

FIRE SCIENCE APPLICATIONS TO FIRE INVESTIGATIONS 2007

CHAPTERS AND PAPERS

1. BASIC PRINCIPLES OF FIRE INVESTIGATION

- 1.01 The Challenge Of Fire Investigations—Today And Tomorrow [IFL99]
John DeHaan, Fire-Ex Forensics Inc, USA
- 1.02 Advanced Tools For Use In Forensic Fire Scene Investigation, Reconstruction And Documentation [IFL04]
John DeHaan, Fire-Ex Forensics, USA
- 1.03 Guidelines For Conducting Peer Reviews Of Complex Fire Investigations [FM07]
David Icove, University of Tennessee and G Haynes, Forensic Fire Analysis, USA
- 1.04 Business Set Up To Burn [IFL01]
Barry Dillon and Aini Ling, Forensic Services (M) Sdn Bhd, Malaysia

2. BURN PATTERNS

- 2.01 Flashover And Fire Analysis—A Discussion Of The Practical Use Of Flashover Analysis In Fire Investigations [IFL04]
Patrick Kennedy and Kathryn C. Kennedy, John A. Kennedy & Associates, USA
- 2.02 Depth Of Calcinations Measurement In Fire Origin Analysis [FM03]
Patrick Kennedy, Kathryn Kennedy, John A. Kennedy and Associates, USA & Ronald L. Hopkins, Eastern Kentucky University, USA
- 2.03 Application Of Materials Science To Fire Investigation [FM01]
Robert A. Schroeder, Schroeder & Williams, USA & R Brady Williamson, University of California, Berkeley, USA
- 2.04 Determination Of Fire Patterns Due To Liquid Accelerants On Floor Covering [IFL01]
Jan Stensaas, Norwegian Fire Research Laboratory, Norway
- 2.05 Fire Pattern Persistence and Predictability on Interior Finish and Construction Materials During Pre and Post Flashover Compartment Fires [FM07]
Ron Hopkins, Eastern Kentucky University, G Gorbett and P Kennedy, John A Kennedy & Associates, USA
- 2.06 Full-Scale Experimental Study on Glass Breakage Behaviour in Enclosure Fires [FM07]
Q. Xie, H. Zhang, Y. Wan , Q. Zhang, State Key Laboratory of Fire Science, USTC, PR China

3. ELECTRICAL FIRES

- 3.01 Electrical Fire Risks [IFL01]
Veli-Pekka Nurmi, Safety Technology Authority, Finland
- 3.02 How Do Electrical Wiring Faults Lead To Structure Ignitions? [FM01]
Vytenis Babrauskas, Fire Science and Technology Inc, USA

- 3.03 Fires Due To Electric Arcing: Can ‘Cause’ Beads Be Distinguished From ‘Victim’ Beads By Physical Or Chemical Testing [FM03]
Vytenis Babrauskas, Fire Science and Technology Inc, USA
- 3.04 Mechanisms And Modes For Ignition Of Low-Voltage PVC Wires, Cables, And Cords [FM05]
Vytenis Babrauskas, Fire Science and Technology Inc, USA
- 3.05 Degradation and Ignition of Polyvinyl Chloride Wire Insulation [FM07]
Abid Kemel, D Mattison, S Murray, Exponent Failure Analysis Associates, Inc., USA
- 3.06 Fire Hazard Caused By Thermal Degradation Of Organic Insulating Materials At Plug And Receptacle Connections [FM03]
Katsuhiko Okamoto, Norimichi Watanabe, Yasuaki Hagimoto, National Research Institute of Police Science, Japan
- 3.07 Full-Scale Arc Mapping Tests [FM05]
Larry West, EFI Global, and David Reiter, Verite Forensic Engineering, USA
- 3.08 Arc Fault Analysis: Post Flashover Studies of the Power Cord [FM07]
Lester Rich, Forensic Fire Analysis and W Johnson, Core Engineering Inc, USA
- 3.09 Conditions that Can Cause Upper Thermal Limits on Residential Wiring to be Exceeded [FM07]
John Shea, Eaton Corporation, USA
- 3.10 Short-Circuit Faults In Electrical Cables And Cords Exposed To Radiant Heat [FM03]
Yasuaki Hagimoto, Norimichi Watanabe, Katsuhiko Okamoto, National Research Institute of Police Science, Japan
- 3.11 Fire Causes In Electrical Plugs [IFL01]
Yasuaki Hagimoto, Norimichi Watanabe, Katsuhiko Okamoto, National Research Institute of Police Science and Hideki Sato, Research Institute of Scientific Investigation, Japan
- 3.12 Flammability of Electrical Crimp Connectors Subjected to Heating [FM07]
Scott Davis, A Ibarreta, Exponent Failure Analysis Associates, Inc., USA
- 3.13 An Experimental Study Of Materials Exposed To Electrical Resistance Heating As Potential Cause Of Fires [FM01]
Kevin Brown, Joseph Zicherman, Frank Hsu, Fire Cause Analysis Inc, USA
- 3.14 TV Sets As Incendiary Device [FM07]
Herve Breulet, ISSeP and J Hotte, LER, Belgium

