

TIME	AGENDA	SPEAKER
09:00 - 09:10	Welcome/Introduction	
Theme: Fire Retardant Developments		
Sub Theme: Gas Phase Flame Inhibition (FRG) Session Chairs: Prof. John R.Ebon and Prof. Bob Howell		
09:10 - 09:40	Plenary FRG-P	C-E.Wilén: New Developments in Fire Retardants: Radical Generators as Halogen Free Fire Retardants
09:40 - 10:00	FRG-1	S.Gaan: Transformation of DOPO to Useful Flame Retardant Additives
10:00 - 10:20	FRG-2	D.Goedderz: Halogen-free Flame Retardant Formulations containing Disulfide Compounds for Polystyrene and Poly(ethylene terephthalate) applications
10:20 - 10:40	FRG-3	A.Leipold: Novel Radical Generators as High-Performance Flame Retardants for Polyolefins
10:40 - 11:10	Coffee	
Sub Theme: Hybrid Fire Retardant Systems (FRH) Session Chairs: Dr. Sabyasachi Gaan and Dr. Anna A. Stec		
11:10 - 11:30	FRH-1	B.Fei: Synthesis and Application of Synergistic Azo-boron / Polydopamine Flame Retardants in Poly(lactic acid)
11:30 - 11:50	FRH-2	L.Chen: A Novel Organophosphorus Hybrid for Flame Retarding Semi-Aromatic Polyamide
11:50 - 12:10	FRH-3	D.Pospiesch: Exploring the Suitability of Phosphorus-containing Polyesters to Improve the Flame Retardancy of Poly(butylene succinate)
12:10 - 12:30	FRH-4	M.Doering: Flame Retardant Polystyrene Foam Based Hybrid Material
12:30 - 13:30	Lunch	
Session Chairs: Prof. A. Richard Horrocks and Dr. Fouad Laoutid		
13:30 - 14:00	Plenary FRH-P	Y.Hu: New Developments in Fire Retardants: Inorganic-Organic Hybrid Fire Retardants
14:00 - 14:20	FRH-5	S.Tretsiakova-McNally: Thermal and Combustion Characteristics of Polyacrylonitrile Containing Covalently-bound Phosphonate Group
14:20 - 14:40	FRH-6	G.Fontaine: Metal-Organic Frameworks: New Fire Retardant for Polymeric materials
14:40 - 15:00	FRH-7	Z.Fang: Application of Carbon Nano-fillers in Flame Retardant Polymers
15:00 - 15:30	Coffee	
Sub Theme: Current and Future Changes (FRC) Session Chairs: Prof. Sophie Duquesne and Prof. Sheng Zhang		
15:30 - 16:00	Plenary FRC-P	Y-Z.Wang: New Developments in Fire Retardants: Halogen-free Polymeric Fire Retardants
16:00 - 16:20	FRC-1	C.Schultheis: Halogen-free Flame Retarded Plastics: A Demanding Challenge in Recyclability?
16:20 - 16:40	FRC-2	A.Beard: The Quest for Safe and Sustainable Flame Retardants: Where do we Stand 10 Years after Introducing REACH?
