ICHS®

International Conference on Hydrogen Safety

"Safe Hydrogen for Net Zero"

SEPTEMBER 21-24, 2021

ONLINE CONFERENCE
Supported by The Scottish Government

PROGRAMME

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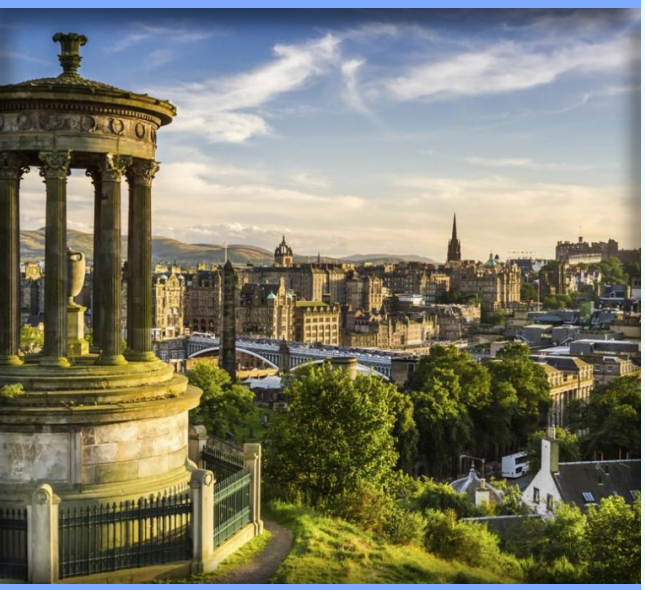


hySafe
INTERNATIONAL ASSOCIATION FOR HYDROGEN SAFETY

The Scottish Government

Time BST (UTC+1)	Tuesday, September 21, 2021		
11:00	**Registration Opens** **Welcome Remarks - Stuart Hawksworth (President IAHySafe)** **International Hydrogen Picture**		
11:10	**Mr Michael Matheson, Cabinet Secretary for Net Zero, Energy and Transport, Scottish Government** Conference Opening		
11:25	**Shell Hydrogen Vice President** Paul Bogers		
11:40	**The Fuel Cells and Hydrogen Joint Undertaking (FCH JU)** Bart Biebuyck		
11:55	**New Energy and Industrial Technology Development Organization (NEDO), Japan** Eiji Ohira		
12:10	**Department of Energy (DOE), USA** Sunita Satyapal		
12:25	**Panel Session with the above speakers chaired by** Nick Smith		
12:50	Coffee Break		
	Behaviour of Liquid Hydrogen (LH_2): Chair Thomas Jordan	**Safety Issues of Hydrogen Batch Transport & Distribution: Chair Kate Jeffrey**	**Energy Storage Systems: Chair Pierre Serre Combe**
13:00	**ID12, Numerical simulations of atmospheric dispersion of large-scale liquid hydrogen releases** Baopeng Xu, Simon Jallais, Deborah Houssin, et.al.	**ID13, Effect of state of charge on Type IV hydrogen storage tank rupture in a fire** Sergii Kashkarov, Dmitriy Makarov, Vladimir Molkov	**ID5, Liquid Organic Hydrogen Carriers – a technology to overcome common risks of hydrogen storage** Berthold Melcher, Michael George, Caspar Paetz
13:20	**ID44, Development of Liquid Hydrogen Leak Frequencies Using a Bayesian Update Process** Dusty Brooks, Brian Ehrhart, Chris LaFleur	**ID135, Hydrogen Storage: Recent Improvements and Industrial Perspectives** Hervé Barthélémy Marie Vidovic, Mathilde Weber, et.al.	**ID6, Monte-carlo-analysis of minimum burst requirements for composite cylinders for hydrogen service** Georg W. Mair, Stephan Günzel, Stephan Gesell, et.al.
13:40	**ID178, Cryogenic and Ambient Gaseous Hydrogen Blowdown with Discharge Line Effects** Alexandros Venetsanos, Stella Giannissi, Ilias Tolias, et.al.	**ID97, Effect of pressure losses on flame length after full bore hydrogen pipeline rupture** Dmitriy Makarov, Vladimir Molkov	**ID130, Preliminary risk assessment (PRA) for tests planned in a pilot salt cavern hydrogen storage in the frame of the French project STOPIL-H_2** Sylvaine Pique, Alain Thoraval, Franz Lahaie, et.al.
14:00	**ID112, Cold hydrogen blowdown release: an inter-comparison study** Stella G. Giannissi, Alexandros G. Venetsanos, Donatella Cirrone, et.al.	**ID95, Application of Pipeline QRA Methodologies to Hydrogen Pipelines** Adnan Aslam, Nigel Curson	**ID85, Material-based hydrogen storage projection** İrem Ozsevgin, Fikret Müge Alptekin, Melih Soner Celiktas
14:20	**ID74, CFD simulations of large scale LH2 dispersion in open environment** Stella G. Giannissi, Alexandros G. Venetsanos, Elena Vyazmina, et.al.	**ID176, The NREL Sensor Laboratory: Status and Future Directions for Hydrogen Detection** Matthew Post, William Buttner, Kevin Hartmann, et.al.	**ID189, The challenges of Hydrogen Storage on a large scale** Olivier Rambert, Linda Febvre
14:40	Coffee Break		
	Behaviour of Cryogenic Hydrogen: Chair Mike Kuznetsov	**Power to Hydrogen & Hydrogen to Power Related Safety Issues: Chair Stella Giannissi**	**Communicating Safety & Education: Chair Daniele Melideo**
14:45	**ID115, Results of the Pre-Normative Research Project PRESLHY for the Safe Use of Liquid Hydrogen** Thomas Jordan, Laurence Bernard, Donatella Cirrone, et.al.	**ID104, Effect of Hydrogen Concentration on Laminar Burning Velocities of Methane - Carbon Dioxide - Air Mixtures** Akihiro Ueda, Keiya Nisida, Yukihiko Matsumura, et.al.	**ID184, A chicken and egg situation: Enhancing emergency service workers knowledge of hydrogen** Peta Ashworth, Belinda Wade, Kathy Witt, et.al.
15:05	**ID45, Effect of wind on cryogenic hydrogen dispersion from vent stacks** Ethan Hecht, Nick Killingsworth	**ID3, Investigation of Hydrogen Leaks from Double Ferrule Fittings** Tianze Wang, Fuyuan Yang, Xintao Deng, et.al.	**ID194, Why Ultrasonic Gas Leak Detection?** Claudio Fecarotta, Andrzej Janowski

