FRPM 2023

EUROPEAN MEETING ON
FIRE RETARDANT POLYMERIC MATERIALS
26. – 29.6.2023 ZURICH SWITZERLAND

Empa
Materials Science and Technology

19th European meeting on Fire Retardant Polymeric Materials (FRPM23)

26 – 29 June 2023
Empa-Akademie
8600 Dübendorf, Switzerland

www.frpm-23.org
frpm23@empa.ch

CONFERENCE PROGRAM

DIRECTIONS

Main connections to the Empa location in Dübendorf (extensive)

Empa
Materials Science and Technology

Überlandstrasse 129
CH-8600 Dübendorf
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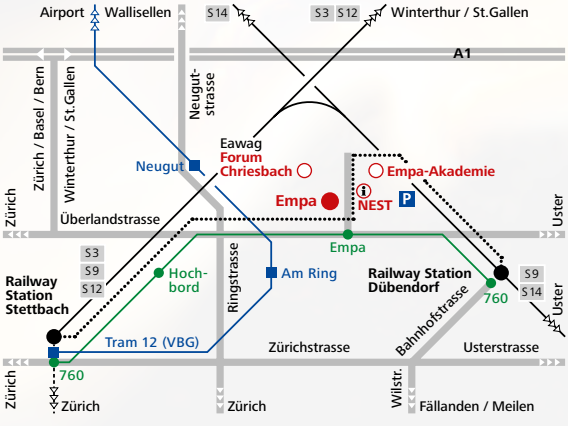
Fax +41 58 765 11 22
www.empa.ch

Address for GPS/sat nav:
Eduard-Amstutz-Strasse,
8600 Dübendorf

February 2022

Please do use public transport.
There is only very limited parking available.



February 2022

CONFERENCE PROGRAM (AT A GLANCE)

	Monday June 26	Tuesday June 27	Wednesday June 28	Thursday June 29	
07:45		Registration 7:45-8:15	Registration 7:45-8:10	Registration 7:45-8:10	
		Opening ceremony 8:15-8:40	Talk on European green deal 8:10-8:35	Session 9.1 8:10-9:55	Session 9.2 8:10-10:15
		Session 1 8:40-9:55	Session 5 8:35-10:15		
		Poster session 1 9:55-10:15		Coffee break 9:55-10:25	Coffee break 10:15-10:45
		Coffee break 10:15-10:45	Coffee break 10:15-10:45		
		Session 2 10:45-12:20	Session 6 10:45-12:30	Session 10.1 10:25-12:20	Session 10.2 10:45-12:20
12:00		Poster session 2 12:20-12:40		Lunch 12:20-13:10	
		Lunch 12:40-13:30	Lunch 12:30-13:20		
		Session 3 13.30-15:15	Session 7 13:20-14:55	Session 11 13:10-14:55	
		Poster session 3 15:15-15:35	Coffee break 14:55-15:05	Coffee break 14:55-15:25	
		Coffee break 15:35-16:05	Session 8 15:05-16:00	Session 12 13:10-16:40	
		Session 4 16:05-17:40	Transfer to UTO Kulm 16:00-18:00	Final remarks and pinfa awards	
17:00	Registration 17:00-18:30				
		Poster session 4 17:40-18:00			
	Welcome reception Cultural entertainment 18:30-21:00	Poster exibithion with chocolate tasting at NEST 18:00-20:00	Gala Dinner in association with Clariant at UTO Kulm 18:00-22:30		
22:30					

SOCIAL PROGRAM

REGISTRATION & WELCOME RECEPTION

June 26 | Monday

Empa-Akademie

Yodeling is a form of singing that involves singing with repeated changes in pitch from the chest register to the head register. Yodeling uses sounds and not words with meaning. It is used in mountainous and inaccessible regions where natural yodeling communication forms have developed in order to communicate from one hill to the other or to bring in the cows. We are very honored and excited to welcome the Jolderklub Teufen. Wearing the traditional Appenzeller "Tracht", this group will treat us to traditional Swiss yodeling.