16:40 - 17:00	FRC-3	R.Yang: New Nano Approach in Flame Retardancy of Polymer Materials
17:00 - 17:20	1 minute poster introductions	

TIME	AGENDA	SPEAKER
Theme: Fire Retardant Mechanisms (MECH) Session Chairs: Prof. Manfred Döring and Prof. Yu-Zhong Wang		
09:00 - 09:30	Plenary MECH-P	B.Schartel: Flame Retardant Modes of Action
09:30 - 09:50	MECH-1	L.Ferry: Influence of Bubbling on Radiative Properties and Ignition of PMMA
09:50 - 10:10	MECH-2	A.Lorenzetti: Fire Behaviour Of Polyisocyanurate Foam: The Need To Find A Trade-Off Between Isocyanurate And Aromatic Content
10:10 - 10:30	MECH-3	D-Y.Wang: Functionalization of Nanomaterials vs Time to Ignition of Polymeric Materials
10:30 - 11:00	Coffee	
Theme: FR Coatings & Textiles (C&T) Session Chairs: Prof. A. Geoff Gibson and Prof. Jaime Grunlan		
11:00 - 11:30	Plenary C&T-P	S.Bourbigot: New Developments in FR Coatings and Textiles
11:30 - 11:50	C&T-1	F.Carosio: Flame Retardancy Achieved Through Multilayers of Highly Aligned Nanoplatelets
11:50 - 12:10	C&T-2	M.Ghanadpour: Phosphorylated Cellulose Nanofibrils for the Preparation of All-Cellulose Flame-Retardant Thin Films
12:10 - 12:30	C&T-3	S.Eivazi: A Novel Sol Gel Treatment for Cotton Fabrics that Achieves Durable Self-Extinguishability and Barrier Properties
12:30 - 13:30	Lunch	
Session Chairs: Prof. Serge Bourbigot and Dr. Shonali Nazare		
13:30 - 13:50	C&T-4	S.Giraud: Lignin/Phosphinate/PA11 Composite: A Renewable & Sustainable Intumescent Flame Retardant System for Textile Application
13:50 - 14:10	C&T-5	S-C.Chang: Develop Innovative Approach to Cotton-based Flame Retardant Properties
14:10 - 14:30	C&T-6	J.Grunlan: Water-Based Flame Retardant Nanocoatings from Environmentally-benign Ingredients
14:30 - 14:50	C&T-7	R.Hicklin: Developments in Flame Retardant Cotton
14:50 - 15:10	Coffee	
Theme: Fire Retardants and the Environment (ENV) Session Chairs: Prof. Giovanni Camino and Prof. Rongjie Yang		
15:10 - 15:40	Plenary ENV-P	S.Harrad: The Organic Flame Retardant Story: Knowns and Unknowns
15:40 - 16:10	ENV-1	A.A.Stec: The Fate of Phosphorus Flame Retardants in Fires
16:10 - 16:30	ENV-2	N.Santos: The IT Industry View on Flame Retardants
16:30 - 16:50	ENV-3	S.Kroon: Systematic Assessment for Flame Retardants (SAFR)
16:50 - 17:20	1 minute poster introductions	

TIME	AGENDA	SPEAKER
Theme: Biobased Fire Retardant Materials (BIO) Session Chairs: Prof. Carl-Eric Wilén and Dr. Mauro Zammarano		
09:00 - 09:30	Plenary BIO-P	G.Camino: Biobased Fire Retardant Materials
09:30 - 09:50	BIO-1	R.Mosurkal: Bio-derived Polyphenols as Flame Retardants
09:50 - 10:10	BIO-2	L.Fouad: Bio-based Flame Retardant Systems Based on Tannic Acid
10:10 - 10:30	BIO-3	J-M.Lopez-Cuesta: Thermal Stability and Fire Reaction of Poly(butylene succinate) Nanocomposites using Natural Clays and FR Additives
10:30 - 11:00	Coffee	
11:00 - 11:20	BIO-4	S.Zhang: Recent Progress on the Application of Bio-based Materials as Flame Retardants
11:20 - 11:40	BIO-5	B.Howell: Phosphorus Flame Retardants from a Non-edible Plant Oil
Theme: Testing, Characterisation and Modelling of Fire retardant Materials (TCM) Session Chairs: Prof. Gaelle Fontaine and Prof. Yuan Hu		
11:40 - 12:10	Plenary TCM-P	S.Stoliarov: Testing, Characterisation and Modelling of Fire Retardant Materials