15:25	**ID111, CFD model based ANN prediction of flammable vapor cloud formed by liquid hydrogen spill** Pan He, Xuefang Li, Pierre Bénard, et.al.	**ID20, Hydrogen generation on Orkney: integrating established risk management best practice to emerging clean energy developments** Matt Beeson, Chris Ward	**ID96, Examining the Role of Safety in Communication Concerning Emerging Hydrogen Technologies by Selected Groups of Stakeholders** Efthymia Derempouka, Trygve Skjold, Håvard Haarstad, et.al.
15:45	**ID32, Some fundamental combustion properties of "cryogenic" premixed hydrogen air flames** Christophe Proust, Didier Jamois	**ID62, Numerical Study of Hydrogen Addition Effects on Aluminum Particle Combustion** Minhyeok Lee, Rinrin Saeki, Yuji Suzuki, et.al.	
16:05	**ID7, Flame characteristics of ignited pressurized cryogenic hydrogen jets** Zhaoxin Ren, Jennifer X Wen	**ID185, Exploring the Australian public's response to hydrogen** Vicki Martin, Peta Ashworth	
16:25	End of the Day		

Time BST (UTC+1)	**Wednesday, September 22, 2021**		
11:00	**Welcome Remarks - Stuart Hawksworth (President IAHySafe) & Stuart McKay (Head of Hydrogen Policy, Scottish Government) Standardisation and Global Efforts**		
11:10	**Standardisation and Global Efforts** Andrei Tchouvelev		
11:25	**International Standards Organisation (ISO) Technical Committee 197** Andrei Tchouvelev (Chair), Tetsufummi Ikeda (Chair Elect)		
11:40	**UK Government Department of Business, Energy and Industrial Strategy (BEIS)** Keith Howell		
11:55	**European Committee for Standardisation** Bernard Gindroz		
12:10	**International Partnership for Hydrogen and Fuel Cells in the Economy, Regulations Codes, Standards and Safety Working Group** Pietro Moretto		
12:25	**Panel Session with the above speakers chaired by** Andrei Tchouvelev		
12:50	Coffee Break		
	Behaviour of Hydrogen Mixtures: Chair Josué Melguizo-Gavilanes	**Regulations, Codes and Standards (RCS): Chair Trygve Skjold**	**Hydrogen Effects on Materials and Components: Chair Inaki Azkarate**
13:00	**ID134, Flame Ball to Deflagration Transition in hydrogen-air mixtures** Valerii Denisenko, Igor Kirillov	**ID121, On Board 70 MPa Hydrogen Composite Pressure Vessel Safety Factor** Stephane Villalonga, Joel Toulc'Hoat, Thierry Laguionie, et.al.	**ID114, The influence of grain boundary and hydrogen on the indentation of bicrystal nickel** Kaiyu Zhang, Yuanyuan Zheng, Chengshuang Zhou, et.al.
13:20	**ID160, Three-dimensional structures of N_2-diluted stochiometric H_2-O_2 flames in narrow channels** Yves Ballossier, Fernando Veiga López, Florent Virot, et.al.	**ID56, Measurements and Modeling on Hydrogen Jet an Combustion from a Pressurized Vessel** Qingxin Ba, Jianjun Xiao, Thomas Jordan, et.al.	**ID133, Crack Management of Hydrogen Pipelines** Daniel Sandana, Neil Gallon, Robert Andrews, et.al.
13:40	**ID155, The role of Ar and He bath gas on the detonation structure of H_2/O_2 mixture** Farzane Zangene, Zekai Hong, Matei Radulescu.	**ID38, Hydrogen blowdown release experiments at different temperatures in the DISCHA-facility** Anke Veser, Andreas Friedrich, Mike Kuznetsov, et.al.	**ID139, Evaluating the opportunity to repurpose gas transmission assets for hydrogen transportation** Antony Green, Lloyd Mitchell, Ashley Adams.
14:00	**ID22, Experimental study of the explosion severity of vented methane/hydrogen deflagrations** David Torrado, James Fletcher, Ed Sanderson, et.al.	**ID47, Analysis to support revised distances between bulk liquid hydrogen systems and exposures** Ethan Hecht, Brian Ehrhart	**ID51, Fracture Properties of Welded 304L in Hydrogen Environments** Joseph Ronevich, Michael Maguire, Dorian Balch, et.al.