POSTER SESSION WITH CULTURAL EVENT

June 27 | Tuesday

NEST

Taste some Swiss Chocolate while viewing exciting posters. During the poster session, Konditerei-Café Kunz, a family-run business from the Toggenburg region will treat us to a chocolate tasting. Learn interesting facts while enjoying different types of chocolate. If you need a gift or just want to treat yourself, Konditorei-Café Kunz will have a selection of gift chocolates for sale which will easily fit into your suitcase. Please note that credit card payments as well as Swiss Francs are accepted.

GALA DINNER IN ASSOCIATION WITH CLARIANT

June 28 | Wednesday

UTO-Kulm, Top of Zurich

Come and enjoy a pre-dinner drink while listening to traditional Swiss alphorn players. The Alphorn originated in prehistoric times and various versions of it can be found all over the world. The alphorn can produce a limited series of natural tones. Playing this instrument has changed very little from its inception and has become a Swiss tradition. We are honored and excited that the Alphornbläser Vereinigung Zürich-Stadt will open the Gala Dinner evening with the lovely ring of the Alphorns. In their traditional garb, the group will treat us to their repertoire of typically Swiss melodies.

TECHNICAL CONFERENCE PROGRAM

DAY 1

June 26 | Monday

17h00 – 19h00 **REGISTRATION**
Empa-Akademie

18h30 – 21h00 **WELCOME RECEPTION**
Welcome by
Dr. Peter Richner, Deputy Director Empa
Dr. Sabyasachi Gaan, Conference Chair

DAY 2

June 27 | Tuesday

08h15 – 08h40 **OFFICIAL WELCOME**
Prof Dr. Tanja Zimmermann, Director Empa
Dr. Sabyasachi Gaan, Conference Chair

SESSION 1
Sustainability in Flame Retardant Materials (FRs in European Green Deal)
Chairs: **Prof. Dr. Andrea Toldy**
Prof. Dr. De-Yi Wang

08h40 – 09h10 **Plenary 1**
Tournilhac, Francois Genès: Epoxy based vitrimer materials and composites

09h10 – 09h35 **Keynote 1**
Kandola, Baljinder: Fully bio-based versus carbon/glass epoxy composites: scope and limitations in fire and physico-mechanical performances

09h35 – 09h55 **Oral 1**
Beard, Adrian: Increasing Sustainability and Performance Requirements – what is the future for Phosphorus-based Flame Retardants?

09h55 – 10h15 **Poster session 1** **(Details on page 15)**

10h15 – 10h45 **Coffee break, sponsor exhibition**

SESSION 2

New Developments in Flame Retardants (chemistry, application, synergism)

Chairs: **Prof. Dr. Sophie Duquesne**
Prof. Dr. Sheng Zhang

10h45 – 11h15 **Plenary 2**
Wang, Hao: Development of biobased and nanoscale flame retardants

11h15 – 11h40 **Keynote 2**
Bifulco, Aurelio: Aliphatic silica-epoxy systems containing DOPO-based flame retardants, bio-wastes, and other synergists

11h40 – 12h00 **Oral 2**
Wilen, Carl-Eric: Next Generation of Radical Generators

12h00 – 12h20 **Oral 3**
Ciesielski, Michael: Novel Phosphorus-containing flame retardants based on cellulose and sugar alcohols

12h20 – 12h40 **Poster session 2 (Details on page 16)**

12h40 – 13h30 **Lunch, sponsor exhibition**

SESSION 3

Sustainability in Flame Retardant Materials (FRs in European Green Deal)

Chairs: **Prof. Dr. Yu-Zhong Wang**
Prof. Dr. Baljinder Kandola

13h30 – 13h55 **Keynote 3**
Schartel, Bernhard: Sustainability finding its way into flame retardancy: food for thought between fake fiction and future

13h55 – 14h15 **Oral 4**
Lopez-Cuesta, José-Marie: Fly ash as engineering filler in flame retardant systems for biopolyesters

14h15 – 14h35 **Oral 5**
Houlder, James: Flame retardants: a changing landscape

14h35 – 14h55 **Oral 6**
Sonnier, Rodolphe: Flammability of thick but thermally thin materials including bio-based materials

14h55 – 15h05 **Short oral 1**
Augé, Marie-Odile / Daniele Roncucci: Ring-opening polymerization of L-lactide with Phosphorus containing compounds

