SFPE Engineering Solutions Symposium: Addressing European Lithium-Ion Battery Fire Safety Challenges
November 11-13, 2025

Speakers

(Alphabetical order)

 Elixabete Ayerbe	Dr. Elixabete Ayerbe holds a PhD in Aerospace Engineering and boasts over 15 years of experience in batteries, fuel cells, and related technologies. Her expertise spans fundamental research and technological applications, with a particular focus on modeling. As the Team Leader in Modeling and Post-mortem at CIDETEC Energy Storage, Elixabete coordinates activities related to multi-physics and data-driven models, including parameterization and post-mortem analysis of various cell chemistries Elixabete is involved in numerous european funded projects in the field and is an active member of the European batteries ecosystem; she has led the Manufacturability chapter of the Roadmap and has been member of the Executive Board for the Battery2030+ Initiative. She is also active member of BEPA Batteries Partnership Association where she has contributed to several position papers and task force groups including safety, digitalization and manufacturing.
 Adam Barowy	Adam Barowy is a principal research engineer for the Fire Safety Research Institute (FSRI), part of UL Research Institutes. In nine years of commercial fire research prior to joining FRSI, Adam worked to develop UL Standards and Test Methods, and evaluated emerging fire hazards, and new and innovative fire protection solutions. Adam advanced UL's capabilities for characterizing the thermal, fire and explosion hazards of energy storage technologies and led the technical development of UL 9540A and UL's large scale ESS fire testing program. Prior to UL, Adam worked at NIST where he conducted full-scale structure fire field experiments to enable improved firefighting tactics, reconstructed LODD/injury fire incidents and evaluated firefighting equipment. Adam volunteered with the Amherst Fire Department while pursuing his bachelor's in mechanical engineering at the University of Massachusetts Amherst. He later graduated from Worcester Polytechnic Institute with a Master of Science in fire protection engineering.

 Emilie Bekaert	Dr. Emilie Bekaert is Group Leader for Electrochemical Characterisation at CIC energiGUNE, a leading energy research center in Spain. She holds a PhD in Materials Science and has over 15 years of experience in advanced battery systems, with a particular focus on cell formation, diagnostics, and degradation mechanisms. Dr. Bekaert manages one of Europe's most advanced electrochemical testing laboratories, overseeing more than 1300 channels and 60+ climate chambers used for high-precision battery testing, from mA to 300 A. Her current work centers on developing cutting-edge electrochemical diagnostic tools, improving battery safety, and accelerating the development of next-generation energy storage technologies. She leads several interdisciplinary R&D initiatives involving both academic and industrial partners, including projects on solid-state batteries and AI-enabled test protocols. In addition to her research, she contributes to European strategy and innovation programs and is actively involved in shaping safety benchmarking and sustainability metrics for battery systems.

 Lorenz Boeck	Dr. Lorenz Boeck (Böck) is the Chief Scientific Officer at REMBE® Inc., a global leader in explosion and process safety, where he oversees the company's scientific program. Prior to joining REMBE® Inc., he held research positions at FM Global, California Institute of Technology, Queen's University, and Technical University of Munich. Dr. Boeck is an Adjunct Professor at the Worcester Polytechnic Institute teaching Explosion Protection Engineering and serves on the Editorial Board of the Journal of Loss Prevention in the Process Industries. His contributions to the field include over 70 peer-reviewed research publications that garnered numerous accolades, including the John H.S. Lee Award, Distinguished Paper Award at the International Symposium on Combustion, William M. Carey Award, and multiple international best-paper awards. With over 15 years of research experience in academia and industry, Dr. Boeck has led programs to assess and mitigate explosion risks across various sectors including nuclear, aerospace, energy, food and beverage, wood products, and general manufacturing. His expertise spans a wide range of explosion hazards encompassing gas, dust, hybrid, energetic-material, batteries, and physical explosions. Dr. Boeck has extensive experience in large-scale and laboratory-scale testing, as well as in the certification of explosion protection systems such as deflagration vents, suppression systems, and isolation systems.