4. IGNITABLE LIQUIDS

- 4.01 Petrol Vapour Explosion—A Reconstruction [IFL99]
Roger Ide, Forensic Science Investigations, UK
- 4.02 The Influence Of Temperature, Pool Size, And Substrate On The Evaporation Rates Of Flammable Liquids [IFL99]
John DeHaan, Fire-Ex Forensics Inc, USA
- 4.03 Combustion Of High Flash-Point Materials [FM01]
Hirsoshi Koseki, Yasutada Natsume, Yusaka Iwata, National Research Institute of Fire and Disaster NRIFD, Japan

- 4.04 The Extent of Evaporation of Ignitable Liquids Under Exposure to Compartment Fires, Non-Fire Thermal and Non-Thermal Environments [FM07]
Jamie Ferrino-McAllister, R Roby, D Carpenter, Combustion Science & Engineering, Inc, USA and J Torero, University of Edinburgh, UK
- 4.05 Burning Characteristics Of Heptane And Methanol Pool Fires [FM01]
Marc Janssens, University of North Carolina, S Dillon, Bureau of Alcohol, Tobacco, and Firearms Shawn Allwein, Southwest Research Institute, USA
- 4.06 Fire Behaviour Of Flammable Products In Plastic Bottles And Aerosol Cans [IFL99]
Marina Milovancevic, SP Fire Technology, Sweden
- 4.07 Case Studies: Exploding Portable Gasoline Containers [FM07]
Lori Hasselbring, Stress Engineering Services, Inc., USA
- 4.08 Flammability Of Hydraulic Fluid Under Pressure: Real-Scale Simulation Of A Fire Accident [FM03]
Art Grand, Grand Fire Consulting, Jesse Beitel, Hughes Associates and W Black, Georgia Institute of Technology, USA
- 4.09 Outgassing Phenomenon In Flash Point Testing For Fire Safety Evaluation [IFL04]
Gregory E. Gorbett, Kathryn C. Kennedy and Patrick M. Kennedy, John & Kennedy & Associates, Inc., USA
- 4.10 Fraction Vaporization of Ignitable Liquids - Flash Point and Ignitability Issues [FM07]
Patrick Kennedy, John A Kennedy & Associates and Andrew Armstrong, Armstrong Forensic Laboratory, USA

5. FIRE CHARACTERISTICS OF SOLID MATERIALS

- 5.01 Ignition characteristics of various fire indicators subjected to radiant heat fluxes [FM03]
Frederick Mowrer, University of Maryland, USA
- 5.02 Ignition of Wood – A Review Of The State Of The art [IFL01]
Vytenis Babrauskas, Fire Science and Technology Inc, USA
- 5.03 Prudent Practices for the Design and Installation of Heat-Producing Devices near Wood Materials [FM07]
Vytenis Babrauskas, Fire Science and Technology Inc., USA, B Gray, BF Gray Combustion and Scientific Consultants, Australia, and M Janssens, SwRI, USA
- 5.04 Charring Rate Of Wood As A Tool For Fire investigations [IFL04]
Vytenis Babrauskas, Fire Science and Technology Inc, USA
- 5.05 The Effect Of “Blistering” On The Ignition And Flammability Of Painted Gypsum Wallboard [FM01]
Frederick Mowrer, University of Maryland, USA
- 5.06 Fire performance of IT equipment studied in the furniture calorimeter [IFL01]
Donald Bliss, National Association of State Fire Marshals, USA and M Simonson, SP Fire Technology, Sweden
- 5.07 Fire Performance Of Flame Retarded Polymers Used In Consumer Electronics [FM05]
Matthew Bundy and Thomas Ohlemiller, National Institute of Standards and Technology, USA

