Includes work on the inscriptions for the Lingnan Foundation project, so they can be digitized accurately. Saw an expert conservator threading a book spine.
- More on the Ancient books collection  
<http://library.sysu.edu.cn/web/EN/Catalogues/ancient>

## After lunch

特邀报告 Plenary Lecture

### 陈娟娟 **Research on building fire risk assessment based on analytic hierarchy process (AHP)**

**Presenter:** JJ Chen, School of Civil and Architectural Engineering, Wuhan University.

(Session delivered in Chinese, abstract taken from the conference booklet)

According to the fire characteristics of building fire, the paper employs AHP to establish building fire risk assessment system. Categories include factories, hotels, malls, schools and public amenities. Questionnaires and the cluster analysis were proposed to calculate the expert's weight coefficient, and then the index weight values in the fire systems were computed. The system can not only inform the government, the public, and the unit on the fire safety situation, but can provide information for insurance.

学术报告 Lecture

## 徐冉 **Firefighter safety research: impact of evolution of residential fire environment**

**Presenter:** Rain Xu, Project engineer, Underwriters Laboratory, Guangzhou. On behalf of Steve Kerber, Underwriters Laboratory,

Introduces UL – started 1893 after a Chicago fire. Standards and research.

New lab in Suzhou China.

Introduces Firefighter Safety Research Institute – using research to improve fire fighting tactics.

Issues faced

- modern furnishings, building materials – increased fire load, shorter time to flashover.
- Increased house size – US figures, 280 m<sup>2</sup> / 3000 ft<sup>2</sup> is the size of 26% of new house builds. Less separation between homes, bigger footprint on the land, leads to exterior fire spread.
- Residential houses – more open plan, removing compartmentalization

Showed videos to demonstrate – legacy furnishings – 29 mins + to flashover, compared with under 4 minutes in modern homes. Shorter time to escape – importance of residential sprinklers.

### **UL - Firefighter safety research institute**

<http://www.ul.com/global/eng/pages/offerings/industries/lifesafetyandsecurity/firefighter-safety-research-institute/>

### **UL - China**

<http://www.ul.com/china/eng/pages/>

### **UL – fire safety**

<http://newscience.ul.com/firesafety>

## 焦宇 **Development of field-zone-net model for fire smoke propagation**

inFIRE, Guangzhou, China, 6-8 May 2014. Day 2.

### **simulation in ships**

**Presenter:** Jiao Yu, School of Ocean Science and Engineering, Shanghai Maritime University.

(Presentation in Chinese, abstract summarized from conference booklet)

Fire accidents are a major problem in shipping. Toxicity and high temperatures produced by smoke are responsible for most fatalities. This study looks at methods to describe the spreading of smoke and fire in a ship cabin fire. A novel simulation method is used to calculate the spread of fire, and verification was carried out on based on a miniature model.

### **尤飞 Protection of historical buildings by using new chemical techniques: taking Nanjing as an example**

**Presenter:** You Fie

Nanjing is a famous historic city, with 298 historic buildings. This study looks at three typical buildings, to assess their physical and fire safety status. They are the Drum Tower, the Office of the President, and Zhanyuan Garden. They all have rot and stability issues. Traditional chemical protection is costly / toxic / and complex to apply.

New nano sol-gel products are easy to use / colourless / multi function.

Can use on stone, and other heritage materials (bronze, historic glass etc).

Protects wood from ultra violet light.

Can be combined with Chitosan – has properties of moisture retention / low toxicity / inhibits plant growth etc.

Recommends these products for anti-aging, insect proofing, anti-bacterial, anti-corrosion, and fire proofing of historic buildings.

### **王荷兰 Study on administrative system and enforcement mechanism of China urban public fire safety education**

**Presenter:** Wang HeLan, Shanghai Fire Research Institute of MPS of China (Ministry of Public Security)

Says that 80% of fire is due to lack of public awareness.

Outlines the structure of fire safety in China, and presents her proposal to improve fire safety.

In Shanghai, Municipal Fire Safety Commission was only recently set up - after a 2010 fire, which included 40+ deaths. (This fire was a high rise residential building and started in construction materials during a refurbishment. Lax fire safety regulation was blamed, illegal sub contracting arrangements contributed to a lack of fire safety).

The city authorities have three levels – Municipal, district and sub-district. Fire Department is responsible for only operations. Fire Safety is the responsibility of government.

Presents a model / framework of fire safety – how to change public habit

- External stimulus - get told fire safety information
- Subject reaction equilibrium – struggle with new knowledge
- Internal contradiction movement
- Individual behavior correction

Leads to improved habit – better fire safety.

Public education must have continuity / universality (appeal to all) / effectiveness (use right measures)

Proposal:

- All in China over 16 have an ID card. Management of the card is efficient. Suggests fire safety education is linked to this card.
- Involve NGOs / intermediary agencies
- Employers organize and give fire safety training / lectures etc.
- Government manages the programme, collects statistics

Thinks government needs more attention on Fire Safety – e.g. to prevent more like the Shanghai fire.

珠江夜游

Pearl River Night Cruise