



International Conference  
on Hydrogen Safety

**SEPTEMBER 11-13, 2017**

**Former Main Customs Office  
Hamburg (Germany)**

**PROGRAM**

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side events**  
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Time	Monday, September 11, 2017		
8:00	Registration Open		
9:00	1st Floor: "Zollhalle"	<b>Welcome Remarks</b> Thomas Jordan, President IA HySafe <b>Welcome Remarks</b> Michael Pollmann, Hamburg Authority for Environment and Energy	
	<b>Political Plenary</b> Chair Thomas Jordan		
9:15	<b>Germany / NIP</b> Thorsten Herbert		
9:30	<b>EU / FCH JU</b> Bart Biebuyck		
9:45	<b>US / DOE</b> Will James		
10:00	<b>Japan / HySut</b> Tetsufumi Ikeda (ID215)		
10:15	<b>Australia / Adelaide Roadmap</b> Richard Day		
10:30	<b>Hydrogen Council</b> Aaron Harris		
10:45	Break		
	1st Floor: "Zollhalle"	2nd Floor: "Galerie"	3rd Floor: "Zolllager"
	<b>Regulations, Codes and Standards</b> Chair Piet Timmers	<b>Fluid-Structure Interaction</b> Chair Alexei Kotchourko	<b>Deflagrations, Detonations</b> Chair Dag Bjerketvedt
11:20	<b>Mini-round table on ISO/TC 197 and relevant international activities related to hydrogen infrastructure rollout</b> Andrei V. Tchouvelev, Herve Barthelemy and Nick Barilo	<b>ID165, Dynamic load analysis of explosion in inhomogeneous hydrogen-air mixtures</b> Knut Vaagsaether, Kanchan Rai, Dag Bjerketvedt	<b>ID150, Delayed explosion of hydrogen high pressure jets in a highly obstructed geometry</b> Elena Vyazmina, Simon Jallais, Jerome Daubech, et.al.
11:40		<b>ID224, Structural response for vented hydrogen deflagrations: coupling CFD and FE tools</b> Trygve Skjold, Helene Hiskén, Arve Grønsund Hanssen, et. al	<b>ID147, Delayed explosion of hydrogen high pressure jets: an inter comparison benchmark study</b> Elena Vyazmina, Simon Jallais, Laura Gastaldo
12:00	<b>ID110, Regulations, codes, and standards (RCS) for multi fuel motor vehicle dispensing stations</b> Carl Rivkin, William Buttner, Robert Burgess	<b>ID242, Modeling of hydrogen flame dynamics in narrow gap with bendable walls</b> Alexei Kotchourko, Alexander Lelyakin, Thomas Jordan	<b>ID102, Hydrogen combustion experiments in a vertical semi-confined channel</b> Andreas Friedrich, Grune Joachim, Karsten Sempert, et.al.
12:20	<b>ID111, Regulations, codes, and standards (RCS) for large scale hydrogen systems</b> Carl Rivkin, William Buttner, Robert Burgess	<b>ID292, Experimental measurements of structural displacement during hydrogen vented deflagrations for FE model validation</b> Tommaso Pini, Arve Grønsund Hanssen, Martino Schiavetti, et.al.	<b>ID163, Numerical modelling of flame acceleration and transition to detonation in hydrogen/air mixtures with concentration gradient</b> Reza Khodadadi Azadboni, Ali Heidari, Jennifer X Wen
13:00	Lunch		

