

World Online Conference on Sustainable Technologies

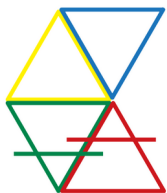
17-19 March, 2021

**Time zone
UTC+1**

Program at a glance

Wednesday, March 17th			Thursday, March 18th			Friday, March 19th		
09:00	09:50	Opening Session & Invited lecture 1	09:00	10:00	Photocatalysis	09:00	10:40	Fuel processes
09:55	10:55	High temperature fuel cells	10:00	11:00	Poster 2	10:40	11:00	Break
10:55	11:15	Break	11:00	11:20	Break	11:00	12:00	Economics / Heat Recovery
11:15	12:35	Power to fuel	11:20	13:00	H ₂ membranes processes 1	12:05	13:05	Metal hydrides
12:35	13:35	Break	13:00	14:00	Break	13:05	14:05	Break
13:45	14:25	Invited lecture 2	14:00	14:40	Invited lecture 3	14:05	15:45	H ₂ membranes processes 2
14:30	15:30	Membrane contactors and crystall.	14:45	15:45	Low temperature fuel cells	15:45	16:00	Closing
15:30	15:50	Break	15:45	16:05	Break			
15:50	16:50	Electrolysis	16:05	17:45	Membrane gas separation			
16:50	17:50	Poster 1	17:45	17:55	H2Site presentation			





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Program

Wednesday March 17th

Opening Session & Invited Lecture #1

9:00-9:10	Welcome address from the Conference Chair
9:10-9:50	<u>Javier Dufour</u> - New developments on life cycle sustainability assessment of hydrogen systems
9:50-9:55	Break
High Temperature Fuel Cells <i>Chaired by Chung-Jen Tseng</i>	
9:55-10:15	<u>Po-Chun Cheng</u> , Kan-Rong Lee, Sheng-Wei Lee, Nanang Setiawan, ING Wardana, Chung-Jen Tseng - Carbon tolerant Ni _{1-x} Cu _x -BCZY anode for methane-fed proton conducting solid oxide fuel cell
10:15-10:35	<u>A. Solovye</u> v, A. Shipilova, E. Smolyanskiy, S. Rabotkin, V. Semenov, and I. Ionov - Solid oxide fuel cells with thin film gadolinium-doped ceria electrolyte
10:35-10:55	<u>Ö. Aydın</u> - Relationship Among Thermal Stresses and Thermal Conductivity of Stack Materials in SOFCs
10:55-11:15	Break
Power to Fuel <i>Chaired by Giorgio Ficco</i>	
11:15-11:35	M. Ibrahim, <u>M. Abdou</u> , M. Bekhiet, P. Mansour, M. Dewidar, M. Hussien, H. Warda, S. Haddara, D. El-Gayar and E. Wahba - Application and Optimization of Power to Gas System for Inland Transportation Through River Nile.
11:35-11:55	<u>A. Vita</u> , C. Italiano, G. Drago Ferrante, L. Pino, M. Laganà, M. Ferraro, V. Antonucci - Activation of silicon carbide and alumina open-cell foams via solution combustion deposition of Ni/CeO ₂ -ZrO ₂ catalyst for CO ₂ methanation