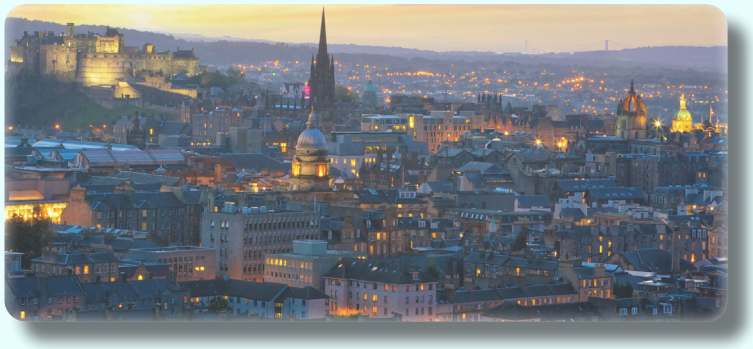
14:20	**ID78, Moving Gas Turbine package from conventional gas to hydrogen blend** Stefano Minotti, Giacomo Pampaloni, Marco Baldini, et.al.	**ID17, Approaches and methods to demonstrate repurposing of the UK's Local Transmission System (LTS) pipelines for transportation of hydrogen** Adam Bannister, Zoe Chaplin, Simon Gant, et.al.	**ID156, H-Mat Hydrogen Compatibility of NBR and HNBR Elastomers** Kevin Simmons, Wenbin Kuang, Alice Dohanlkova, et.al.
14:40	Coffee Break		
	Hydrogen for Heat: Chair Jay Keller	**Behaviour of Gaseous Hydrogen (GH_2): Chair Mike Kuznetsov**	**Regulations, Codes and Standards (RCS): Chair Trygve Skjold**
14:45	**Topical Presentation:** **Hydrogen for Heat Project - Safety Assessment** Mark Crowther, Technical Director, Kiwa Gastech	**ID113, Modelling of Ventilated Hydrogen Dispersion in Presence of Co-Flow and Counter-Flow** Stella G. Giannissi, Ilias C. Tolias, Hazhir Ebne Abbasi, et.al.	**ID126, Towards Unified Protocol for PAR Performance Rating and Safety Margins Assessment: PAR Life - cycle Systemic Model** Igor Kirillov, Natalia Kharitonova, Eugenii Bezgodov, et.al.
15:05		**ID128, Critical Morphological Phenomena during Ultra-Lean Hydrogen-Air Combustion in Closed Horizontal HeleShaw Cell** Valerii Denisenko, Sergey Kingsep, Igor Kirillov, et.al	**ID150, Establishing the state of the art for the definition of safety distances for hydrogen refuelling stations** Prankul Middha, Ed Macfarlane, Steve Howell, et.al.
15:25	**ID195, Mitigation of CO poisoning hazard in malfunctioning gas appliances through use of hydrogen blended gas** Mark Pursell, Doug Wagstaff , Paul McLaughlin, et.al.	**ID154, A model for hydrogen detonation diffraction or transmission to a nonconfined layer** Matei Radulescu, Remy Mevel, Qiang Xiao, et.al.	**ID171, French Guide to Conformity Assessment and Certification of Hydrogen Systems** Bruno Debray, Benno Weinberger
15:45	**ID2, Numerical modeling of a moderate hydrogen leakage in a typical two-vented fuel cell configuration** Elie Saikali, Pierre Ledac, Adrien Bruneton, et.al	**ID14, Experimental Study and Model Predictions on Helium Release in an Enclosure with Single or Multiple Vents** Zhe Liang, Kyle Barlow, Robert David	**ID36, Gas Turbine Enclosures: Determining Ventilation Safety Criteria using Hydrogen Explosion Modelling.** Tristan Vye, Daniel Miles