- 5.08 Cone Calorimeter Testing of UL-94V Rated Plastics: Effects of Heat Flux and Sample Thickness [FM07]
Alex Morgan, University of Dayton Research Institute and Matthew Bundy, NIST, USA
- 5.09 Fire induced failure of polycarbonate windows in railcars [FM03]
Steve Strege, Brian Lattimer, Craig Beyler, Hughes Associates, USA
- 5.10 Fire Hazard Associated With Passenger Cars And Vans [FM03]
Marcelo Hirschler, GBH International, Donald Hoffman, John Hoffman and Elizabeth Kroll, Safety Engineering Laboratories, USA.
- 5.11 Aging Properties Of Fire Protection Materials [FM01]
Richard Licht, 3M Fire Protection Products, USA

6. METALLURGY

- 6.01 Influence Of Overcurrent And Heat On Tin Coated Copper Fuse elements [FM05]
Elizabeth Buc, Fire Safety Engineering Labs, USA
- 6.02 Failure Analysis Of Brass Connectors Exposed To Fire [IFL04]
Elizabeth Buc, Fire Safety Engineering Labs, and J. Finch, Masco Corp. USA

7. SELF-HEATING AND SPONTANEOUS COMBUSTION

- 7.01 Interpretation Of Small Scale Test Data For Industrial Spontaneous Ignition Hazards [IFL01]
Brian Gray, Combustion and Scientific Consultants and Macquarie University, Australia
- 7.02 The Fire And Explosion Hazards Of Dried Sewage Sludge [IFL01]
SJ Manchester, Fire and Risk Sciences, BRE, UK
- 7.03 Autoignition Behavior Of Oiled And Washed Cotton Towels [FM05]
Kevin Gaw, Schaefer Engineering Corp., USA
- 7.04 Evaluation of the Exothermic Properties of Hops by Low Temperature Oxygen Method [FM07]
Patrick Phelan, J White, Western Fire Center Inc, D Hysert, S Garden, John I Haas Inc and B Cuzzillo, Berkeley Engineering & Research, USA
- 7.05 The Role Of Self-Heating In The Estimation Of Kinetic Constants For Thermally Unstable Materials Using Differential Scanning Calorimetry (DSC) [IFL04]
Brian F. Gray, Firehusk Pty Ltd., and C. Macaskill, University of Sydney, Australia
- 7.06 Spontaneous Ignition of Wood Chips by Fermentation [FM07]
Hiroshi Koseki, Xin-Rui Li, Nat Research Inst of Fire & Disaster, Japan
- 7.07 An Experimental Study of Spontaneous Ignition in Storages of Wood Pellets [FM07]
Per Blomqvist, H Persson, P van Hees, SP Fire Technology, G Holmstedt, U Göransson, L Wadsö, Lund University and M Sanati, K Rugar-Gadd, Växjö University, Sweden

8. MODELING, TESTING, CASE HISTORIES

- 8.01 The SP Investigation Of The Discotheque Fire In Göteborg 1998 [FM03]
Ulf Wickström, Hakur Ingason, Patrick Van Hees, SP Fire Technology, Sweden
- 8.02 Fire Spread Through A Room With Polyurethane Foam Covered Walls [IFL04]
William Grosshandler, Daniel Madrzykowski, Nelson Bryner and David Stroup, National Institute of Standards and Technology, USA