11:55-12:15	<u>Lorenzo Mario Pastore</u> , Matteo Sforzini, Gianluigi Lo Basso, Livio de Santoli – H2NG use implications in Hybrid Energy Systems for Building Refurbishment in Future National PtG Scenarios
12:15-12:35	F. Arpino, D. Candelaresi, M. Dell'Isola, <u>G. Ficco</u> , L. Moretti, A. Perna, G. Spazzafumo, and F. Zuena - Effect of hydrogen addition on domestic ultrasonic gas meter accuracy
12:35-13:45	Break
Invited Lecture #2 <i>Chaired by Andrea Baccioli</i>	
13:45-14:25	<u>Alessandro Romagnoli</u> - The Cold Economy, the opportunities for Cryogenic Energy Storage and the importance of Multi-Energy Systems Integration for improved energy efficiency
14:25-14:30	Break
Membrane contactors and crystallization <i>Chaired by Alfredo Pacheco</i>	
14:30-14:50	<u>E. Kaya</u> , A. Hasanoğlu - Reactive Membrane Absorption of Volatile Acids Using Membrane Contactors
14:50-15:10	S. Santoro, A. H. Avci, <u>M. Aquino</u> , A. Politano, C. Cantalini and E. Curcio - Photothermal assisted membrane crystallization
15:10-15:30	<u>Sergio Santoro</u> , Ahmet Halil Avci, Pietro Argurio, Paola Timpano, Salvatore Straface, Efrem Curcio - An effective technological platform for the remediation of arsenic in contaminated groundwater
15:30-15:50	Break
Electrolysis <i>Chaired by Torsten Berning</i>	
15:50-16:10	<u>F. Ganci</u> , C. Sunseri, G. Aiello, P. Mandin, and R. Inguanta - Ni-Fe Nanostructured Electrodes for Alkaline Electrolyzers
16:10-16:30	M. Gianni, <u>A. Pietra</u> , N. Zuliani, D. Sovilla, S. Malabotti and R. Taccani - Experimental characterization of an alkaline electrolyser and a compression system for hydrogen production and storage
16:30-16:50	Manuel Kramer, <u>Alwin Bubendorfer</u> - Integration of locally produced green H ₂ for fuel-cell-powered snow groomers and peak load shaving as enabler for deep decarbonization in alpine regions

Poster Session 1

16:50-17:50

Raluca - Andreea Felseghi, Ioan Așchilean, Nicoleta Cobîrzan - Standalone Green Hybrid Energy System for a Small Community. Case Study

A. Sleptsov, A. Ryzhov, P. Vorobev, and A. Bischi - Electrification of space heating in the Russian residential sector

D. Martinez-Diaz, D. Martinez del Monte, D. Alique, R. Sanz and J.A. Calles - Porous Ceria as Intermediate Layer for Enhancing the H₂ Permeation through Pd Membranes

E. Piperidou, D. Koutsonikolas, A. Asimakopoulou, G. Karagiannakis, G. Skevis - Hydrophobic modification of commercial ceramic membranes with immersion and CVD methods

D. Koutsonikolas, G. Pantoleontos, L. Boutsika, G. Charalambopoulou, Th. Steriotis, G. Karagiannakis - Optimal design configuration of membrane cascade schemes for high purity H₂ production

B. Zornoza, JM. Ulcuango, C. Téllez, and J. Coronas - Seeking of COF materials for hybrid membrane preparation towards molecular separation application

B. Zornoza, R. Semino, G. Maurin - Grand Canonical Monte Carlo study of the CO₂ capture properties of a Zn(II)-based MOF

R. Krsmanović Whiffen, G. De Santis, F. Cognini and A. Montone - Exploring pyroelectric effect of wurtzite ZnS ceramics

G. Radica, F. Boko, I. Tolj, Ž. Penga and J. Šimunović - Comparison of hydrogen internal combustion engines performance with gasoline and its optimization for the lowest consumption and emissions

D. Candelaresi, A. Valente, D. Iribarren, J. Dufour, and G. Spazzafumo - Life Cycle Assessment of passenger car fleets partially fuelled with hydrogen

F. Arpino, D. Candelaresi, M. Dell'Isola, G. Ficco, L. Moretti, A. Perna, G. Spazzafumo, and F. Zuena - Thermal management of waste heat from a PtG plant

G. Drago Ferrante, R. Balzarotti, C. Italiano, M. Laganà, A. Vita, C. Cristiani, L. Pino - CO₂ methanation of biogas over RhNiCeO₂ catalyst spin-coated on foam structures