15h05 – 15h15 **Short oral 2**
Schwind, Bertram: Synthetic papers inspired by wasp nest material: Flame-retardancy mechanism investigations and their potential for sustainable flame retardant materials

15h15 – 15h35 **Poster session 3 (Details on page 17)**

15h35 – 16h05 **Coffee break, sponsor exhibition**

SESSION 4
New Developments in Flame Retardants (chemistry, application, synergism)
Chairs: **Prof. Dr. T. Richard Hull**
Prof. Dr. Yuan Hu

16h05 – 16h35 **Plenary 3**
Wang, De-Yi: Progress of flame-retardant technologies to electrolytes in lithium-ion battery: strategies and challenges

16h35 – 17h00 **Keynote 4**
Döring, Manfred: The Potential of Phosphorus-Containing Flame Retardants for Current Application

17h00 – 17h20 **Oral 7**
Vahabi, Henri: Coffee biowastes as sustainable flame retardants for polymers

17h20 – 17h30 **Short oral 3**
Sekar, Arvindh: Introduction of an Organic Flame Retardant with High Phosphorous Content in Unsaturated Polyester Resins

17h30 – 17h40 **Short oral 4**
Mountassir, Amira: Polymerizable sulfenamide as an effective flame retardant for polystyrene

17h40 – 18h00 **Poster session 4 (Details on page 18)**

18h00 – 20h00 **Poster Exhibition at NEST**

DAY 3

June 28 | Wednesday

08h10 – 08h35 **SPECIAL TALK ON EUROPEAN GREEN DEAL**
Martijn Beekman: Chemicals strategy for sustainability, towards zero pollution

SESSION 5

New Developments in Flame Retardant Coatings and Textiles (emphasis on transportation, architectural and protective textiles)

Chairs: **Prof. Dr. habil. Bernhard Schartel**
Prof. Dr. Laurent Ferry

08h35 – 09h05 **Plenary 4**
Fu, Teng: Programmable design on demand: quantitative contribution of molecular motifs in flame-retardant thermoplastic polymers

09h05 – 09h25 **Oral 8**
Schönberger, Frank: Mode of action of Zn-DOPOX and melamine polyphosphate as flame retardants in glass fiber-reinforced polyamide 66

09h25 – 09h45 **Oral 9**
Xuan, Song: An in-situ, nonintrusive intermediates monitoring method for polymer combustion mechanism study

09h45 – 10h05 **Oral 10**
Mayer-Gall, Thomas: Nitrogen and Phosphorus containing silanes as verstail flame retradants: not only for textiles

10h05 – 10h15 **Short oral 5**
Zou, Bin: Thermal stability and fire safety black phosphorus-boron hybrid nanocomposites: mechanism of Phosphorus fixation effects and charring inspired by cell wall

10h15 – 10h45 **Coffee break, sponsor exhibition**

SESSION 6

New Developments in Flame Retardant Coatings and Textiles (emphasis on transportation, architectural and protective textiles)

Chairs: **Dr. Jürgen H. Troitzsch**
Prof. Dr. José-Marie Lopez-Cuesta

10h45 – 11h15 **Plenary 5**
Grunlan, Jaime: Water-based and environmentally-benign flame retardant surface treatments for polymeric materials

11h15 – 11h40 **Keynote 6**
Ferry, Laurent: Flame retardancy of engineering polymers using ionic liquids

11h40 – 12h00 **Oral 11**
Schirp, Claudia: Phosphate-modified polyurethane binder polymers for transparent, fire-retardant wood coatings

12h00 – 12h20 **Oral 12**
Bin, Fei: Flame retardant and transparent wood for building application

12h20 – 12h30 **Short oral 6**
Khan, Fawad: Graphene oxide - modified Aramids as Early Fire Warning Sensors

12h30 – 13h20 **Lunch, sponsor exhibition**

SESSION 7

Testing, Characterization and Modelling of Flame Retardant Materials

Chairs: **Prof. Dr. Jaime Grunlan**
Prof. Dr. Zhengzhou Wang

13h20 – 13h50 **Plenary 6**
Bourbigot, Serge: Materials in extreme fire: design, evaluation and characterization

13h50 – 14h15 **Keynote 7**
Chris Slootweg: Sustaining the CHNOPS building blocks of life, but Phosphorus-based flame retardants first!