 Arnaud Bordes	Dr. Arnaud Bordes is a researcher at the French National Institute for Industrial Environment and Risks (Ineris), specializing in the safety of electrochemical energy storage systems. He conducts small- to large-scale testing on lithium-ion batteries across various applications and contributes to research projects aimed at improving safety knowledge for current and emerging battery technologies. As lead of the technical support program for the French Ministry of Ecological Transition, he is actively involved in standards and regulatory development. He serves as France's delegate on battery-related matters at the UN Sub-Committee on the Transport of Dangerous Goods and participates in automotive regulatory forums (GTR-EVS). He has also contributed to several post-incident investigations involving lithium battery failures in France.
 Lucy Buannic	Dr. Lucy Buannic is a solid-state chemist with expertise in rechargeable batteries. She has over ten years of lithium-ion battery experience, including academic research, product development, and scientific consulting. Her research activities have span from the development of anode oxide active material, the design and processing of solid-state electrolyte materials, to the industrial manufacturing of 40 Ah cells. Dr. Buannic is well versed in materials characterization, rechargeable battery design, performance & quality assessments, battery failure analysis, inspections and fire investigations. She has explored chemistries spanning from lithium-ion, sodium-ion, lead-acid, to emerging water-based systems.

 Jonathan Buston	Jonathan is a Chartered Chemist currently leading the HazMat Team (which covers batteries, explosives and releases and reaction hazards of nasty chemicals) at the UK's Health and Safety Executive's Science Labs based in Buxton. Jonathan leads the work in the field of Battery Safety and has delivered projects for both HSE and industry customers in this fast growing area. Jonathan designed and commissioned our dedicated Battery Safety Test Facilities. Jonathan also sits on a number of cross-government and cross-industry groups relating to batteries.
 Piergiacomo Cancelliere	Dr. Piergiacomo Cancelliere is a Fire Commander of the Latina Province Fire Brigade and occupies several highly demanded positions in several regions in Italy. He represented Corpo Nazionale dei Vigili del Fuoco - CNVVF at the European Union for fire safety aspects of the Construction Product Regulation (CPR 305/2011). He is also a member of CEI Italian Technical standards bodies participating in several committees for fire safety aspects. He actively contributed to the development of the Italian Fire Prevention Code (IFC). He is also serving the University of Bozen as a Professor in fire science at the fire safety engineering Master. He is the author of more than 150 scientific papers.

 Benjamin Ditch	Benjamin Ditch is a Principle Research Engineer at FM and has an M.S. in Fire Protection Engineering from Worcester Polytechnic Institute in Worcester MA, USA. Mr. Ditch is the Technical Team Leader of the Large-Scale Fires Team with 25 years of experience in fire hazard analysis and specialty fire protection system design. He is responsible for the development and implementation of large-scale testing, including specialty hazards related to non-standard storage and emerging technologies. Mr. Ditch's current research interests include protection for automatic storage and retrieval systems, energy storage systems, and lithium-ion batteries.
 Elena Funk	Elena Funk is a fire safety engineer with a focus on the challenges posed by lithium-ion battery technologies. She holds a degree from the International Master of Fire Safety Engineering (IMFSE) program and has worked at the Danish Institute of Fire and Security Technology (DBI) since 2021, contributing to research in battery fire safety. Currently, she is pursuing a PhD at King's College London in collaboration with DBI on battery design fires, investigating the challenges that battery technology brings into fire safety engineering. Her work bridges research and real-world safety needs in a rapidly evolving field.

 Denis Hellebuyck	European Operations Director & Fire Safety Engineer, ATAR Fire, Denis Hellebuyck is a fire safety engineer with over 12 years of international experience across Europe, Africa, and Antarctica. As European Operations Director at ATAR Fire, he supports global fire safety initiatives with a strong technical foundation and cross-cultural insight. He holds an International Master of Science in Fire Safety Engineering, awarded with distinction through a joint program between Ghent University, Lund University LTH, and The University of Edinburgh. Denis has contributed to scientific research on dielectric liquid fire behavior in nuclear facilities and brings specialized expertise in electric vehicle cooling systems, hydrogen safety, and wildland-urban interface protection. In addition to his engineering work, Denis is a co-founder of technology ventures including FireOne.ai and Mantis Photonics, reflecting his interest in innovation at the intersection of safety and emerging tech.
 Tom Hessels	Tom Hessels works as an advisor and project manager at the Netherlands Institute for Public Safety (NIPV). His work focusses on battery safety, particularly on fires in electric vehicles and its corresponding extinguishing strategies.