12:10 - 12:30	TCM-1	G. Gibson: A Propane Burner Test to Characterise the Performance of Passive Fire Protection (PFP) Formulations
12:30 - 13:30	Lunch	
Session Chairs: Prof. Laurent Ferry and Priv. Doz. Dr. habil. Bernhard Scharrel		
13:30 - 13:50	TCM-2	R.N.Walters: Advances in Microscale Combustion Calorimetry and Application
13:50 - 14:10	TCM-3	M.W.Beach: Assessing the Flame Retardant Performance of Polymer Systems Based on Identification and Quantitation of Key Degradation Species using Evolved-Gas Analytical Techniques
14:10 - 14:30	TCM-4	J.Murrell: UK Requirements for Insulated Facades on High Rise Buildings
14:30 - 14:50	TCM-5	M.Zammarano: Correlation between Bench-scale and Full-scale Smoldering Tests for Residential Upholstered Furniture
14:50 - 15:20	Coffee	
Session Chairs: Dr. Doris Pospiech and Prof. Stanislav Stoliarov		
15:20 - 15:40	TCM-6	S.Nazare: Modified Sample Configuration for Assessing the Fire-Blocking Performance of Upholstery Materials Using a Cone Calorimeter
15:40 - 16:00	TCM-7	F.Raffan-Montoya: Augmentation of a Milligram-scale Flame Calorimeter with CO and CO ₂ Measurement Capabilities: Gas-phase Activity of a Brominated Flame Retardant in the Presence of Antimony Trioxide and Aluminium Di-ethyl Phosphinate
16:00 - 16:20	TCM-8	T.R.Hull: Enhancement of Intumescent Fire Retardancy - Subtle Changes but Large Effects
16:20 - 17:00	1 minute poster introductions	
19.00 Onwards	Conference Dinner: Town Hall -	A.R.Horrocks: Manchester, a City with over 2000 years of history

TIME	AGENDA	SPEAKER
09:00 - 09:10	Welcome/Introduction	
Theme: Fibre-reinforced composites: Reaction to fire (heat release, smoke and toxicity) of composites (C-RTF) Session Chair: Dr. Brian Lattimer		
09:10 - 09:40	Plenary C-RTF-P	R.E.Lyon: Fire Response of Fibre Reinforced Polymer Composites
09:40 - 10:00	C-RTF-1	P.Di Modica: Driving Innovation on Jet Fire Resistant Solutions: Searching for Alternative Materials and New Approaches
10:00 - 10:20	C-RTF-2	R.I.Ochs: CFRP Aircraft Skin Exposed to Fires in Simulated Hidden Areas of Aircraft Cabins
10:20 - 10:40	C-RTF-3	L.Schmidt: Prevention of the Formation of Respirable Fibres in Carbon Fibre Reinforced Epoxy Resins during Combustion
10:40 - 11:10	Coffee	
Session Chair: Prof. György Marosi		
11:10 - 11:30	C-RTF-4	S.Eibl: Flame Retarding Effects by Variously Orientated Fibres in Carbon Fibre Reinforced Plastic Materials
11:30 - 11:50	C-RTF-5	E.Schuhler: Fire Behaviour of Polymer Composite to Flame. Application to a Comparative Study of Thermoset- and Thermoplastic-based CFRP
11:50 - 12:10	C-RTF-6	G.Leplat: Extrapolation of Thermochemical Kinetics from Conventional Thermogravimetric Analysis at Very High Heating Rates for Composites
12:10 - 12:30	C-RTF-7	P.Tranchard: Modelling of the Behaviour of a Marine Composite in Fire
12:30 - 13:30	Lunch	
Theme: Fire resistant structures and new developments (C-FR) Session Chair: Dr. Richard Lyon		
13:30 - 14:00	Plenary C-FR-P	B.V.Lattimer: Considering Non-uniformity in Thermo-Mechanical Response of Composites during Fires
14:00 - 14:20	C-FR-1	C.Zhou: Designing Fire Resistant Lightweight Composites for Marine Applications
14:20 - 14:40	C-FR-2	B.Schartel: Fire Stability of Fibre Reinforced Polymer Composites: Sandwich Panels and Fuselage Shells