14h15 – 14h35 **Oral 13**
Fontaine, Gaelle: Effect of oxygen concentration on the fire behavior of Cross-Laminated Timber

14h35 – 14h55 **Oral 14**
Leventon, Isaac D.: An analysis of the functional dependence of the rate of buoyancy-driven flame spread on a solid material to pyrolysis and combustion properties

14h55 – 15h05 **Coffee break, sponsor exhibition**

SESSION 8
New Developments in Flame Retardants (chemistry, application, synergism)
Chairs: **Dr. Wenyu Klingler-Wu**
Prof. Dr. Aurelio Bifulco

15h05 – 15h30 **Keynote 8**
Fuchs, Sabine: From flame retardant polystyrene foams to intrinsically flame retardant styrenic copolymers without halogens

15h30 – 15h50 **Oral 15**
Liu, Bo-Wen: Intrinsically flame-retardant long-chain aliphatic polyamide with high mechanical property

15h50 – 16h00 **Short oral 7**
Jie, Xu: Carbon nanohorns as a novel synergist to achieve efficient flame retardant cotton fabric – a case study

16h00 – 18h00 **Gala dinner: Transport by bus and train to Uetliberg**

19h00 – 23h00 **Gala dinner in association with Clariant at UTO Kulm**

DAY 4

June 29 | Thursday

SESSION 9.1
Parallel Session at Empa-Akademie
Testing, Characterization and Modelling of Flame Retardant Materials
Chairs: Prof. Dr. Federico Carosio
Prof. Dr. Sabine Fuchs

08h10 – 08h35 **Keynote 9**
Hu, Yuan: Synthesis and Application of Flame Retardant Organophosphine Compounds

08h35 – 08h55 **Oral 16**
Raffan-Montoya, Fernando: Towards simultaneous characterization of flammability and fire toxicity of solid fuels burning at controlled equivalence ratios

08h55 – 09h15 **Oral 17**
Paul, Swaraj: Novel Analytical Toolkit for the Characterization and Development of Halogen Free Flame Retardants (HFFR) PP Formulations

09h15 – 09h35 **Oral 18**
Lorenzetti, Alessandra: Development of sustainable flame retarded polypropylene by using predictive tools

09h35 – 09h45 **Short oral 8**
McKenzie, Francesca: Effects of flame retardants in carbon fibre reinforced composites on the thermo-oxidative properties of carbon fibres

09h45 – 09h55 **Short oral 9**
Lorenzetti, Jean-Valère: Cork extracts (quercus suber l.): characterization and integration in fire-retardant intumescent formulations

09h55 – 10h25 **Coffee break, sponsor exhibition**

SESSION 10.1
Parallel Session at Empa-Akademie
Recycling of Flame Retardant Materials
Chairs: Prof. Dr. Serge Bourbigot
Dr. Adrian Beard

10h25 – 10h50 **Keynote 10**
Zhao, Hai-Bo: Recyclable and Durable Flame-Retardant Materials

10h50 – 11h10 **Oral 19**
Wu-Klingler, Wenyu: Enabling reprocessability and recyclability of epoxy thermosets via reactive incorporation of phosphonate moieties

11h10 – 11h30 **Oral 20**
Toldy, Andrea: Flame retardancy solutions for carbon fibre–reinforced composites designed for recycling

11h30 – 11h50 **Oral 21**
Tange, Lein: Challenges and oppertunities using innovative technologies for recycling plastics containing flame retardants

11h50 – 12h10 **Oral 22**
Laoutid, Fouad: Recycling of brominated plastics from weee through solvent-free UV-based treatment

12h10 – 12h20 **Short oral 10**
Zhou, Meihui: Basalt Fiber-Based Flame Retardant Epoxy Composites: Preparation, Mechanical Properties, and Flame Retardancy

12h20 – 13h10 **Lunch, sponsor exhibition**

SESSION 9.2
Parallel Session at NEST
Flame Retardants and the Environment
Chairs: **Prof. Dr. Manfred Döring**
Dr. Martin Sicken

08h10 – 08h30 **Oral 23**
Chen, Li: Reprocessable, degradable and intrinsically flame-retardant epoxy vitrimers for carbon fiber reinforced composites

08h30 – 08h50 **Oral 24**
Jordanov, Igor: Sustainable few-bilayers nanocoating for flame retardant polyester fabric

08h50 – 09h15 **Keynote 11**
Zhang, Sheng: Advances on Flame Retardant Materials for Batteries in New Energy Vehicles

09h15 – 09h35 **Oral 25**
Agostinis, Lodovico: New chlorinating agents-free synthetic route for

preparation of P-N and P-O dibenzooxaphosphacycles derivatives

09h35 – 09h55 **Oral 26**
Duquesne, Sophie: Use of recycled hUips to develop flame retarded materials for EEE – what are the challenges?