16:05	**ID81, Hydrogen Sensing Properties of UV Enhanced Pd-SnO_2 Nano-spherical Composites at Low Temperature.** Peiyu Duan, Zhaoyu Wang, Huahua Xiao, et.al.	**ID177, Worst Case Scenario for Delayed Explosion of Hydrogen Jets at a High Pressure: Ignition Position** Elena Vyazmina, Jerome Daubech, Jerome Hebrard, et.al.	**ID125, Influence of non-equilibrium conditions on liquid hydrogen storage tank behavior** Derek Machalek, Gabriela Bran Anleu, Ethan Hecht
	Extended Sessions		
	Tools for Modelling Hydrogen Infrastructure: Chair Simon Gant	**Safety in Hydrogen Infrastructure: Chair Luisa Giuliani**	**Behaviour of Gaseous Hydrogen (GH_2): Chair Mike Kuznetsov**
16:35	**ID82, Analysis of a Large Hydrogen Balloon Explosion** Bob Zalosh	**ID50, Shock tube experiments on flame propagation regimes and critical conditions for flame acceleration and detonation transition for hydrogen-air mixtures at cryogenic temperatures** Mike Kuznetsov, Andrey Denkevits, Andreas Friedrich, et.al.	**ID41, Hydrogen jet structur in presence of forced CO-, counter-and cross-flow ventilation** Joachim Grune, Karsten Sempert, Mike Kuznetsov, et.al.
16:55	**ID52, Numerical simulation of leaking hydrogen dispersion behavior** Liang Zhang, Nan Wang, Xuelun Chang, et.al.	**ID58, Numerical Simulation on Hydrogen Leakage and Dispersion Behavior in Hydrogen Energy Infrastructures** Shen Chen, Fuming Yang, Huajian Chang, et.al.	**ID55, Velocity Measurements of Hydrogen Jets using the Optical Flow Method** Teng Huang, Xu Zhang, Qingxin Ba, et.al.
17:15	**ID68, Quantitative risk assessment of the model representing latest Japanese hydrogen refueling stations** Tomoya Suzuki, Kaname Kawatsu, Kento Shiota, et.al.	**ID75, Effect of heat transfer through the release pipe on simulations of cryogenic hydrogen jet fires and hazard distances** Donatella Cirrone, Dmitriy Makarov, Mike Kuznetsov, et.al.	**ID93, Flame acceleration and deflagration-to-detonation transition in a channel with triangular obstacles** Huahua Xiao, Xiaoxi Li, Jinhua Sun
17:35	**ID84, Effect of flow speed on ignition characteristics of hydrogen/air mixtures** Koji Yamazaki, Wookyung Kim, Yohsuke Tamura	**ID147. AMHYCO project – towards advanced accident guidelines for hydrogen safety in nuclear power plants** Gonzalo Jiménez, Luis Enrique Herranz, Ahmed Bentaib, et al.	**ID153, Hydrogen Wide Area Monitoring of LH_2 Releases at HSE for the PRESHLY Project** William Buttner, Tashi Wischmeyer, Jonathan Hall, et.al.
17:55	**ID193, Fire spread scenarios involving hydrogen vehicles** Wenqian Liu, Frank Markert, Luisa Giuliani, et.al.	**ID87, Explosive phase transition in LH_2** Knut Vaagsaether, Per Morten Hansen, Dag Bjerketvedt	**ID40, Investigation into the crosssensitivity of domestic carbon monoxide alarms to hydrogen** Adam Robinson, Daniel Allason

