



CHAIR: Paola Russo, Sapienza University of Rome

VENUE: Faculty of Civil and Industrial Engineering, Sapienza University of Rome, Italy

Time	Sunday, June 15
16.00 / 19.00	Registration
17.30 / 19.30	Welcome cocktail
Time	Monday, June 16
08.30	Registration
	Room Chiostro
09.20/10.00	<p>Opening Session</p> <p>Paola Russo Chair</p> <p>Carlo Massimo Casciola Dean of the Faculty of Civil and Industrial Engineering, Sapienza University of Rome</p> <p>Paolo De Filippis Head of Department of Chemical Engineering, Materials and Environment, Sapienza University of Rome</p> <p>Giulia Monteleone Director of ENEA Dept. of Energy, Technologies and Renewable Energy Sources</p>

10.00/11.00	PLENARY LECTURE Progress in Computational Hydrogen Safety: Overview of Selected Problems Vladimir Molkov <i>Chair: Paola Russo</i>	
11.00/11.30	Coffee break and poster viewing	
11.30/12.20	HIGHLIGHTED PRESENTATIONS HYDROGEN SAFETY <i>Chair: Federico Ustolin</i>	
11.30/11.55	Thermal effects in concrete slabs impacted by impinging hydrogen jet flames <u>Markert Frank</u> , Sørensen Lars Schjøtt, Liu Wenqian, Gaathaug Andre Vagner, Lach Agnieszka W. 68	
11.55/12.20	Numerical investigation on the pressure multi-peaks structure of a LH2 storage tank “BLEVE” <u>Cirrone Donatella</u> , Makarov Dmitriy, Molkov Vladimir 112	
12.20/14.00	Lunch	
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14.00/15.40	HYDROGEN SAFETY I <i>Chair: Trygve Skjold</i>	BATTERY SAFETY I <i>Chair: Jenq-Renn Chen</i>
14.00/14.20	Experimental results and comparison with FLIC model of delayed ignition of impinging under expanded hydrogen jet on pipe geometry in open atmosphere <u>Lach Agnieszka</u> , Lundberg Joachim, Vågsæther Knut 119	Unveiling the relationship between the energy released during thermal runaway of Li-ion cells and their stored electrical energy Dubourg Sébastien, Rochard Thibaut, Marteau Daniel, <u>Bengaouer Alain</u> , Brun-Buisson David, Reytier Magali, Vincent Rémi 45
14.20/14.40	Numerical modelling of dynamic flashing behaviour in the release of ammonia from pressurised vessel Sivaraman Srinivas, Cirrone Donatella, <u>Makarov Dmitriy</u> , Truchot Benjamin, Molkov Vladimir 60	Analysis of ventilation parameters for explosion risk mitigation in Li-ion battery rooms <u>Olsø Brynhild Garberg</u> , Alonso Maria Justo, Risholt Birgit, Karchniwy Ewa Malgorzata 71