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	1st Floor: "Zollhalle"  Hydrogen Fueling Stations Chair Jay Keller	2nd Floor: "Galerie"  Jets Chair Dmitriy Makarov	3rd Floor: "Zolllager"  Deflagrations, Detonations Chair Akiko Matsuo
14:20	Experience with Hafencity Hydrogen Refueling Station Arne Jacobsen	TPRD Jet fire release simulation in tunnels US SNL representative (TBD)	ID164, PIV-measurements of reactant flow in hydrogen-air explosions Knut Vaagsaether, André Gaathaug, Dag Bjerketvedt
14:40	ID107, Risk based safety distances for hydrogen refuelling stations Piet Timmers, Gea Stam		ID195, Numerical and experimental investigation of H2-air and H2-O2 detonation parameters in a 9 m long tube, introduction of a new detonation model Konrad Malik, Mateusz Zbikowski, Piotr Lesiak, et.al.
15:00	ID134, Security risk analysis of a hydrogen fueling station with an on-site hydrogen production system involving methylcyclohexane Jo Nakayama, Naoya Kasai, Tadahihiro Shibutani, et.al.	ID117, Analysis of transient supersonic hydrogen release, dispersion and combustion Wolfgang Breitung, Gerold Halmer, Thomas Jordan, Mike Kuznetsov, et.al.	ID199, Experiments on flame acceleration and DDT for stoichiometric hydrogen/air mixture in a thin layer geometry Mike Kuznetsov, Joachim Grune
15:20	ID159, Evaluation of the protection effectiveness against overpressure from hydrogen-air explosion Yuriy Skob, Mykhaylo Ugryumov, Eduard Granovskiy	ID143, Simulation of thermal radiation from hydrogen under-expanded jet fire Donatella Cirrone, Dmitriy Makarov, Vladimir Molkov	Physical behavior of hydrogen and its role in evaluating the hazards and consequences of accidental explosions C. Regis Bauwens, Sergey Dorofeev
15:40	ID168, Adapted tube cleaning practices to reduce particulate contamination at hydrogen fueling stations Daniel Terlip, K. Hartmann, Carl Rivkin	ID144, A study of hydrogen flame length with complex nozzle geometry Mathias Henriksen, Joachim Lundberg, Andre. V. Gaathaug	
16:00	Break		
	First Responders Chair Ulrich Schmidtchen	Jets Chair Jennifer Wen	Ignition Chair Dmitriy Makarov
16:20	Firefighters' feedbacks on real life FCEV TPRD releases in traffic accident and garage fires Captain Sebastien Cardou, Franck Verbecke, Colonel Serge Delaunay, Colonel Michel Gentilleau, et al.	ID160, Measurements of flow velocity and scalar concentration in turbulent multi-component jets Majid Soleimani nia, Brian Maxwell, Peter Oshkai, et.al.	ID106, Experimental determination of minimum ignition current (mic) for hydrogen /methane mixtures for the determination of the explosion group corresponding to IEC 60079-20-1 Agnès Janes, Jerome Lesage, Benno Weinberger, et.al.
16:40		ID176, Large eddy simulations of asymmetric turbulent hydrogen jets issuing from realistic pipe geometries Brian Maxwell, Majid Soleimani nia, Peter Oshkai, et.al.	ID220, Ignition of hydrogen-air mixtures under volumetric expansion conditions Remy Mevel, Josue Melguizo-Gavilanes, Dmitry Davidenko
17:00	ID316, European hydrogen safety training programme for first responders: hyresponse outcomes and perspectives Franck Verbecke, Sebastien Bertau, Vladimir Molkov, et. al.	ID243, Development of a generalized integral jet model Nijs Jan Duijm, Frank Markert, Armin Kessler	ID236, Effect of rotation on ignition thresholds of stoichiometric hydrogen mixtures Josué Melguizo-Gavilanes, Joseph E. Shepherd
17:20	ID175, Study of fire risk and accidents emergency disposal technology system of hydrogen fuel vehicles Xuanya Liu, Ye Chen	ID244, Interaction of hydrogen jets with hot surfaces Armin Kessler, Sebastian Knapp, Volker Weiser, et.al.	ID239, Effects of oxidants on hydrogen spontaneous ignition: experiments and modelling Simon Jallais, Elena Vyazmina, Mike Kuznetsov, et.al.
17:40	ID232, Tokyo Gas' efforts regarding impact assessment on surroundings and emergency response training Shumpei Uchida	ID193, Numerical prediction of forced-ignition limit in high-pressurized hydrogen jet flow through a pinhole Makoto Asahara, Nobuyuki Tsuboi, et.al.	ID162, Numerical investigation on the self-ignition behavior of high pressure hydrogen released from the tube Hiroaki Watanabe, Akiko Matsuo