Time BST (UTC+1)	Thursday, September 23, 2021		
11:00	**Welcome Remarks - Stuart Hawksworth (President IAHySafe) & Stuart McKay (Head of Hydrogen Policy, Scottish Government)** **The Safety Challenges Associated with Scaling up the Hydrogen Industry**		
11:10	**Industry (Scale Up) - Shell Hydrogen** Carlyn Greenhalgh		
11:25	**Engie** Linda Febvre, HSE Manager		
11:40	**Air Liquide** Xavier Vigor, Vice President Technolgies H2 Energy		
11:55	**Kawasaki** Motohiko Nishimura, Dr. Eng. Executive Officer, Deputy General Manager, Hydrogen Strategy Division		
12:10	**Hydrogen Europe** Alexandru Floristean, Manager - Intelligence		
12:25	**Panel Session with the above speakers chaired by** Carlyn Greenhalgh		
12:50	Coffee Break		
	Physical Effects, Consequence Analysis: Chair Jennifer Wen	**Safety in Emerging Mobility Markets – Infrastructure, Refuelling and Operation: Chair Pierre Benard**	**Risk / Safety Management: Chair Piet Timmers**
13:00	**ID159, Temperature Effect on the Mechanical Properties of Materials Used for Type IV Hydrogen Storage Tanks** Yifan Li, Jinyang Zheng, Qinan Li	**Topical Presentation: PRHYDE Project** **ID152, Safety and other considerations in the development of a hydrogen fueling protocol for Heavy-Duty Road Vehicles** Claus Due Sinding, Steven Mathison, Spencer Quong, et.al. **ID167, Protocol for Heavy Duty hydrogen refueling: a modeling benchmark** Arnaud Charolais, Fouad Ammouri, Elena Vyazmina, et.al.	**ID59, CFD Simulation of Pressure Reduction Inside Large-Scale Liquefied Hydrogen Tank** Kazuma Tani, Takehiro Himeno, Toshinori Watanabe, et.al.
13:20	**ID60, Numerical evaluation of terrain landscape influence on hydrogen explosion consequences** Yurii Skob, Ugryumov Mykhaylo, Eduard Granovskiy		**ID109, Statistics, lessons learnt and recommendations from analysis of HIAD 2.0 database** Jennifer Wen, Marta Marono, Pietro Moretto, et.al.
13:40	**ID162, An Experimental Study of Propagating Spherical Flames in Unconfined Hydrogen-Oxygen Explosions** Akihiro Shiotani, Wookyung Kim, Toshio Mogi, et.al.	**ID110, Heat transfer models for refueling safety of hydrogen vehicle** Jinsheng Xiao, Wenchao Cai, Xin Zhou, et.al.	**ID123, Hydrogen safety strategies and risk management in Equinor** Unni Nord Samdal, Espen Steinseth Hamborg, David Grainger, et.al.
14:00	**ID28, Condensed Phase Explosions involving Hydogen** Graham Atkinson	**ID118, CFD simulations of the refuelling of long horizontal H_2 tanks** Pierre Carrere, Guillaume Lodier, Elena Vyazmina, et.al.	**ID131, Effect of Renewable Energy Unstable Source to HYdrogen Production: Safety Consideration** Daniele Melideo, Angelica Liponi, Davide Rastelli, et.al
14:20	**ID79, Experimental study on the self ignition of pressurized hydrogen release into three-way tubes** La Ta, Yiming Jiang, Zhilei Wang	**ID175, Minimum fire size for hydrogen storage tank fire test protocol for hydrogen-powered electric city bus determined via risk-based approach** Esther Kim, Wonkook Kim, K.S. Kim, et.al.	**ID91, Chemical inhibition of premixed hydrogen-air-flames: experimental investigation a using 20-litre vessel** Matthijs van Wingerden, Trygve Skjold, Dirk Roosendans, et.al
14:40	Coffee Break		
	Physical Effects, Consequence Analysis: Chair Jennifer Wen	**Safety in Emerging Mobility Markets – Infrastructure, Refuelling and Operation: Chair Pierre Benard**	**Risk / Safety Management: Chair Piet Timmers**
14:45	**ID107, Numerical Simulation of Hydrogen Deflagraton using CFD** Pratap Sathiah, Arun K Ampi	**ID42, Full-scale tunnel experiments for fuel cell hydrogen vehicles: jet fire and explosions** Didier Bouix, Etienne Studer, François Sauzzede, et.al.	**ID146, A Brief History of Process Safety Management** Bob Hudson, Martha Boss, Graeme Cook
15:05	**ID18, Towards Efficient and TimeAccurate Simulations of Early Stages of Industrial Scale Explosions** Dario Zivkovic, Thomas Sattelmayer	**ID43, Full-scale tunnel experiments for fuel cell hydrogen vehicles: gas dispersion** Didier Bouix, Etienne Studer, Francois Sauzzede, et.al.	**ID157, Hydrogen Component Leak Rate Quantification for System Risk and Reliability Assessment through QRA and PHM Frameworks** Kevin Hartmann, Camila Correa-Jullian, Jacob Thorson, et.al.