- 8.03 Fire Investigation Using CFD: Simulations Of A Fire In A Discotheque
Ricky Carvel and James Lygate, International Fire Investigators & Consultants, UK
- 8.04 Reconstruction Of The Fire In “de Hemel” in Volendam, New Year’s Eve 2000/2001
[IFL04]
Peter van der Leur, DGMR Consulting Engineers, S Öhlin Lostetter, and P. Reijman, TNO Centre for Fire Research, The Netherlands
- 8.05 Use Of Zone And Field Models For The Fire Investigation Of The Switel Hotel fire (Antwerp 1994) [IFL99]
Patrick Van Hees, Heimo Tuovinen, Bror Persson, SP Fire Technology, Sweden and Willy Geysen, Katholieke Universiteit Leuven, Belgium
- 8.06 Investigation Of An Apartment Fire [FM05]
Dong-gun Nam, Yuji Hasemi, and D. Kamikawa, Waseda University, Japan
- 8.07 Reconstruction Of An Arson Hospital Fire [FM07]
Tommy Hertzberg, P Blomqvist, H Tuovinen, SP Fire Technology, Sweden
- 8.08 Fire and explosion in an automobile paint drying oven [IFL04]
Keith Moodie, Health and Safety Executive, UK, and James Venart, University of New Brunswick, Canada
- 8.09 Investigation on a Train Coach Fire. Experimental and Modeling Issues for the Fire Dynamics Reconstruction [FM07]
Alberto Tinaburri, C D'Angelo, F Alaimo Ponziani, Ministry of the Interior, Italy
- 8.10 Medium-Scale Fire Experiments Of Commercial Premises [FM05]
Ehab Zalok, Carleton University, Alex Bwalya, National Research Council and George Hadjisophocleous, Carleton University, Canada
- 8.11 A Case Study of Two Shiploader Fires in a Coal and Pet Coke Export Facility [FM07]
Ali Reza, R Carnahan, B Dracup, B Ross, Exponent Failure Analysis Associates, Inc., USA
- 8.12 Simulation of a Residential Bedroom Fire to Evaluate and Compare Burn Patterns and Damage [FM07]
Brian Grove, D Opperman, ATF, National Laboratory Center, USA
- 8.13 The Value Of Fire Tests In Fire Investigation [IFL99]
James Lygate, International Fire Investigators and Consultants, UK
- 8.14 Interpretation Of Evidence At The Fire Scene: The Importance Of Fire Dynamics [IFL99]
Dougal Drysdale, University of Edinburgh UK & S E Hamilton, Forensic Focus, Hong Kong
- 8.15 Simulation Of Ventilation Controlled Room Fires [IFL99]
Silke Löffler, Kriminaltechnisches Institut des Bundeskriminalamtes, Germany
- 8.16 Study On Effect Of Opening Location On The Occurrence Of Backdraft [IFL04]
Wenguo Weng, Weicheng Fan, University of Science and Technology, China, and Yuji Hasemi, Waseda University, Japan

- 8.17 Experimental And Simulated Analysis Of Room Fire Theory For Forensic Applications [FM05]
Peter Senez and K. Calder, Senez Reed Calder Engineering Ltd., Canada
- 8.18 Full-Scale Analysis on Fire Characteristics of a Furnished Office Room [FM07]
Ta-Hui Lin, C-W Wu, National Cheng Kung University, K-J Chen, C-M Lai, Leader University and C-J Chen, M-J Tsai, H-C Su, Ministry of Interior, Taiwan
- 8.19 Fire Performance Of Personal Computers And Fire Hazard In A Home And In A Small Office [IFL04]
Marcelo Hirschler, GBH International, USA
- 8.20 Estimating The Performance Of Enclosure Fire Models By Correlating Forensic Evidence Of Accidental Fires [IFL04]
A. Carlos Fernandez-Pello, G. Rein, A. Bar-Ilan, University of California, and Normal Alvares, Fire Science Applications, USA

9. FIRE DEBRIS ANALYSIS

- 9.01 Analysis Of Fire Debris – Methods And Quality Assurance [IFL01]
Silke Löffler, Bundeskriminalamt and Ernst Rüdiger, Landeskriminalamt Baden-Württemberg, Germany
- 9.02 A New Approach To The Detection Of Accelerants At The Scene Of An Arson [IFL01]
Shigeki Takeuchi, Toshihiro Fuwa, Kunio Fukuyama, Forensic Science Laboratory and Shoji Nitta, Gifu University, Japan
- 9.03 Canine Accelerant Detectors As Part Of The Fire Investigation Team [IFL01]
Silke Löffler, Kriminaltechnisches Institut des Bundeskriminalamtes, Germany
- 9.04 Collecting Accelerant Residues from Concrete [FM07]
Noel Putaansuu, D Mann, MDE Inc., USA

10. MISCELLANEOUS TOPICS

- 10.01 Overview Of The Arson And Explosives National Repository Branch, A Valuable Resource For Today's Fire And Explosion Accident Investigator [IFL01]
Joseph Bertoni, Bureau of Alcohol, Tobacco, and Firearms, USA
- 10.02 Ignition Propensity And Heat Flux Profiles Of Candle Flames For Fire Investigation [FM03]
Scott Dillon, Bureau of Alcohol, Tobacco and Firearms and Anthony Hamins, BFRL/NIST, USA
- 10.03 Fire Investigation Of Clandestine Marijuana Grow Operations [FM05]
Chris Reed and Albert Reed, Senez Reed Calder Engineering Ltd., Canada
- 10.04 Lightning-Induced CSST Fires [FM05]
Mark Goodson and Mark Hergenrether, Goodson Engineering, USA
- 10.05 Fire Analysis Tool Revisited: Acoustic Soot Agglomeration In Residential Smoke Alarms [IFL04]
Kathryn C. Kennedy, Gregory E. Gorbett and Patrick M. Kennedy, John & Kennedy & Associates, Inc., USA