Time	Tuesday, September 12, 2017		
	1st Floor: "Zollhalle"		Safety Plenary Chair Andrei Tchouvelev
9:00	US Hydrogen Safety Panel Experience Nick Barilo		
9:20	Outcome of the Research Priorities Workshop Jay Keller		
9:40	Situated European expectations for hydrogen fuel cell electric vehicles: a five country study Paul Upham (ID245)		
10:00	Risk Perception and Technology Acceptance Thomas Jordan, Christian Büscher		
11:00	Break		
	1st Floor: "Zollhalle"	2nd Floor: "Galerie"	3rd Floor: "Zolllager"
	Vehicle Onboard storage, COPV Chair Daniele Melideo	Vented Deflagrations Chair Trygve Skjold	Release & Dispersion Chair Luc Bauwens
11:20	ID103, A dual zone thermodynamic model for refueling hydrogen vehicles Jinsheng Xiao, Xu Wang, Pierre Bénard, et.al.	ID109, Homogeneous hydrogen deflagrations in small scale enclosure. Experimental results. Martino Schiavetti, Tommaso Pini, Marco Nicola Carcassi	ID113, Experimental measurements, CFD simulations and model for a helium release in a two vents enclosure Gilles Bernard-Michel, Elie Saikaly, Deborah Houssin
11:40	ID202, Monte-Carlo-analysis of minimum load cycle requirements for composite cylinders for hydrogen Georg Mair, Ben Becker	ID155, Performance evaluation of empirical models for vented lean hydrogen explosions Anubhav Sinha, C. Madhav Rao Vendra, Jennifer X Wen	ID114, Highly resolved large eddy simulations of a laminar-turbulent transitional air-helium buoyant jet in a two vented enclosure: validation against particle image velocimetry experiments Elie Saikali, Gilles Bernard-Michel, Anne Sergent, et.al.
12:00	ID186, Non-adiabatic blowdown model: a complimentary tool for the safety design of tank-TPRD system Mohammad Dadashzadeh, Dimitry Makarov, Vladimir Molkov	ID146, Vented explosion of hydrogen / air mixtures: influence of vent cover and stratification Elena Vyazmina, Simon Jallais, Mikhail Kuznetsov	ID295, Observation of the hydrogen dispersion by using Raman scattering measurement and increase of measurable distance Yuta Segawa, Masahiro Inoue, Akihiro Nakamoto, et.al.
12:20	ID115, Effects of the injector direction on the temperature distribution during filling of hydrogen tanks Daniele Melideo, Daniele Baraldi, Nerea De Miguel Echevarria, et.al.	ID108, The role of the flow field generated by venting process on the pressure time history of a vented deflagration Martino Schiavetti, Tommaso Pini, Marco Nicola Carcassi	ID131, LES simulation of buoyancy jet from unintended hydrogen release with GASFLOW-MPI Yabing Li, Han Zhang, Jianjun Xiao
12:40	ID125, Model of 3D conjugate heat transfer and mechanism of compressed gas storage failure in a fire Sergii Kashkarov, Dmitriy Makarov, Vladimir Molkov	ID154, Vented hydrogen deflagrations in an ISO container C. Madhav Rao Vendra, Jennifer X Wen	ID138, Numerical study of the release and dispersion of a light gas using 3D CFD code GASFLOW-MPI Han Zhang, Jianjun Xiao, Yabing Li
13:00	Lunch		

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	1st Floor: "Zollhalle" <b>Vehicle Onboard storage, COPV</b> Chair Pietro Moretto	2nd Floor: "Galerie" <b>Vented Deflagrations</b> Chair Sergey Dorofeev	3rd Floor: "Zolllager" <b>Release &amp; Dispersion</b> Chair Luc Bauwens
14:20	<b>ID136, Residual performance of composite pressure vessels submitted to mechanical impacts</b> Pierre Blanc-Vannet, Olivier Bardoux, Noémie Alexandre, et.al.	<b>ID223, Vented hydrogen deflagrations in containers: effect of congestion for homogeneous mixtures</b> Trygve Skjold, Helene Hisken, Sunil Lakshminpathy, et.al.	<b>ID132, Development of a realistic hydrogen flammable atmosphere inside a 4-m³ enclosure</b> Audrey Dulcos, Christophe Proust, Jerome Daubech, et.al.
14:40	<b>ID137, Fire tests carried out in FCH JU FIRECOMP project, recommendations and application to safety of gas storage systems</b> Pierre Blanc-Vannet, Simon Jallais, Béatrice Fuster, et.al.	<b>ID142, A new approach to vented deflagration modeling</b> Ilias Tolias, Alexandros Venetsanos	<b>ID248, Some issues concerning the CFD modelling of confined hydrogen releases</b> Habib Kone, Audrey Duclos, Christophe Proust, et.al.
15:00	<b>ID105, Analysis of out-of-spec events during refueling of on-board hydrogen tanks</b> Nerea de Miguel Echevarria, eatriz Acosta Iborra, Pietro Moretto, et. al	<b>ID222, Consequence models for vented hydrogen deflagrations: CFD vs. engineering models</b> Trygve Skjold, Helene Hisken, Gordon Atanga, et.al.	<b>ID207, Hydrogen dispersion in a closed environment</b> Maria De Stefano, Xavier Rocourt, Isabelle Sochet, et.al.
15:20	<b>ID104, The residual strength of automotive hydrogen cylinders after exposure to flames</b> Yohsuke Tamura, Koji Yamazaki, Kiyotaka Maeda, et.al.	<b>ID149, Vented explosion of hydrogen / air mixture: an inter omparision benchmark exercise</b> Elena Vyazmina, Simon Jallais, Laurent Krumenacker, et.al.	<b>ID209, Non-steady characteristics of dispersion and ignitability for high-pressurized hydrogen jet discharged from a pinhole</b> Kazuki Okabayashi, Kenji Tagashira, Kohei Kawazoe, et.al.
15:40		<b>ID225, Blind-prediction: estimating the consequences of vented hydrogen deflagrations for homogeneous mixtures in a 20-foot ISO container</b> Trygve Skjold, Helene Hisken, Marco Carcassi, et. al.	<b>ID218, A comparison study into low leak rate buoyant gas dispersion in a small fuel cell enclosure using plain and louvre vent passive ventilation schemes</b> Tara Ghatauray, James Ingram, Paul Holborn
16:15	<b>GUIDED VISIT TOUR TO VATTENFALL HAFEN CITY HRS</b>		
19:00	<b>GALA DINNER at NORD EVENT PANORAMADECK in Emporio, Dammtorwall 15, 20355 Hamburg</b>		