 John Hewson	John Hewson is a Distinguished Member of the Technical Staff in the Engineering Sciences Center at Sandia National Laboratories. There he heads the physics-based model development for a range of reacting flow modeling and multiphase flow modeling capabilities. He has a dozen years of experience in battery systems and especially safety risks and their mitigation. His work addresses fire science and combustion, battery safety, multiphase flow, electrochemistry and side reactions among other topics. Prior to joining the Engineering Sciences Center, John spent time at Sandia's Combustion Research Facility and Lawrence Berkeley Laboratory. He received his Ph.D. from the University of California San Diego and his B. S. from the University of California, Berkeley.
 Jonathan Hodges	Dr. Hodges brings a unique blend of academic research, industry experience, and technical expertise to his role as the Director of Modeling at Jensen Hughes. He has led research projects focused on improving fire modeling techniques, experimental measurement methods, and fire risk assessment. These have led to improvements in safety requirements for rail cars, maritime vessels, battery energy storage systems, and the wildland urban interface (WUI). Dr. Hodges is also a model developer, with contributions to the Fire Dynamics Simulator (FDS) project, and customized fire models for targeted applications. Throughout his career, Dr. Hodges has demonstrated a commitment to advancing the applied science of fire safety and risk analysis. He contributes his time and expertise to advancing fire safety standards and guidelines. Examples include participation in the SFPE Research, Tools & Methods Committee on probabilistic assessment of local fire exposures, the task group on updating the SFPE guidance on fire model substantiation, the Foundation WUI working group, the SFPE Foundation's Grand Challenge Initiative focusing on digitalization and AI in the field of fire protection, and the utility wildfire risk modeling working group in California.

 Gary Howe	Gary Howe is a Senior Risk Engineer at Zurich Insurance within the Heavy Industries team. Gary is a subject matter specialist in the field of fire safety of battery energy storage systems (BESS), power generation, mining, molten metals, pulp & paper & OGP risks. Gary is a Fellow of the Institution of Fire Engineers (IFE) and President of his local branch of the IFE. Gary is a registered assessor with the Institution of Fire Engineers undertaking reviews, mentoring and support to individuals to achieve internationally recognised professional fire engineering qualifications. Gary has extensive field engineer experience coupled with management of accounts and the development and nurture of successful collaborative relationships with clients and stakeholders in the UK and internationally. He offers a high level of pragmatism, technical competency and solution-based results to clients. Based at home, he travels regularly internationally to undertake site assessments.
 Jonna Hynynen	Jonna Hynynen holds a PhD in Materials Chemistry from Chalmers University of Technology (2019) and is currently a researcher at Chalmers Industriteknik. Her work focuses on the fire safety of batteries, with expertise in fire testing and chemical analysis of fire effluents. She has authored several peer-reviewed publications in the field of battery fire safety and currently leads projects aimed at improving emergency response for fire and rescue services, as well as advancing emerging battery technologies.

 Sigurjon Ingolfsson	Sigurjon Ingolfsson is based in Copenhagen leading Arup's Nordic fire offering. An experienced engineer having worked in various countries in the Middle East, Australia, East Asia and Europe he has recently been providing assistance and advice to Governments and clients for the safe transition of transit to low emissions energy.
 Todd LaBerge	Todd LaBerge, P.E., is a licensed Fire Protection Engineer with 30 years of experience in industrial facilities, hazardous materials operations, high-piled combustible storage, and battery energy storage hazards. He has been directly involved in large-scale fire tests, including development and review of test plans, as well as participation in the NFPA 855 task group on explosion control. He has served as the Worldwide Fire Safety Director for Intel Corporation, provided support to the United States Military, and has served as a Fire Marshal /Managing FPE for the United States Department of Energy. Service to the development of Codes and Standards includes work on NFPA 101, 400, 420, 800, 855, and the International Fire Code workgroups on Battery Storage/ R&D/ Micromobility Devices. He currently provides fire protection code consulting to private industry as well as local Fire Departments and Building Departments.

