



2008 Annual Fire Conference

March 31 - April 2, 2008

National Institute of Standards and Technology (NIST)
100 Bureau Drive Gaithersburg, MD 20899 USA

“How Have Fires Changed in the Past 50 Years”

Monday, March 31, 2008		
7:45 am	Conference Bus from Holiday Inn to NIST	
8:00 am	Registration and Poster Setup (Red Auditorium Poster Hallway) Red Auditorium, Building 101	
8:20 – 8:30 am	Welcoming Remarks	
8:30 - 9:00 am	Keynote Address (Red Auditorium) How Has Fire Retardancy Changed Over Time, C. A. Wilkie, Marquette University	
	Breakout Session A – Lecture Room A, Building 101	Breakout Session B – Lecture Room B, Building 101
9:00-10:00	Egress (Chair J. Averill, NIST)	Materials Flammability I (Chair M. Nyden, NIST)
9:00	Egress Data , Jason Averill Coffee/Fruit/Muffins	Reduced Risk of Fire Spread – J. Gilman Coffee/Fruit/Muffins
9:20	The Importance of Reliably Collecting and Employing Egress Data, S.M.V. Gwynne	Characterization of the Kinetic of Decomposition of Polyether Polyurethane Foam – A Way for Finding Input Data for Fire Simulations –L. B. Valencia et.al
9:40	The Need for Behavioral Theory in Evacuation Modeling, Erica Kuligowski	Flexible Polyurethane Foams: Flammability Reduction via Carbon Nanofiber Network Formation- Zammarano
10:00	Modeling Egress, Paul Reneke	Flame Resistant Shape Memory Polymer Nanocomposite Foam – S.C. Arzberger
10:20 – 11:00	Poster Presentation & Discussion – C. Wilkie, J. Averill, & J. Gilman Coffee Break	
11:00 – 12:00	Fire Structure Interaction I (Chair –K. Prasad, NIST)	Materials Flammability II (Chair J. Gilman, NIST)
11:00	Fire Structure Interaction , K. Prasad	New Directions in Nanocomposite-Based Fire Retardant Additives for Polymers – C. Manzi-Nshuti
11:20	Behavior and Stability of Steel Columns and Building Structures Under Fire Loading – A.H. Varma	Flame Retarding Polyamide 6 with Melamine Cyanurate and Layered Silicates- M. Lewin
11:40	Modeling the Behavior and Capacity of Steel Beam-Columns with Thermal Gradients in High-Rise Building Frames under– S.E. Quiel	Exploiting synergies between high aspect ratio nanoparticles and flame retardant formulations for rendering polymer blends flame retardant – S. Park
12:00	Panel Discussion – Material Flammability/Pyrolysis of Materials – R. Lyons, M. Nyden, & U. Sorathia Lunch	



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1:30 – 2:00	Keynote Address (Red Auditorium) Flammability Requirements in Commercial Aviation: A Historical Perspective, Rich Lyon, FAA	
2:00 -3:00	Fire Structure Interaction II (Chair -)	Materials Flammability III
2:00	Effect of High Temperature Creep and Fire Scenario on the Response of Steel Beam-Columns- M.M.S. Dwaikat	Synthesis and characterization of deoxybenzoin-containing halogen-free, low flammable polymers –T. Ranganathan
2:20	Fundamental Behavior and Stability of Columns Subjected to Standard Fire Loading: Experimental Investigations and Numerical Simulations - Sangdo Hong, et al	Polyacrylonitrile/Carbon Nanotube Composite Fibers – R. Jain
2:40	Behavior of single plate steel connections subject to various fire scenarios –S. Selamet	Thermal Boundary Conditions Effects on Polymer Degradation using a Population Balance Formalism – O. A. Ezekoye
3:00 – 3:40	Poster Presentation & Discussion – S. Manzello, A. Varma, & J. Yang Coffee Break	
3:40 -5:00	Fire Structure Interaction III (Chair -)	Hydrogen (Chair J. Yang, NIST)
3:40	Tests of loaded reinforced concrete frames in fire – G.A. Hoang	Ignition Propensity of Hydrogen in the Presence of Metal Surfaces – C.J. Sung
4:00	Furnace Testing of Full-Scale Gypsum Steel Stud Non-Load Bearing Wall Assemblies: Results of Multi-Laboratory Testing in Canada, Japan, and USA –S.L. Manzello	Fire Risks of Hydrogen Leaks – P.B. Sunderland
4:20		Hydrogen Fire Safety at NIST, J.C. Yang
4:40	End	