Time	Wednesday, September 13, 2017		
	1st Floor: "Zollhalle"		Technology Outlook Chair Akiteru Maruta
9:00	Hydrogen for the heat market Stuart Hawksworth, HSL		
9:20	Large scale energy storage Olaf Kruck, KBB Underground		
9:40	US H2@Scale Laura Hill, DOE		
10:00	Hamburg scales up: EQHHPP to PtH Ulrich Bunger, LBST		
10:20	IEA Hydrogen Mary-Rose Valladares, IEA Hydrogen		
11:00	Break		
	1st Floor: "Zollhalle"	2nd Floor: "Galerie"	3rd Floor: "Zolllager"
	Materials Chair Inaki Azkarate	LH2 Chair Stuart Hawksworth	Nuclear Chair Ernie Reinecke
11:20	ID227, Fatigue and fracture of high-hardenability steels for thick-walled hydrogen pressure vessels Chris San Marchi, Paolo Bortot, John Felbaum, et.al.	Safety and Role of Liquid Hydrogen in the Energy System Stuart Hawksworth	ID112, RBD-fast based sensitivity and uncertainty analysis on a computational hydrogen recombiner test case Bingxu Hou, Jiyang Yu, Zhanjie Xu, et.al.
11:40	ID252, The effect of vacancy concentration on hydrogen diffusion in alpha-Fe by molecular dynamics Xiongying Li, Yongzhi Zhao, Jinyang Zheng, et.al.	ID145, Thermal radiation from cryogenic hydrogen jet fires Donatella Cirrone, Dmitriy Makarov, Vladimir Molkov	ID139, Humidity tolerant hydrogen-oxygen recombination catalysts for hydrogen safety applications Lee Gardner, Adrian Vega, Renaud Tremblay, et.al.
12:00	ID256, Effect of plastic deformation at room temperature on hydrogen diffusion of hot-rolled S30408 Wenmin Qu, Chaohua Gu, Jinyang Zheng, et.al.	ID179, Empirical profiling of cold hydrogen plumes formed from venting of LH2 storage vessels William Buttner, Rivkin Carl, Kara Schmidt, et.al.	ID161, Characterising the performance of hydrogen sensitive coatings for nuclear safety applications Roxana O'Hara, James Ingram, Paul Holborn, et.al.
12:20	ID299, Polymer behaviour in high pressure hydrogen, helium and argon environments as applicable to the hydrogen infrastructure Nalini Chulliyil Menon, A.M. Kruizenga, A. Nissen, B.E. Mills, et.al.	ID123, Mixing and warming of cryogenic hydrogen releases Ethan Hecht, Pratikash Panda	ID130, Prevention of hydrogen accumulation inside the vacuum vessel pressure suppression system of the ITER facility by means of passive auto-catalytic recombiners Paul-Martin Steffen, Ernst-Arndt Reinecke, Stephan Kelm, et.al
12:40	ID183, TPR-XAFS study for hydrogen recombination reaction of platinum metal nanoparticle catalysts Daiju Matsumura, Masashi Taniguchi, Takuya Tsuji, et.al.	ID230, Preliminary boiling experiment using liquid nitrogen under its rapid depressurization Shoji Kamiya, kazuto Yamashiro, Masashi shingo, et.al.	ID231, Influence of initial pressure in hydrogen/air flame acceleration during severe accident in Nuclear Power Plant Roberta Scarpa, Etienne Studer et.al.
13:00	Lunch		