Thursday March 18th

Photocatalysis

Chaired by Ekaterina Kozlova

9:00-9:20	<u>D.V. Markovskaya</u> , A.V. Zhurenok, and E.A. Kozlova - Novel strategy for design of Cd _{1-x} Zn _x S photoelectrodes based on the photocatalysis experience
9:20-9:40	A. Zhurenok, E. Gerasimov, S. Cherepanova and <u>E. Kozlova</u> - Photocatalysts based on solid solutions Cd _{1-x} Zn _x S and g-C ₃ N ₄ for the hydrogen evolution under visible light
9:40-10:00	<u>A. Kurenkova</u> , A. Saraev, E. Kozlova - Hydrogen evolution over TiO ₂ -based photocatalysts from cellulose suspension

Poster Session 2

10:00-11:00	Same of Poster Session 1
11:00-11:20	Break

Hydrogen membranes processes 1

Chaired by Fausto Gallucci

11:20-11:40	<u>S. Melnikov</u> , E. Melnikova, and V. Zabolotsky - Bilayered membranes in electroseparation processes. Electrochemical properties and applications
11:40-12:00	<u>V. Cechetto</u> , L. D Felice, A. Arratibel Plazaola and F. Gallucci - Ammonia inhibition on H ₂ permeation through Pd-based membranes
12:00-12:20	<u>Camilla Brencio</u> , Keegan Walker, Luca Di Felice, José Antonio Medrano Jimenez, Fausto Gallucci - Techno-economic assessment of propane dehydrogenation in membrane reactors: advances on benchmark technology
12:20-12:40	<u>I. Rizzardi</u> , M. Pagliero, C. Costa and A. Comite - Contactors membrane reactors in the process of methane dry reforming
12:40-13:00	<u>Luca Ansaloni</u> , E. Louradour, F. Radmanesh, Henk van Veen, T.A. Peters, M. Pilz, N.E. Benes - Upscaling and mixed gas separation performance PolyPOSSimide membranes for H ₂ purification
13:00-14:00	Break

Invited Lecture #3

Chaired by José Luis Viviente

14:00-14:40 Fausto Gallucci - Process Intensification via Membrane Reactors

14:40-14:45 **Break**

Low Temperature Fuel Cells

Chaired by Ivan Tolj

14:45-15:05 T. Berning - Why the water diffusion coefficient in polymer electrolyte membranes could affect the activation overpotentials in proton exchange membrane fuel cells

15:05-15:25 C. Dall'Armi, D. Pivetta, D. Micheli, and R. Taccani - Health-conscious multi-objective optimization of hybrid fuel cells/battery ship propulsion system

15:25-15:45 I. Tolj, G. Radica, M. V. Lototsky and S. Pasupathi - Optimization of a PEM fuel cell-battery power systems for a lift truck application

15:45-16:05 **Break**

Membrane gas separation

Chaired by David Alique

16:05-16:25 A. Rahimalimamaghani, J. A. Medrano Jimenez, F. Neira D'Angelo, D. A. Pacheco-Tanaka, M. A. Llosa Tanco, F. Gallucci - Effect of aluminium acetylacetonate on selectivity of tubular supported carbon molecular sieve membranes for gas separation

16:25-16:45 S. Poto, M. A. Llosa Tanco, D. A. Pacheco Tanaka, F. Gallucci, M.F. Neira d'Angelo - Effect of boehmite nanoparticles on alumina supported carbon molecular sieve membranes for vapor/gas permeation

16:45-17:05 B. Zornoza, J. Sánchez-Laínez, C. Téllez, and J. Coronas - ZIF-based mixed matrix membranes for H₂/CO₂ separation

17:05-17:25 M. L. Rodríguez, M. N. Pedernera, D. O. Borio - Oxygen feeding strategies for methane ATR

17:25-17:45 F.S. Zebarjad, J. Gong, and T.T. Tsotsis - Alcohol Synthesis in a High-Pressure Membrane Contactor Reactor