 James McLaggan	James joined WMG at the University of Warwick in 2022 after 24 years in the automotive industry. Prior to WMG, James led the high-voltage battery development team at McLaren Automotive Ltd., delivering high-performance battery systems for McLaren's road-going sportscars. Earlier in his career, James developed vehicle thermal management systems, undertook research on advanced engine testing methods, developed real-time powertrain simulation models for hardware-in-the-loop testing, led collaborative consortia and delivered hardware-demonstrator projects in electrification (hybrid and plug-in hybrid), ranging from Formula-1 to heavy-duty trucks. In his role at WMG, James leads a team focused on the engineering integration of Lithium-ion cells into battery packs for a wide range of applications, including micromobility, automotive, aerospace (civil aviation and space), rail, marine and stationary storage, with the aim of supporting UK industry to achieve net zero carbon targets. This work spans many engineering disciplines including mechanical, electrical, thermal, safety, control and manufacturing. James was the main author of the report "Personal Light Electric Vehicle (PLEV) Battery Safety Research", published in January 2025 by the Office for Product Safety and Standards (OPSS), part of the UK government's Department for Business and Trade (DBT), which included a wide-ranging review of existing legislation and standards.
 Paulo Ramos	Paulo Ramos is Managing Partner at ETU Fire Safety Consultants and President of the Board of SFPE Portugal. He holds a Master's degree in Architecture and a Postgraduate degree in Fire Safety Engineering, and is certified by ANEPC (the Portuguese National Fire Safety Authority) as a Fire Safety Specialist, qualifying him to design fire safety systems for very high-risk buildings. He represents the Portuguese Chamber of Architects on the National Fire Safety Authority's Code Committee and is a member of the Strategic Fire Safety Committee of APSEI (the Portuguese Safety and Security Association). Paulo has published numerous articles on fire safety in both technical and scientific journals. His main areas of expertise include fire safety in heritage buildings and performance-based design. Over the past fifteen years, he has acted as Responsible Charge for more than 500 fire safety projects across Portugal, France, Algeria, and Angola.

 Guillermo Rein	Professor Guillermo Rein, PhD OYC FCI, is an engineer and expert in fire science and combustion, currently serving as Professor of Fire Science and Director of Research in the Department of Mechanical Engineering at Imperial College London, UK. He is Editor-in-Chief of Fire Technology and a Fellow of The Combustion Institute. His research focuses on reducing the global impact of unwanted fires and improving fire safety in both the built and natural environments. He leads Imperial Hazelab, a premier fire science research group, and has supervised over 40 PhD students and postdoctoral researchers, many of whom now lead research groups or hold influential roles in industry. Professor Rein has authored over 200 journal papers and secured more than £10 million in competitive research funding, including a prestigious ERC Consolidator Grant. His work has influenced both scientific understanding and engineering practice across a range of topics, including polymer flammability, wildfires, smouldering, Lithium-ion batteries, and structural fire design. Internationally recognised, he has received major honours such as the Guise Medal (SFPE), the Research Excellence Award (Combustion Institute), the NFPA Medal, and the Officer's Cross of the Order of Isabella the Catholic. His expert views are regularly featured in media outlets including the BBC, Financial Times, The Economist, and The New York Times, and he is widely sought for his insight on fire behaviour, hazard mitigation, and science communication.
 Marcus Runefors	Marcus Runefors leads the Safe Energy Carriers research group in the Division of Fire Safety Engineering at Lund University in Sweden. His research, along with that of the group, is focused on developing a fundamental understanding of the hazards posed by hydrogen and battery systems and use this to develop and validate appropriate mitigation measures to address these hazards. This work involves experimental investigations complemented with numerical simulations to better understand the behavior of these systems under various conditions. Beside his research, he is also responsible for two courses given in the Fire Protection Engineering program in Lund: "Explosion dynamics" (7.5 ECTS) and "Fire Investigation" (7.5 ECTS).