Sub Theme: FR Matrix/Fibre Materials (C-MF) Session Chair: Prof. Jose-Marie Lopez-Cuesta		
14:40 - 15:00	C-MF-1	S.Tang: Flame Retardant Effect of Boron Compounds and Phosphaphenanthrene Derivative on Epoxy Resin
15:00 - 15:30	Coffee	
15:30 - 15:50	C-MF-2	G.Marosi: Combined Phased Flame Retardancy of Bioepoxy Resins and Carbon Fibre Reinforced Composites
15:50 - 16:10	C-MF-3	S.Duquesne: Development of Low Weight Flame Retarded Unsaturated Polyester Laminates
16:10 - 16:30	C-MF-4	B.Kandola: Fire Resistant Natural Fibre-reinforced Composites from Flame Retarded Textiles
16:30 - 16:50	C-MF-5	M.Casetta: Influence of MDH Surface Treatment on the Fire Retardant Mechanism of Glass Fibre Reinforced Polyamide 6/MDH Formulations

ID	POSTER
P1	N. Eisenmenger: Evaluating Gas Phase Activity of Organophosphorus Compounds in Thermoplastic Elastomers using EGA/MS-PFPD
P2	N.Esmaeili: Study of the fates of zinc and tin in the thermal volatilization of zinc stannate in the presence of a brominated flame retardant
P3	A. Holdsworth: Nanoparticles and Flame Retardancy: Advances and Applications
P4	H.Li: Improving Flame Retardancy and Char Formation of Polystyrene Composites by Introducing Expandable Graphite
P5	S.S.Iqbal: Layered Inorganic Nanomaterials Coated Multiwalled Carbon Nanotubes Impregnated Polymeric Nanocomposites: Ablation, Fire Retardant, Thermal and Mechanical Properties
P6	A.Alkhalifeh: Thermal Characterization and Flammability of Form Stable Composite Phase Change Materials Incorporated Plasterboard for Thermal Energy Storage
P7	O. Koklukaya: Tailoring Flame Retardancy and Strength Properties of Paper Using Layer-by-Layer Technology
P8	Y-M.Li: A Novel High-Temperature-Resistant Polymeric Material for Cables and Insulated Wires via Ceramization of Mica-Based Ceramifiable EVA Composites
P9	E. Spiropoulou: Influence of Ammonium Polyphosphate on Fire Retardant Properties of Magnesium Hydroxide/Polyethylene Blends
P10	A. Korwitz: Using the combination of phosphorus polymers and nanocomposite concept to tailor the flame retardancy of polyesters
P11	Y.Zhang: Aqueous Self-assembly of graphene oxide and a core-shell flame retardant: toward multifunctional hybrid for polylactic acid
P12	H-B.Chen: Highly Efficient Flame Retardant Polyurethane Foam with Alginate/Clay Aerogel Coating
P13	X.Wang: Two-dimensional Inorganic Nano-materials as High Efficient Flame Retardants in Polymer Composites
P14	Y-T. Pan: Mesoporous Metal Oxide/Pyrophosphate Hybrid Crystals Originated From Reutilization Of Water Treatment Resin As Novel Flame Retardant To Flexible Poly(Vinyl Chloride)
P15	Z.Li: Natural Halloysite Nanotube Based Functionalized Nanohybrid Assembled via Slow Release Strategy: A Highly Efficient Way to Impart Flame Retardancy to Polylactide
P16	K. Salmeia: Effect of the Structure of Phosphorus Compounds on Flame Retardancy of Cellulose-Based Fibers
P17	D.H.Li: Synthesis And Application Of The Cyclotriphosphazene Derivatives Containing Pyridine Functional Groups
P18	C-C.Höhne: Intrinsic Flammability of Polyurethane Flexible Foams (poster presentation)
P19	A. Wirasaputra: High-performance Flame-retarded Polyamide-6 Fabricated by Chain Extension