09h55 – 10h15 **Oral 27**
Batistella, Marcos (6): Towards recycling of fire retarded polyamide 12 for laser sintering

10h15 – 10h45 **Coffee break, sponsor exhibition**

SESSION 10.2
Parallel Session at NEST
Testing, Characterization and Modelling of Flame Retardant Materials
Chairs: **Dr. Alexander B. Morgan**
Prof. Dr. Henri Vahabi

10h45 – 11h05 **Oral 28**
Schirp, Arne: Effectiveness of phosphinates and radiation crosslinking on fire-retardancy of unfilled and wood-filled bio-based polyamides for application in E&E

11h05 – 11h30 **Keynote 12**
Lyon, Richard: Thermal Analysis and Flammability

11h30 – 11h50 **Oral 29**
Samyn, Fabienne: Synthesis by reactive extrusion, properties and ageing of flame retardant PBT vitrimers

11h50 – 12h00 **Short oral 11**
Tabaka, Weronika: Bench-scale fire stability testing of carbon fibre reinforced polymer laminates with protective layers

12h00 – 12h10 **Short oral 12**
Abdenour Amokrane: Modelling of the swelling behavior of a fire retarded material under a cone calorimeter

12h10 – 12h20 **Short oral 13**
Hansen-Bruhn, Iben: Comparison of fire retardant timber treatments

12h20 – 13h10 **Lunch, sponsor exhibition**

SESSION 11

Flame Retardant Innovations in emerging markets such as e-mobility, composites, additive manufacturing and 5G telecommunication

Chairs: **Prof. Dr. Gaëlle Fontaine**
Dr. Richard E. Lyon

13h10 – 13h40 **Plenary 7**
Wang, Xin: Cardanol as a versatile building block for fabrication of bio-based flame retardant epoxy thermosets

13h40 – 14h05 **Keynote 13**
Morgan, Alexander: Reactive Flame Retardants for Aerospace-Grade Epoxy Flame Retardants: Design Considerations and Example Chemistries

14h05 – 14h25 **Oral 30**
Carosio, Federico: Green, fire safe and lightweight insulating materials from layer-by-layer coated natural fibers

14h25 – 14h45 **Oral 31**
Wang, Zhengzhou: Flame retardant and smoke suppressive properties of epoxy resin composites with organic phosphates and their meso-porous silica hybrids

14h45 – 14h55 **Short oral 14**
Zhang, Mingyang: An in-situ phosphazene flame retardant derived interface layer in lifepo4 cathode in lithium ion battery

14h55 – 15h25 **Coffee break, sponsor exhibition**

SESSION 12

Fire safety requirements and standardization of products used for EVs (batteries, e-powertrain, charging stations)

Chairs: **Prof. Dr. Carl-Eric Wilen**
Prof. Dr. De-Yi Wang

15h25 – 15h55 **Plenary 8**
Hull, Richard: Fires caused by electric vehicles: flammability and smoke toxicity

15h55 – 16h20 **Keynote 14**
Troitzsch, Jürgen: Passive fire safety in conventional and e-vehicles: status and trends

16h20 – 16h30 **Short oral 15**
Zhou, Yifan: Construction of hierarchical Ti3C2TX@PHbP-PHC architecture with enhanced free-radical quenching capability: Effective reinforcement and fire safety performance in bismaleimide resin

16h30 – 16h50 **Oral 32**
Chen, Lei: Fire tests of flame retardant thermoplastics for electric vehicle battery pack applications

16h50 – 17h00 **FINAL REMARKS AND PINFA AWARDS**

POSTER LIST

The poster exhibition will take place after the last pitch session from **18h00 – 20h00 on 27.06.2023.**