14.40/15.00	The impact of hydrogen concentration on the explosion risk of a biogas-hydrogen-air mixture <u>Kim Joonsik</u> , Kim Wookyung, Kang Chankyu, Park Byungjik, Yoon Unggi, Kim Yangkyun 20	Comprehensive Modeling of Lithium-Ion Batteries Thermal Runaway Behavior <u>Chakaroun Sirar</u> , Coste Pierre, de Persis Stéphanie, Bengaouer Alain, Cognard Jerome, Chaumeix Nabiha 81
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15.20/15.40	Numerical Experiments on Flame Geometry and Thermal Heat Fluxes on Surfaces of New Hydrogen Trailer Using FDS Software <u>Dréan Virginie</u> , Rengel Borja, Soubeyran Aurelien, Bernard Laurence, Paris Laurent, Guillaume Eric, Paping Philippe 37	Exploring the thermal stability of NaNi₁/3Fe₁/3Mn₁/3O₂ cathode for sodium ion batteries <u>Gan Yixiu</u> , Gao Wei 33
15.40/16.10	Coffee break and poster session	
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16.10/16.30	Understanding the conceptual sLH2 Refuelling Protocol: Importance of Restriction on the Initial Mass Flow Rate Ebne-Abbasi Hazhir, <u>Makarov Dmitriy</u> , Molkov Vladimir 95	Quantifying the Hazard from E-Scooter Explosions in a Residential Scale Compartment <u>Fleischmann Charles</u> , Madrzykowski Daniel 140
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14.40/15.00	Experimental Study of Burning Rate and Flame Pulsation of Fires Considering the Interactions between a Thin Layer Pool and an Oil Tank <u>Fang Lulu</u> , Fang Jun, Hu Yong, Tao Shangqing 43	Experimental and Numerical Study on Flashovers Induced by VOC Accumulations in Forest Valley <u>Wang Hui Ying</u> , Jamaladdeen Rawaa, Coudour Bruno, Garo Jean Pierre 16
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10.00/10.50	HIGHLIGHTED PRESENTATIONS FIRE AND EXPLOSION MODELLING IN COMPUTER CODES <i>Chair: Xiangyang Zhou</i>	
10.00/10.25	Uncertainty of Calorimetry Measurement for Medium-scale Fire Experiments Chaudhari Dushyant M, <u>Dow Nicholas</u> 97	
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14.50/16.10	FIRE AND EXPLOSION MODELLING IN COMPUTER CODES II + EVACUATION <i>Chair: Davide Berardi</i>	DEFLAGRATION, DDT, DETONATION AND THEIR MITIGATION II
14.50/15.10	Modeling Occupant Risk during Fire Growth and Evacuation using a System Dynamics Approach <u>Dueñas Santana Julio Ariel</u> , Van Coile Ruben, Salzano Ernesto, Di Benedetto Almerinda 30	Experimental and theoretical study on the explosion venting behaviors of ammonia/hydrogen/air in a large aspect ratio duct <u>Yu Jialing</u> , Cheng Kaige, Wang Xishi 129
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09.00/10.00	PLENARY LECTURE Early Stages of Flame Propagation and Physical Mechanisms of Tulip Flame Formation Mikhail Liberman <i>Chair: Joachim Lundberg</i>	
10.00/10.50	HIGHLIGHTED PRESENTATIONS FUNDAMENTALS OF FIRES AND EXPLOSIONS <i>Chair: Joachim Lundberg</i>	

10.00/10.25	Combustion instabilities in mechanically ventilated enclosure with propane gas fire <u>Pretrel Hugues</u> , Kondorkuzhi Bimal, Savino Arthur, Suard Sylvain 13	
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12.20/12.40	Biohydrogen Production from Biowaste: Assessment of the Flammability of Bioreactors Gaseous Mixtures <u>Russo Paola</u> , Lancia Maria Chiara, Lauri Roberto, Gottardo M., Valentino Francesco 150	Comparative Evaluation of Water Foam and Mist Systems in Suppressing Wood Pallet Fires within Road Tunnels <u>Berardi Davide</u> , Galuppi Marta, Lombardi Mara, Stantero Luca, Boffa Natalino, Bezzi Francesco 17
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15.30/15.50	Validation of FDS and FLACS-Fire Codes Against Radiation from Free Horizontal Hydrogen Jet Fires <u>Rengel Borja</u> , Dréan Virginie, Paris Laurent, Guillaume Eric 36	Pyrolysis of Pine in a Nitrogen Atmosphere using the Cone Calorimeter Irshad Aysha, <u>Andrews Gordon</u> , Phylaktou Horodotos, Gibbs Bernard 123
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16.30/16.50	Fire Behaviour of Biopolymer Soaked by Flammable solvents <u>De Liso Benedetta Anna</u> , Pio Gianmaria, Salzano Ernesto 18	Fire behaviour tests for lithium-ion batteries: A systematic review of battery characteristics, fire test conditions and fire properties <u>Sanfeliu Melia Cristina</u> , Steen-Hansen Anne, Meraner Christoph 87

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09.15/10.15	PLENARY LECTURE Field-scale Experiments of Wildfires for Fire Behavior Albert Simeoni <i>Chair: Franco Tamanini</i>	
10.15/10.35	Greetings and Introduction to the Activities of the Italian Fire Corps Eros Mannino Chief of National Fire and Rescue Corps <i>Chair: Franco Tamanini</i>	
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11.00/11.50	HIGHLIGHTED PRESENTATIONS BATTERY SAFETY <i>Chair: Anne Steen-Hansen</i>	
11.00/11.25	Insights on thermal runaway and fire propagation in a lithium-ion battery energy storage system <u>Cuevas Juan</u> , Zeng Dong, Wang Yi 44	
11.25/11.50	Investigating Heat Transfer to Surroundings from Flaming Batteries Using a Surrogate Fuel Model <u>Lugaresi Francesca</u> , Restuccia Francesco 86	

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11.50/12.10	Enhancing Safety in Lithium-ion Battery Recycling: Lessons from the Hunan Brunp Explosion and Process Optimization <u>Fang Zheng</u> , Wu Zhenwei, Bontempi Elza, Sun Jinhua, Wang Qingsong 63	2D Gaussian Dispersion Model for Low-lying Smoke from a Wildfire Including Downwind Ground Effects <u>Kalogeropoulos Nikolaos</u> , Castagna Alexander, Rein Guillermo 48
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POSTERS