15:25	**ID180, Study of attenuation effect of water droplets on shockwaves from hydrogen explosion** Alexei Kotchourko, Jonas Mohacsi, Alexander Lelyakin, et.al.	**ID151, Safety Compliance Verification of Fuel Cell Electric Vehicle Exhaust** David Pearman, Aaron LoiselleLapointe, William Buttner, et.al.	**ID37, Experimental investigation on the burning behavior of homogeneous H_2-CO-air mixtures in an obstructed, semiconfined channel** Andreas Friedrich, Gottfried Necker, Joachim Grune, et.al.
15:45	**ID66, Laminar burning velocity, Markstein length and cellular instability of spherically propagating NH_3/H_2/air premixed flames at various pressures** Huizhen Li, Huahua Xiao, Jinhua Sun	**ID166, Development of dispensing hardware for safe fueling of heavy duty vehicles** Spencer Quong, Shaun Onorato, Michael Pomerantz, et.al.	**ID21, A Catalyst Fusible Link for Hydrogen Detection and Activation of Passive Ventilation Systems** Zhe Liang, Joshua Murphy, Tony Clouthier, et.al.
16:05	**ID174, Discharge modeling of large scale LH_2 experiments with an engineering tool** Alexandros Venetsanos, Federico Ustolin, Ilias Tolias, et.al.	**ID98, Overview of first outcomes of PNR project HyTunnel-CS** Dmitriy Makarov, Donatella Cirrone, Volodymyr Shentsov, et.al.	**ID129, Risk Assessment of a Gaseous Hydrogen Fuelling Station** Nicolas Tillier, Florian Salique, Lauris Joubert, et.al.
16:25	End of the Day		