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	1st Floor: "Zollhalle" Storage & Pipe Lines; Chair Herve Barthelemy	2nd Floor: "Galerie" LH2 Chair Stuart Hawksorth	3rd Floor: "Zolllager" Risk Assessment & Hazard Distances Chair John Khalil
14:20	ID293, Hydrogen storage. Recent improvements and industrial perspectives Herve Barthelemy, Mathilde Weber, Olivier Bardoux, et.al.	ID153, Modeling of hydrogen pressurization and extraction in cryogenic pressure vessels due to vacuum insulation failure Julio Moreno-Blanco, Francisco Elizalde-Blancas, Armando Gallegos-Munoz, et.al.	ID229, Monitoring H2 bubbles by real time H2 sensor Takashi Nohmi, Toshio Mogi
14:40		ID152, Modelling liquid hydrogen release and spread on water Farhad Nazarpour, Siaka Dembele, Jernnifer Wen	ID234, Measurement of hydrogen mixing process by high response hydrogen sensor Toshio Mogi, Takashi Nohmi, Ritsu Dobashi
15:00	ID170, Numerical investigation of hydrogen leakage from a high pressure tank and pipeline Yuri Nagase, Yuka Taira, Yuta Sugiyama, et.al.	ID119, Validation of a 3d multiphase-multicomponent CFD model for accidental liquid and gaseous hydrogen releases Christian Jäkel, Stephan Kelm, Karl Verfondern, et.al.	ID126, Hazard distance nomograms for a blast wave from a compressed hydrogen tank rupture in a fire Sergii Kashkarov, Zhiyong Li, Vladimir Molkov
15:20	ID192, Component availability effects for pressure relief valves used at hydrogen fueling stations Moussin Daboya-Toure, Robert Burgess, Aaron Harris	ID158, A comparative CFD assessment study of cryogenic hydrogen and liquid natural gas dispersion Stella, G. Giannissi, Alexandros G. Venetsanos	ID133, Explosion and fire risk analyses of maritime fuel cell rooms with hydrogen Asmund Huser, Nikolai Rivedal, Romain Jambut, et.al.
15:40	ID135, Sample scale testing method to prevent collapse of plastic liners in composite pressure vessels Pierre Blanc-Vannet, Philippe Papin, Mathilde Weber, et.al.	ID120, Application of the validated 3D multiphase-multicomponent CFD model to an accidental liquid hydrogen release scenario in a liquefaction plant Christian Jäkel, Stephan Kelm, Ernst-Arndt Reinecke, et.al.	ID148, Multistage risk analysis and safety study of a hydrogen energy station Bo Zhao, Pengcheng Zhao, Meng Niu, et al.
16:00	Break		
	Storage & Pipe Lines Chair Inaki Azkarate	Sensors Chair William Buttner	Risk Assessment & Hazard Distances Chair John Khalil
16:20	ID228, Compatibility and suitability of existing steel pipelines for transport of hydrogen and hydrogen-natural gas blends Un Bong Baek, Seung Hoon Nahm, Woo Sik Kim, et.al.	ID156, A study on the effectivity of hydrogen leakage detection for hydrogen fuel cell Kiyotaka Maeda, Yohsuke Tamura	ID169, Risk assessment on life safety and financial loss for road accident of fuel cell vehicles Ke Sun, Zhiyong Li
16:40	ID251, Pressure effects of an ignited release from onboard storage in a garage with a single vent Sile Brennan, Harem Hussein, Dmitriy Makarov, et.al.	ID180, Hydrogen safety sensor performance and use gap analysis William Buttner, Robert Burgess, Kara Schmidt, et.al.	ID182, Comparisons of hazard distances and accident durations between hydrogen vehicles and CNG vehicles Zhiyong Li, Yiyong Luo
17:00	ID297, A safety assessment of hydrogen supply piping system by use of FDS Toshimitsu Tanaka, Masahiro Inoue	ID203, Test methodologies for hydrogen sensor performance assessment: chamber vs. flow-through test apparatus Rafael Ortiz Cebolla, Eveline Weidner, Christian Bonato, et.al.	ID184, Socio-economic analysis and quantitative risk assessment methodology for safety design of onboard storage systems Mohammad Dadashzadeh, Sergii Kashkarov, Dimitry Makarov, et.al.
17:20	ID216, Numerical modelling of hazards of hydrogen storage Pratap Sathiah, Chris Dixon	ID211, Response time measurement of hydrogen sensors Thomas Hübert, Jacek Majewski, Ulrich Banach, et.al.	ID233, Best practice in numerical simulation and CFD benchmarking. Results from the SUSANA project I.C. Tolias, S.G. Giannissi, A.G. Venetsanos, et.al.
17:40	1st Floor: "Zollhalle"	Closing Session Marco Carcassi and Nick Smith	

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