

ELEVENTH
INTERNATIONAL
SEMINAR



XI
INTERNATIONAL
SEMINAR

FIRE AND
EXPLOSION
HAZARDS

ROME (ITALY)
June 15 - 20, 2025



SAPIENZA
UNIVERSITÀ DI ROMA

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	Opening Session Paola Russo Chair Carlo Massimo Casciola Dean of the Faculty of Civil and Industrial Engineering, Sapienza University of Rome Paolo De Filippis Head of Department of Chemical Engineering, Materials and Environment, Sapienza University of Rome Giulia Monteleone Director of ENEA Dept. of Energy, Technologies and Renewable Energy Sources

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	<i>Coffee break and poster viewing</i>	
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 Schiøtt, 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	
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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
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14.40/15.00	<p>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</p>	<p>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</p>
15.00/15.20	<p>Safe operation of gas fires and cooker hobs on hydrogen <u>Andrews G.E.</u>, Quinonez Ramon, Massey R., Phylaltou H.N., Wakeman R., Maxfield J., Smith S. 144</p>	<p>Flame heat emissions in 18650-type lithium-ion battery thermal runaway with thermally active particles <u>Sadeghi Hosein</u>, Restuccia Francesco 7</p>
15.20/15.40	<p>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</p>	<p>Exploring the thermal stability of NaNi_{1/3}Fe_{1/3}Mn_{1/3}O₂ cathode for sodium ion batteries <u>Gan Yixiu</u>, Gao Wei 33</p>
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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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POSTERS

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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
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