Time BST (UTC+1)	**Friday, September 24, 2021**		
11:00	**Welcome Remarks** **Stuart McKay (Head of Hydrogen Policy, Scottish Government) Industry (Scale Up) & Nigel Holmes (Scottish Hydrogen and Fuel Cells Association)**		
11:10	**Hydrogen Council** Daryl Wilson		
11:25	**United States Hydrogen Safety Panel (USHSP) & European Hydrogen Safety Panel (EHSP)** Question and Answer Session chaired by Nigel Holmes		
	Hydrogen Safety Aspects in Other Applications / Industries / Technologies: Chair Owen Quake, BP	**Safety in Hydrogen Infrastructure: Chair Luisa Giuliani**	**Risk / Safety Management: Chair Piet Timmers**
11:55	**ID25, Experimental Parameters of Ignited Congestion Experiments of Liquid Hydrogen in the PRESLHY Project** Kieran Lyons, Graham Atkinson, Simon Coldrick, et.al.	**ID63, A CFD Analysis of Liquid Hydrogen Vessel Explosions Using the ADREA-HF Code** Federico Ustolin, Ilias Tolias, Stella Giannissi, et.al.	**ID71, Siting and co-location with hydrogen: What are the risks?** Nurul Huda, Matt Beeson
12:15	**ID31, Fuel Cell Solution for Marine Applications** David Yorke	**ID61, Numerical Analysis on the Mechanism of Blast Mitigation by Water Droplets** Kakeru Shibue, Yuta Sugiyama, Akiko Matsuo	**ID90, Baselining the Body of Knowledge for Hydrogen Shock Interactions and Debris Escalation** Edward Macfarlane, Martha Bates, Ian Barnes, et.al.
12:35	**ID53, A Comparative Study of CFD modelling for Lean Premixed Hydrogen Deflagrations in Large-Scale Vented Vessels** Lucian Ivan, Zhe Liang, Mohamed Khalil, et.al.	**ID48, Hydrogen compatibility of structural materials in natural gas networks** Chris San Marchi,Rakish Shrestha, Joe Ronevich	**ID106, Numerical Prediction of Lean Premixed Hydrogen Deflagrations in Vented Vessels** Mohamed Khalil, Allan Cheung, Clinton Groth, et.al.
12:55	Coffee Break		
	Hydrogen Vehicles (Material Handling, Cars and Buses) and Related Fuelling Infrastructure: Chair Frank Markert	**Safety in Hydrogen Infrastructure: Chair Luisa Giuliani**	**Hydrogen Safety Aspects in Other Applications / Industries / Technologies: Chair Nick Smith**
13:00	**Topical Presentation:** **The Aberdeen Hydrogen Hub** Aberdeen City Council	**ID214, Experimental study on flame characteristics of cryogenic hydrogen jet fire** Xing Yu, Yue Wu, Yanqiu Zhao, et.al.	**ID127, Combustion Regimes of HydrogenAir-Steam Mixtures,** Gustav Nyrenstedt, Romain Grosseuvres, Andrea Comandini, et.al.