P20	D.Ban: Fire Property of Polypropylene Modified by Phosphate Flame Retardant
P21	Y-P.Ni: Poly(Ethylene Terephthalate) Copolyester Containing Benzimidazole Structure: Synthesis, Thermal Properties and Combustion Behavior
P22	W-H. Rao: Flame Retardant Flexible Polyurethane Foam with Melamine Salt
P23	P.Wen: A Novel Triazine-Based Polymeric Flame Retardant: Preparation and Its Enhancement on Flame Retardancy of Polypropylene
P24	M.Günther: Bubbles And Collapses: Fire Phenomena Of Rigid Polyurethane Foams
P25	N.Roenner: Computational study of how hollow glass spheres and boron nitride fillers affect the Computational study of how hollow glass spheres and boron nitride fillers affect the

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P26	A.Turski Silva Diniz: Decomposition and Dripping under Fire: The Battle between Glass Fibres and Melamine Cyanurate in Polyamide 6
P27	E.T.Röchow: Thermal Degradation Mechanism Of Phosphonate Containing Methacrylate Based Copolymers
P28	J.Scoul: Different synthetic strategies for an efficient and wash durable flame retardant (FR) coating onto cellulose-based cotton fabrics
P29	M.Ayesh (A.R.Horrocks): Halogen-free, Durable Flame Retardant Textiles Using Novel Plasma/UV Technologies
P30	S.B.Poshteh: Synthesis and Characterization of Polyurethane Coatings with Improved Flame Retardency by Polyaddition with DOPO Derivatives
P31	K.Williams (J.R.Ebdon): Developing Fire Retardant Coatings for Thermoplastics Based on Poly(vinylphosphonic acid)
P32	S.Zhou: Novel UV-Curing Phosphorus/Nitrogen/Silicon-Containing Flame Retardant Coating with Significant Intumscent Effect
P33	X.Wang: Thermal Degradation and Flammability of Novel UV-Curing Intumscent Flame Retardant Coating Containing Phosphorus, Nitrogen and Boron
P34	R.Hajj: Comparison between two routes of grafting phosphorous flame retardants on flax fabrics
P35	T.Mayer-Gall: Polyphosphazenes as Halogen Free Flame Retardants for Textile Finishing
P36	B.Zhao: Flame Retardation of Cotton Fabrics Containing a Novel Intumescent Multi-hydroxyl Phosphamide
P37	Y.Liu: Fire Retardancy of Coated Cotton Fabrics with APTES, Chitosan and Sodium phytate by LBL Assembly
P38	F.You: Flame Retarding Effects of Nano-Micro Pure and Hybrid Sols on Fabrics
P39	W.Wang: Preparation of Sandwichlike Coating Consisting of Alternating Montmorillonite and Beta-FeOOH for Improving the Fire Safety of Flexible Polyurethane Foam
P40	S.Chatenet: Reaction to Fire of Electrical Cable in Underventilated Conditions
P41	F.Samyn: Extreme fire scenario at reduced scale
P42	A.M.Dhabbaha: Analysis of Fire effluents: PAHs Optimisation of Sampling and Analysis Methods
P43	M.Hassan: The Effect of MH Nanoparticles As Smoke Suppressant for ABS and Polystyrene
P44	W.Wang: The Influence of the REACH Regulation on New Developments in the Fire Retardant Industry in China
P45	G. Okyay: In-flame Soot Characterization From Balsa Sandwhich During Mass Loss Cone Calorimeter Tests
P46	K.Dickens: Identification of Volatile Organic Compounds from Building Insulation Materials
P47	W. Pawelec: Self-Heating of Industrial Powders
P48	N.Jones: Toxic and Eco-toxic Hazards of Large Plastic Waste Fires
P49	B.Howell: Phosphorus Flame Retardants from a Non-edible Plant Oil