 Alex Schraiber	Alex Schraiber is Senior Research Manager for UL Solutions' Fire Research and Development group. In this role, she coordinates and conducts research to develop, maintain, and expand UL Safety Standards, UL Test Methods, and test apparatus, as well as designing and conducting custom research projects for internal and external clients. Her research includes a wide range of product categories including lithium ion batteries, battery energy storage systems, emergency fire containment for aviation, primary batteries, and gas measurements. She has published research in Data In Brief, Journal of Loss Prevention in the Process Industries, Science and Technology for the Built Environment, and Fire Technology, in addition to conference presentations. Alex received a BS in Mechanical Engineering from the University of Illinois at Urbana Champaign and an MS in Fire Protection Engineering from the University of Maryland at College Park.
 Paul Sincaglia	Paul Sincaglia, P.E. is the Chief Fire Protection Engineer with the International Code Council Codes and Standards Development department. Sincaglia joined the Code Council in 2024 bringing over 30 years of experience as a managing design professional, fireground officer, and code enforcement official to this position. Through his career, Paul has served as both the Project Manager and the Engineer in Responsible Charge for projects covering virtually every occupancy type gaining code proficiency for heavy industrial, high-hazard storage, petro-chemical, nuclear, aviation, healthcare, Residential, and a wide range of mixed-use occupancies. As ICC's Chief Fire Protection Engineer, he serves as the subject matter expert on the design, installation, testing, and maintenance of fire protection and life safety systems and related code compliance activities. A graduate of Worcester Polytechnic's Center for Firesafety Studies, Sincaglia is a Registered PE (Professional Engineer) in Massachusetts and Ohio and currently serves as a lead staff member on the Fire Code Action Committee, as well as a secretariat to the International Existing Building Code and the International Fire Code.

 Fride Vullum-Bruer	Fride Vullum-Bruer has a PhD in Chemical Engineering from The University of Tulsa, USA. She has more than 20 years of experience and 45 peer review publications from research within Li-ion batteries and other battery technologies. For 11 years she was Associate Professor at the Norwegian University of Science and Technology, where she established research infrastructure and built a research group focusing on research related to battery materials development, advanced materials characterization and electrochemistry. During her 6 years at SINTEF Energy she has been working on research related to thermal energy storage as well as analysis and implementation of 2nd life EV batteries in stationary storage, fire safety of large Li-ion battery systems and battery room requirements. At SINTEF she is also the leader of SINTEF's corporate efforts on batteries, coordinating battery research across the SINTEF Group. Additionally, Dr. Vullum-Bruer has contributed to reports, strategic documents and technology research roadmaps on both Norwegian and EU level.
 Wojciech Węgrzyński	Dr Wojciech Węgrzyński is a Professor at the Polish Building Research Institute in Warsaw and a host of the Fire Science Show podcast. He is also a Director at SFPE Europe and European/African representative to the Membership Advisory Council. He is the author of over 50 peer-reviewed papers published in primary FSE journals. His main areas of interest are the fundamentals of compartment fire dynamics and the fire impact of sustainable solutions in the built environment. His research focuses on the holistic interplay of all building systems in delivering fire safety and finding solutions to make fire safety measures cheaper, robust, efficient, and resilient. As an engineer, he specializes in the use of computational fluid dynamics in fire, with a focus on wind and fire interaction and smoke control modeling. He is a member of the Sub-committee for Research of the IAFSS. He has received several awards, including the NFPA Harry C. Bigglestone Award (2018), the Jack Watts Award (2019), the SFPE 5 Under 35 Award (2020), the Pascal Award for best ventilation design in Poland (2023), and the Prof. S. Bryła Award (2024), as well the SFPE Europe Fire Safety Engineering Award (2025).

 Ola Willstrand	Ola Willstrand is a research scientist at the department of Fire and Safety at RISE Research Institutes of Sweden. He is focusing on battery safety and has a lot of experience from laboratory fire tests, from small-scale to full-scale. Mr Willstrand holds a Master of Science degree in Engineering Physics from Lund University and a Licentiate degree in Material Chemistry from Uppsala University.
 Dong Zeng	Dr. Dong Zeng is a principal research scientist and technical team leader of the flammability team at FM's Research division. He obtained PhD in Chemical Engineering from Brigham Young University. At FM Global, he is responsible for leading a broad range of research programs to improve fire hazard evaluation and mitigation, with current focus on lithium-ion battery, roof-mounted solar panels, and building materials. His work has leaded to multiple FM Approvals standards and computational fluid dynamics (CFD) validation datasets (MaCFP). He is a principal member of NFPA (National Fire Protection Association) Fire Tests committee, and is responsible for developing, maintaining multiple fire testing standards. He served as a colloquium co-chair for International Symposium of Combustion, IAFSS.