Poster Session June 16 and 17

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1	171 - Development of a hydrogen fire burner for testing aircraft materials and components	Hidalgo Juan P., Dier Florence, Carrascal Jeronimo
2	172 - Experimental study on reducing overpressure of hydrogen gas explosion using water mist	Park Byoungjik, Kim Yangkyun, Yoon Unggi, Kim Joonsik
3	173 - Experimental and Analytical Study on Hydrogen-air Deflagrations in Open Atmosphere	Yangkyun Kim, Park Byungjik, Yoon Woonggi, Kim JoonSik, Hwang In-Ju, Wookyung Kim
4	142 - Investigating the Thermal Hazard to the Immediate Surroundings of a Burning Electric Vehicle	Dehghani Parham, DiDomizio Matthew, Sauer Nathaniel, Barowy Adam
5	158 - Quantitative Analysis of Flames Generated by Li-ion Battery Thermal Runaway	Sponem Léa, Bengaouer Alain, Dubourg Sébastien, Kawka Sébastien, Koudriakov Sergey, Reytier Magali
6	159 - A simplified methodology to enhance efficiency in numerical simulation of thermal runaway in Li-ion batteries for safety applications	Yhuel Emilie, Bengaouer Alain, Kawka Sebastien
7	156 - CFD-based Risk Analysis in Natech Scenarios for Hythane distribution infrastructure	Capasso Elena
8	160 - When Lightning Strikes: Risk Analysis of a Major Accident at the Matanzas Hydrocarbon Facility	Dueñas Santana J.A, Salzano E., Di Benedetto A., Van Coile R.
9	126 - CFD SIMULATIONS OF H2/CH4/H2S DISPERSION AND CONSEQUENCES FOR THE RISK ANALYSIS OF LARGE SCALE H2 STORAGE	Enicchiario Domenico, Portarapillo Maria, Polidoro Franco, Di Benedetto Almerinda

10	128 - Risk assessment of Integrated Fuel Cell Systems for Rail Transport	Portarapillo Maria, Bellucci Sessa Augusto, Di Benedetto Almerinda
11	143 - On Measurements, and Modeling of Diffusion Flames Temperatures Aboard the International Space Station	Dehghani Parham
12	176 - Lift-off and blowout behavior of non-premixed turbulent jet flames with hydrogen-blended natural gas under sub-atmospheric pressure	Tang Fei, Zhu Nannan, Fan Xinyang, Peng Xinyu, Hu Longhua
13	170 - Overpressure Resistance in Structures Subject to Energetic Materials Deflagrations	Paquet Frederick, Paquet Mario
14	165 - The Initiation and Suppression of Organic Peroxide Dust Explosion	Tsai Hsiao-Yun, Peng Hsiang-Ching, Yeh Li-Yu, Huang Po-Hsun, Chen Jenq-Renn
15	148 - Hydrogen release and dispersion in a underground car park under natural ventilation	Russo Paola, Meo Maria Grazia, Nassi Luca
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2	167 - Estimation of Fuel Characteristics and Adaptation of Fuel Maps for the WRF-SFIRE Model in Tropical Peatlands	Katashima Kei, Kobayashi Takuma, Takayama Naru, Segah Hendrik
3	157 - Experimental study on the toxicity of different halogenated olefins to mice	Zong Ruowen, Yao Fuyao, Wang Kaitao
4	88 - Study on the spill fire behaviour and radiant characteristics of compartment fire with double openings under crosswinds	Zheng Yipeng, Tang Fei, Fan Xinyang, Hu Longhua

5	164 - Thermal analysis and dust explosion characteristics of terpene phenolic resin	Choi Yi-rac, Lee Han-Hee, Seo Dong-Hyun
6	106 - Analysis of vented dust explosions in large silos using CFD simulations	Varela Alejandro, Tascón Alberto
7	118 - High-Confinement Explosion Analysis in a Residential Building: A Comparative Study of TNO Model Estimates and Real Gas Consumption Data	Puccia Vincenzo
8	168 - Study on Personnel Evacuation from Ancient Pavilion Architectural Structures-Taking Yellow Crane Tower as an Example	Zelin Zhang, Yang Ling
9	175 - Educational Building Blocks for Analysis of Fire Dynamics Data	Arnold Lukas, Arnold Simone, Bagemihl F., Baitsch M., Fehr M., Poetzsch M., Seipel S., Soennecken M.
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