P50	G.Sanchez-Olivares: Keratin Fibres Recovered from Tannery Industry Wastes as Fire Retardant Agent
P51	S.Oradei: New Eco-Friendly Intumescent PLA Based Materials
P52	S.Gómez Fernández: Effect of the combined use of layered double hydroxides, lignin and phosphorus containing polyol on the fire behavior of flexible polyurethane foams

ID	POSTER
P53	D.Vadas: Green Flame Retardancy of Microcellular Poly(lactic acid) Foams
P54	X.Hu: Studies on Preparation and Properties of a Novel Biobased Intumescent Flame Retardant with Nano-layered Structure
P55	C.Zheng: Cellulose fiber based insulation foams with improved reaction-to-fire properties
P56	R.Muthuraj: Evaluation of charring efficiency of melt-spun miscible raw lignin-polyamide blends as precursor systems for carbon fibres
P57	V.Biasi: A Post-Processing Toolbox for Kinetics and Energetics Analysis of Decomposing Composite Materials from TGA and DSC Measurements
P58	S.Lau: Influence Of Ferrocene On The Ignition Delay Time Of A Premixed Ethene / Air Flame
P59	S.Liang: Thermolysis Pathways Of Phosphororganics Under Oxidative Conditions
P60	F.Raffan-Montoya: Augmentation of a Milligram-scale Flaming Calorimeter with CO/CO ₂ Measurement Capabilities
P61	P.Bachelet: Scale reduction of SBI: Correlation Methodolgy Between the Standard and the Small Scale Test
P62	R.Bart: Mechanistic approach to enable modelled decomposition kinetics of intumescent systems
P63	S.Mckenna: A Comparative Study Of The Burning Behaviour Of Sofas With Different Fire Retardant Formulations
P64	A.Lyons: Release of Combustion Gases from Polyamide 6.6 in the ISO 19700 Steady State Tube Furnace
P65	O.El-Mahdy: Performance of FRP-Strengthened Reinforced Concrete Beams in Fire
P66	R.Chapple: Effects of impact and fire on carbon fibre composite laminates containing nano/micro additives: Methodology of capturing particles
P67	M.Delichatsios: Characterisation of Flammability and Fire Resistance of Carbon Nanofiber Reinforced Thermoset and Thermoplastic Composite Materials
P68	L.Qian: Flame Retardancy Effects of Epoxy Resin Composites Based on Different Phosphaphenanthrene Compounds
P69	A.Laachachi: Is Expanded Graphite acting as Flame Retardant in Epoxy Resin?
P70	X.Liu: An Efficient Flame Retardant for Epoxy Resin toward High Flame Retardancy and Enhancing Mechanical Properties
P71	Y.Xu: A Novel Thermal Latent Flame-retardant Curing Agent for Epoxy Resins
P72	D.Zhao: Improving Thermal Properties and Flame Retardancy of Unsaturated Polyester via Introducing a Novel Thermo-Crosslinkable Organophosphorus Oligomer
P73	A.Battig: Hyperbranched Polyphosphoesters, -(di)amidates and -amides as Novel Flame Retardants for Epoxy Resins
P74	R.K.Jian: Low-flammability Epoxy Resin with Strengthened Mechanical Properties Drived by Aminobenzothiazole-modified DOPO
P75	S.Hu: Flame retarding properties of piperazine pyrophosphate in glass fiber reinforced PA6
P76	J.Liu: Self-assembly of SnO ₂ Nanowires on MnO ₂ Nanosheets: A Novel 1/2D Hybrid Architecture for Reducing Fire Hazards of Epoxy Nanocomposites
P77	A.Lemattre: Fire Behaviour of Halogen-Free Unsaturated Polyester Formulations
P78	R.Spogli: PolyCE - Post-Consumer High-tech Recycled Polymers for a Circular Economy
P79	M.Modesti: Fire Performance of PIR Foams with Very High -NCO Index