13:20	**ID191, Proposed Approch to Calculate Safety Distances for Hydrogen Fuelling Station in Italy** Martino Schiavetti, Marco Carcassi	**ID142, Numerical simulations of suppression effect of water mist on hydrogen deflagration in confined spaces** Zhanjie Xu, Zhi Zhang, Alexei Kotchourko, et.al.	**ID137, Spherically Expanding Flame Simulations in Cantera using a Lagrangian Formulation** Brian Maxwell, Remy Mével, Josué Melguizo-Gavilanes
13:40	**ID27, Quantitative Risk Analysis of Scaled-up Hydrogen Facilities** Asmund Huser, Marta Bucelli, Ksenia Zakariyya, et.al.	**ID143, Numerical study on shock wave attenuation by water mist in confined spaces** Zhanjie Xu, Jonas Mohacsi, Alexei Kotchourko, et.al.	**ID138, Uncertainty of Acceleration of a Premixed Laminar Unstable Hydrogen Flame** Artem Elyanov, Andrei Gavrikov, Victor Golub, et.al.
14:00	**ID158, Residual Tensile Properties of Carbon Fiber Reinforced Epoxy Riesin Composites at Elevated Temperatures** Gai Huang, Qunjie Lu, Qinan Li, et.al.	**ID190, Simulation of hydrogen mixing and PAR operation during accidental release in an LH_2 carrier machine room** Stephan Kelm, Johannes Baggemann, Ernst-Arndt Reinecke, et.al.	**ID76, Numerical Investigation of Thermal Hazards from Underexpanded Hydrogen Jet Fires Using a New Scheme for the Angular Discretization of the Radiative Intensity** Georgios Momferatos, Alexandros Venetsanos, Paola Russo
14:20	**ID54, Modeling of Unintended Hydrogen Releases from a Fuel Cell Tram** Bin Liu, Chunxing Pei, Teng Huang, et.al.	**ID46, An investigation into the change in leakage when switching from natural gas to hydrogen in the UK gas distribution network** Andrew Garrison, Simon Gant	**ID161, Simulation of turbulent combustion in a small-scale obstructed chamber using flamefoam** Justina Jaseliūnaitė, Mantas Povilaitis
14:40	Coffee Break		
	Hydrogen Vehicles (Material Handling, Cars and Buses) and Related Fuelling Infrastructure: Chair Frank Markert	**Safety in Hydrogen Infrastructure: Chair Luisa Giuliani**	**Hydrogen Safety Aspects in Other Applications / Industries / Technologies: Chair Owen Quake, BP**
14:45	**ID94, Tactical Depressurization of Hydrogen and CNG Tanks using Rifles and other Projectiles** Marcus Runefors, Erik Egardt	**Topical Presentation:** **Fife H100 Neighbourhood Project** Angus McIntosh, SGN	**ID164, RANS simulation of hydrogen flame propagation in an acceleration tube: examination of k-ω SST model parameters** Mantas Povilaitis, Justina Jaseliūnaitė
15:05	**ID88, Effect of TPRD diameter and direction of release on hydrogen dispersion in underground parking** Volodymyr Shentsov, Dmitriy Makarov, Vladimir Molkov	**ID117, Evidence base utilised to justify a hydrogen blend gas network safety case** Tommy Isaac, Sikander Mahmood, Adam Madgett	**ID172, Three-Dimensional Simulations of Lean H_2 -Air Flames Propagating in a Narrow Gap: Validity of the Quasi-Two-Dimensional Approximation** Josué Melguizo-Gavilanes, Daniel Fernández Galisteo, Anne Dejoan, et.al.
15:25	**ID105, Numerical study of the effects of tunnel inclination and ventilation on the dispersion of hydrogen released from a car** Nektarios Koutsourakis, Ilias Tolias, Stella Giannissi, et.al.	**ID144, Investigation on cooling effect of water sprays on tunnel fires of hydrogen** Zhanjie Xu, Fan Jiang, Thomas Jordan	**ID179, Hydrogen stratification in enclosures in dependence of the gas release momentum** Dorota Brzezińska
15:45	**ID102, Risk assessment and mitigation evaluation for hydrogen vehicles in private garages. Experiments and modelling.** Deborah Houssin-Agbomson, Elena Vyazmina, Baptiste Ravinel, et.al.	**ID103, Development of Risk Mitigation Guidance for Sensor Placement Indoors and Outdoors** Andrei V. Tchouvelev, William Buttner, Benjamin Angers	**ID23, Stand-off detection and mapping of hydrogen concentration** David Armstrong, Matthew Warden, David Stothard
16:05	**ID15, Adapting Maintenance Facilities for Hydrogen** David Yorke	**ID64, Effect of mechanical ventilation on accidental hydrogen releases – large scale experiments** Agnieszka Lach, Andre Gaathaug	**ID24, Characterisation, dispersion and electrostatic hazards of liquid hydrogen for the PRESLHY project** Jonathan Hall, Philip Hooker, Kieran Lyons, et.al.
16:25	**Closing Remarks - Marco Carcassi & Stuart Hawksworth**		
	Conference Closes		



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