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7:45 am	Conference Bus from Holiday Inn to NIST	
8:00 am	Registration and Poster Setup (Red Auditorium Poster Hallway) Red Auditorium, Building 101	
8:20 – 8:30 am	Administrative Notes N. Bryner, Conference Co-Chair	
8:30 - 9:00 am	Keynote Address (Red Auditorium) N-Class Fire Resistant Divisions in US Naval Ships, U. Sorathia	
	Breakout Session A – Lecture Room A	Breakout Session B – Lecture Room B
9:00-10:00	Pyrolysis of Materials I (Chair – U. Sorathia) Coffee/Fruit/Muffins	Wildland Urban I (Chair A. Maranghides, NIST) Coffee/Fruit/Muffins
9:00	Parametric Analysis of Polymer Gasification – G. Linteris	Modeling Wildland and Wildland-Urban Interface Fire- R. Mell
9:20	Measuring Heats of Gasification Using Differential Scanning Calorimetry – R.N. Walters	Feature Extraction in the Wildland Urban Interface: A Case Study for Coupling Geographic Information Systems with the Wildland Fire Dynamics Simulator- D. McNamara
9:40	Concurrent-flow Flame Spread and Extinction over Solid Fuels- J.S. T'ien	The Role of Fire Whirls on Wildland/Urban Fire Interaction- K. Saito
10:00 – 10:40	Poster Presentation & Discussion – W. Mell, A. Maranghides, & M. Jenkins Coffee Break	
10:40 – 12:20	Pyrolysis of Materials II (Chair M. Nyden, NIST)	Wildland Urban II (Chair R. Mell, NIST)
10:40	Modeling Melt Flow from Thermoplastic Objects in Fire – K. Butler	The Importance of LES Approach to Coupled Wildfire/atmosphere modeling, M. Jenkins
11:00	Finite Element Decomposition Model for Reinforced or Charring Materials – P. Summers	Analytical Modeling of Drying, Ignition and Flame Travel on Building and Landscape Objects in Changing Environments – M. Dietenberger



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11:20 – 12:20	Fire Modeling I (Chair -)	
11:20	Verification, Validation, and Uncertainty/Sensitivity Studies of Fire Modeling at Sandia National Laboratories – V. Romero	Investigation the Vulnerabilities of Structures to Ignition From a Firebrand Attack – S. L. Manzello et al
11:40	Full-Scale Ventilation-Limited Compartment Fire Measurements for Field Model Validation- A.Lock	Flammability Characteristics of Landscape Mulches – A. Long
12:00	“Corkscrew” plume for near wall fire in arch ceiling road tunnel – L.H. Hu	Fire Behavior at the Wildland Urban Interface - Post Fire Damage Assessment – A. Maranghides
12:20	Panel Discussion – Using Fire Models to Reconstruct Structure Fires – K. McGrattan, M. Salley, & N. Dembsey Lunch	
1:30 -2:00	Keynote Address (Red Auditorium) Profiles of Disaster: A 50 Year Legacy - Casey Grant, NFPA Research Foundation	
2:00-3:00	Fire Modeling II (Chair - K. McGrattan, NIST)	
2:00	Failure Modes of Fire Damaged Cable, Mark Salley, NRC	Advanced Fire Fighting Technology- N. Bryner
2:20	Fire Modeling verification and Validation – J. Floyd	Performance of Thermal Imaging Cameras In High Temperature Environments – M. Donnelly
2:40	Development of Guidelines for Obtaining Material Parameters for Input into Fire – N. Dembsey	RFID Tag – High Temperature Exposure – J. Lawson
3:00 – 3:20	Poster Presentation & Discussion – F. Amon, N. Bryner, & J. Lawson Coffee Break	
3:20- 4:20	Fire Modeling II (Chair G. Forney, NIST)	
3:20	A novel domain decomposition strategy for low-speed hydrodynamics – R. McDermott	Experimental Study of Grid Ceiling Effect on Water Density Distribution of Automatic Sprinkler System – B. Yao
3:40	Experimental study on the axis-symmetric plume centerline temperature of square pool fires in the 27 m high USTC/PolyU Atrium – L. H. Hu	Water Density Distribution and Fire Control Capabilityof Auto-Regulative Water Gun – B. Yao
4:00	Species Profiles in Fuel Rich Cores of Methanol Fires and Their Impact on Radiation Transport in Fires- A. Yilmaz	
4:20	End	



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8:20 – 8:30 am	Administrative Notes J. Gilman, Conference Co-Chair	
8:30 - 9:00 am	Keynote Address (Red Auditorium) Yep, Them Was The Good Ol' Days... W. Powell, Marriott Corp.	
	Breakout Session A – Lecture Room A	
9:00-10:00	Fire Fighting Technology I	
9:00	UPS Flight 1307: A Study of In-flight Cargo Fires and Fire Fighting Technologies- N. B. McAtee Coffee, Fruit, & Muffins	
9:20	A Practical Approach for Tracking Stability Loss in Damaged Buildings- Z. Duron	
9:40	PASS Device – Muffling Metrics – J. Lawson	
10:00 – 10:40	Poster Presentation & Discussion – N. Bryner, S. Kerber, & R. Lawson Coffee Break	
10:40 – 11:40	Fire Fighting Technology III	
10:40	Analysis and Simulation of Flow Processes into Wall Voids associated with Room Pressurization – C.M.Beal	
11:00	Wind Driven Fire – D. Madrzykowski	
11:20	Positive Pressure Ventilation – High Rise – S. Kerber	
11:40		
12:00	End of Conference Wrap-Up	