Pitch session 1 (27.06.2023, 09h55-10h15)

P1	Ali, Wael	Polarity adapted silanization of functional materials for flame retardant polymer additives
P2	Andruschko, Mateusz	Halogen-free styrenic terpolymers with self-extinguishing properties
P3	Ao, Xiang	Bilayer coating with coupled intumescent and creamification effects toward high fire safety and fire structural survivability of fiber-reinforced polymer composites
P4	Augé, Marie-Odile	Improvement of PLA fire properties with autopolymerizable additives
P5	Bader, Miriam	Commercial and biobased halogen-free flame retardants for thin polyurethane materials used for textile coatings
P6	Beduini, Alessandro	Polyamidoamines derived from natural α-aminoacids as effective flame retardants for cotton
P7	Berner, Valeria	Epoxy vitrimers – thermal behavior and flame-retardant properties
P8	Bocz, Katalin	Useful tricks with biobased flame retardants
P9	Chen, Jiuke	Mechanical Recycling of PET Fibers containing Phosphorus Flame Retardants
P10	Chen, Si	Flame Retardant and Transparent Polymethylmethacrylate Composites Based on Phosphorus-nitrogen Flame Retardants
P11	Cui, Xinyu	Ultra washing durable flame retardant coating for cotton fabric by the covalent bonding and interface polymerization
P12	Danielsiek, Dominic	Smoke suppressant flame retardants for natural fibre reinforced composites
P13	Decsov, Kata	Development of an alginate-based additive for flame retardancy of polylactic acid
P14	Dedey, Kossigan Bernhard	One-dimensional transient pyrolysis model for intumescent fire retardant polymers usage in Electric Vehicle battery pack applications: validation with fire-retarded polycarbonate
P15	Driever, Thomas	Combination of ionic liquids and phosphorus-containing flame retardants for carbonate-based battery electrolytes
P16	Flerlage, Hannah	Safe and sustainable by design: redesining flame retardants using a coputer-aided framework
P17	Fu, Aixiao	Intumescent alkali silicate and geopolymer coatings against hydrocarbon fires
P18	Gere, Dániel	Development of HDPE cap waste for flame retarded outdoor products

Pitch Session 2 (27.06.2023, 12h20-12h40)

P19	Getterle, Christoffer	A novel flame retardant based on cellulose and sugar alcohols
P20	Ghonjizadehsamani, Farnaz	Effects of combining cork powder and app in the mechanical and flammability behavior of abs
P21	Goedderz, Daniela	Combination of optical diagnostics and pyrolysis fragment analysis to investigate flame retardant mode of actions
P22	Goller, Sebastian	How reactions between smoke suppressants in flame retardant polyamide 6.6 (PA66) change the burning behavior and smoke emission.
P23	Großhauser, Michael	Influence of bentonite properties on weathering resistance in flame retardant cable materials
P24	Gu, Weiwen	Insight research on the thermal degradation mechanism of PET
P25	Gu, Xiaoyu	Constructing cross-functional intumescent flame retardants with UV resistance for polypropylene
P26	Handlovicova, Katarina	The assessment of the smoke toxicity of furniture fabrics and fillings
P27	Helmbrecht, Alexander	Modified cottonid as a fire retardant layer
P28	Höhne, Carl-Christoph	New approach for electric vehicle composite battery housings: Electromagnetic shielding and flame retardancy of PUR/UP-based sheet moulding compound
P29	Jankowski, Piotr	Rigid polyurethane foams with limited flammability
P30	Kaptlan, Matay	Profound characterization of novel phosphorus-containing flame retardants based on cellulose and sugar alcohols
P31	Kovács, Zsófia	Flame retardant in-mould coatings for e-caprolactam-based polyamide 6 fibre-reinforced composites
P32	Lane, Jacob	Effect of Different Fire-Retardant Mechanisms on Fire and Smoke Behavior of Upholstered Furniture
P33	Langhansl, Matthias	Biorenewable polyelectrolyte nanocoating for flame-retardant cotton-based paper
P34	Li, Xiaolu	Highly-sensitive fire alarm system based on cellulose paper with low-temperature response and wireless signal conversion
P35	Ma, Meng	Achieving high flame retardancy and high transparency Polycarbonate based on low addition of linear polysiloxane borane