17:45-17:55 Jon Meléndez – Presentation of H2Site

Friday March 19th

Fuel processes

Chaired by *Stefano Frigo*

9:00-9:20	<u>Rizky Kusumastuti</u> , Widya Wijayanti, Chung-Jen Tseng - Effects of steam to carbon ratio and reformer inlet temperature on the performance of a counter-flow tubular packed bed reactor for methanol steam reforming
9:20-9:40	<u>V.A. Shilov</u> , V.N. Rogozhnikov, P.V.Snytnikov, D.I. Potemkin, V.A. Sobyenin - Study of diesel fuel autothermal reforming into syngas on Rh/Ce _{0.75} Zr _{0.25} O _{2-δ-η} -Al ₂ O ₃ /FeCrAl structured catalyst
9:40-10:00	J.C.Q. Fletcher, S.J. Roberts, L.D. Biquiza, and <u>K.S. Motani</u> - Effect of the addition of Mo and W as promoters for Pt/Re/CeO ₂ catalysts for water-gas shift reaction
10:00-10:20	S.I. Uskov, D.I. Potemkin, <u>P.V. Snytnikov</u> - Flare gas conditioning, electricity generation, cryptocurrency mining, carbon dioxide capture and hydrogen production. What is the nexus between them?
10:20-10:40	<u>B. Zornoza</u> , T. Mendiara, A. Abad, P. Gayán, M. T. Izquierdo - Evaluation of low-cost iron-based powders from minerals or industrial wastes as oxygen carriers for chemical looping combustion with CO ₂ capture
10:40-11:00	Break

Economics / Heat Recovery

Chaired by *Aldo Bischi*

11:00-11:20	Davide Fioriti, <u>Andrea Baccioli</u> , Gianluca Pasini, Aldo Bischi, Francesco Migliarini, Davide Poli, Lorenzo Ferrari - LNG regasification and electricity production for port areas: economic and thermodynamic analysis
11:20-11:40	<u>S. Di Micco</u> , M. Minutillo, A. Perna, E. Jannelli - On-site solar powered hydrogen refueling station: costs assessment
11:40-12:00	<u>A. Difalco</u> , F. Aversano, A. Ferrario, S. Boldrini, M. Baricco, and A. Castellero - Synthesis and characterization of Co-based thermoelectric Heusler alloys for waste heat recovery
12:00-12:05	Break

Metal Hydrides

Chaired by *Amelia Montone*

12:05-12:25	<u>E. Anikina</u> , V. Verbetsky - Thermodynamics of hydrogen interaction with IMC: the Calvet-calorimetric method exists
12:25-12:45	<u>E. M. Dematteis</u> , D. M. Dreistadt, G. Capurso, J. Jepsen, F. Cuevas, M. Latroche and M. Baricco - Hydrogen storage properties of TiFe-alloys on partial substitution of Fe by Ti and Mn

12:45-13:05	J. Barale, F. Nastro, P. Rizzi, C. Luetto and M. Baricco - Project Clean DronHy: a two-stage metal hydride compressor based on commercial alloys
13:05-14:05	Break
Hydrogen membranes processes 2 <i>Chaired by Emma Palo</i>	
14:05-14:25	S. R. Kuzenov, V.N. Alimov, I.V. Bobylev, A.O. Busnyuk, E. Yu. Peredistov, A.I. Livshits - Vanadium alloy membranes for extraction of ultra-pure hydrogen
14:25-14:45	Camilla Brencio, Fabrice Fontein, Luca Di Felice, Alba Arratibel, Fausto Gallucci - Pd-based membrane permeance inhibition during propane dehydrogenation processes: experimental and modelling
14:45-15:05	D. Sanz-Villanueva, D. Alique, A.J. Vizcaíno, R. Sanz and J.A. Calles - Intermediate layers of Titania onto Porous Stainless Steel to obtain dense Pd-membranes for H ₂ purification
15:05-15:25	A. Catarina Faria, C. V. Miguel, A.E. Rodrigues and L.M. Madeira - Simulation of a steam-selective membrane reactor for direct biogas valorisation and upgrading
15:25-15:45	E. Fernandez - INNOMEM project: Open Innovation Test Bed for nano-enabled Membranes
Closing session	
15:45-16:00	Concluding remarks and announcement of next conferences



Links to the recorded sessions:

[Opening Session & invited lecture#1](#)

[High temperature fuel cells](#)

[Power to fuel](#)

[Invited lecture#2](#)

[Membranes contactors and crystallization](#)

[Electrolysis](#)

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