Pitch Session 3 (27.06.2023, 15h15-15h35)

P36	Maddalena, Lorenza	Nanocellulose based polyeletrolyte complexes as efficient flame retardant solution for textiles and open cell foams
P37	Modesti, Michele	Fire perfomances of polyisocyanurate foams with very high index
P38	Oguz, B.	Relationship between heat exposure equipment and intumescent coating performance
P39	Ojo, Caleb O.	Recycling bromine and antimony from acrylonitrile butadiene styrene (waste plastics containing brominated flame retardants).
P40	Palumbo, Valeria	Study of recyclability and flame retardancy of polyester thermosets with brönsted acid nanocatalysts
P41	Peck, Gabrielle	Novel techniques for the prediction of the fire hazard of polyisocyanurate insulation foams
P42	Peck, Gabrielle	Design, construction and validation of a simple, low-cost phi-meter
P43	Petkovska, Jovana	Sustainable egg white/lignin nanocoating for flame retardant cotton
P44	Pierrat, Sebastien	Quantitative characterization of FR dispersion by X-ray computed tomography and its influence on FR performance
P45	Pomázi, Ákos	Combined effect of solid and gas phase flame retardants in epoxy gelcoats for carbon fibre-reinforced epoxy composites
P46	Roncucci, Daniele	Novel bio-based phosphorus flame retardant for poly(lactic acid)
P47	Rozo, Maria Jauregui	Tansfer of the modes of action from polymer materials to glass-fiber-reinforced plastics: flame retardancy – fire resistance – post-fire mechanics
P48	Sántha, Péter	Fire retardant basalt fiber-reinforced polymer composites
P49	Sarazin, Johan	Laboratory-scale instrumented bench for the evaluation of fire resistant systems
P50	Shuang, Qui	A new strategy to prepare fully bio-based Poly(lactic acid) composite with high flame retardancy, long service life and rapid degradation
P51	Singh, Shraddha	Fire resistant composite materials for structural application
P52	Szolnoki, Beáta	Development of fully biobased, flame retardant epoxy coatings

Pitch Session 4 (27.06.2023, 17h40-18h00)

P53	Tamizhirai, Selvan	Thermal barrier fibrous membranes for polymeric composites
P54	Tang, Mingwei	Fire behavior and numerical simulation of facade elements for buildings
P55	Tien Nguyen, Thuy	Combined effect of phosphorous-containing compounds in flame retardance of polybutylene succinate
P56	Ulisse, Federico	Synthesis of sustainable flame retarded polypropylene by using waste material
P57	Verret, Eric	Optimization via artificial intelligence of intumescent coatings for wood substrates
P58	Vest, Natalie	Bio-sourced intumescent nanocoating
P59	Vogt, Claudia	Liquid s-triazine phosphonate derivatives as flame retardants for polyurethane foams
P60	Wang, Ran	FRPdata and PYgen: benchmark database for studying polymer flame retardancy and pyrolysis products
P61	Watt, Fabian	Polymer-hybrid nanoparticles as flame retardants for transparent thermoplastics
P62	Xiao, Xiang-Xin	Low heat and smoke release polycarbonate copolymer based on synergistic char-forming effect
P63	Yang, Qi	Fire resistance of Na/K based geopolymer containing oil
P64	Zhang, Qin	High-performance flame-retardant polyamide 6 containing a novel phosphinamide group
P65	Tresiakova-McNally, Svetlana	A study of the influence of the chemical environments of P- and N-containing groups on the fire retardance of polystyrene
P66	Zhang, Xiaoyu	Thermal degradation and Flammability of LIP Cigarette Paper
P67	Zhang, Xin	Study on intrinsic flame-retardant vinyl ester resin and its composites with different diluents
P68	Zhang, Yaping	Effects of potassium nitrate and potassium citrate on pyrolysis kinetics and combustion behaviors of flue-cured tobacco
P69	Zhou, Shun	Quantitative evaluation of CO yields for the typical flue-cured tobacco under the heat-not-burn conditions using SSTF
P70	Vishwakarma, Ajay	Phosphorous-nitrogen-silicon modified graphene oxide as fire retardant material for cotton fabric

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