European Hydrogen Energy Conference 2018

CONFERENCE PROGRAM

14th-16th March 2018, Malaga - Spain

SPANISH HYDROGEN ASSOCIATION

Collaborators and Supporters

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Partners

Dear colleagues from the world of hydrogen and fuel cells, professionals, scientists, academics, politicians and the general public. Dear friends:

I wish to extend to you the warmest of welcomes to this the European Hydrogen Energy Conference 2018. As an ongoing event since 2005, this Conference has become one of the longstanding in the industry, demonstrating, with its continuity and development, the great interest there is in Europe in hydrogen-related technologies.

This year, the EHEC brings us more than 200 papers, which have been carefully selected by our Scientific Committee to guarantee the quality this event deserves. But not only that: I would like you to know that the Spanish Hydrogen Association (AeH2) has worked tirelessly in its organization to ensure every detail is to your liking.

We want you to enjoy the best conference, the most interesting presentations and the most fruitful networking; and, in addition, we want you to enjoy Spain, Andalusia and Malaga.

Our industry, that of hydrogen and fuel cells, is at an exciting moment in time; from the point of view of the products, these have already reached a commercial level; their reliability, duration and efficiency have been more than proven… and business cases are beginning to emerge with positive figures. We are living an authentic transition, a decarbonization of industry, transport and energy thanks to hydrogen. And we are going to learn all about it over these three days.

I would like to end this message by thanking each and every member of the Organization for their dedication and effort. They have worked so hard over the past two years to make this event possible. And, of course, I thank all of you for attending. We hope to live up to your expectations and that we will see you all again at the next **EHEC 2020**.

See you in Malaga!

José Javier Brey Sánchez

Chairman of the Spanish Hydrogen Association

Organizing Committee

CHAIRMAN	Entity
José Javier Brey Sánchez	H2B2 Electrolysis Technologies

MEMBERS	
Name	Entity
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Antonio González García-Conde	National Institute for Aerospace Technology (INTA)
Maite Imirizaldu Martínez	Foundation for the Development of New Hydrogen Technologies in Aragon (FHa)
María Jaén Caparrós	National Hydrogen Center (CNH2)
Carlos Merino Rodríguez	National Hydrogen Center (CNH2)
Fernando Palacín Arizona	Foundation for the Development of New Hydrogen Technologies in Aragon (FHa)
Miguel Antonio Peña Jiménez	Spanish National Research Council (CSIC)
Pilar Ramírez de la Piscina Millán	University of Barcelona (UB)
Enrique Rodríguez Castellón	University of Malaga (UMA)
Eduardo A. Rodríguez García	University of Malaga (UMA)
Rafael Luque Berruezo	ARIEMA Energía y Medioambiente
Sagrari Miguel Montalvá	Spanish Hydrogen Association (AeH2)

Scientific Committee

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András	Erdőhelyi	University of Szeged		Hungary
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Luis	Gandía Pascual	Univ. Pública de Navarra		Spain
Raquel	Garde	CENER		Spain
Vanesa	Gil	Fundación Hidrógeno Aragón		Spain
Björn Christian	Hauback	Institute for Energy Technology		Norway
Kas	Hemmes	Delft University of Technology		Netherlands
Patricia	Hernández-Fernández	Danish Tecnological Institute		Denmark
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Nathalie	Job	University of Liège		Belgium
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Søren Knudsen	Kær	Aalborg University		Denmark
Dimitris	Kondarides	University of Patras		Greece
Jennifer	Kurtz	National Renewable Energy Laboratory		USA

Scientific Committee

NAME	SURNAME	AFFILIATION		COUNTRY
María Jesús	Lázaro	CSIC-ICB		Spain
Chiuyue	Lin	Feng Chia University		Taiwan
Justo	Lobato	University of Castilla - La Mancha		Spain
Adélio	Mendes	University of Porto		Portugal
Jarosław	Milewski	Institute of Heat Engineering. Warsaw University of Technology		Poland
Pierre	Millet	CNRS - Institut de Chimie Moléculaire et des Matériaux d'Orsay		France
Vladimir	Molkov	University of Ulster		UK
Nazim Z.	Muradov	University of Central Florida		USA
Nesrin	Özalp	University of Minnesota Duluth		USA
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Günter	Schiller	DLR - Institute of Solar Research		Germany
Francisca	Segura Manzano	University of Huelva	Coordinator	Spain
David	Serrano	IMDEA Energía		Spain
Giancarlo	Sioli	Independent advisor		Italy
Francisco	Tinaut	CIDAUT		Spain
Panagiotis	Tsiakaras	University of Thessaly		Greece
Balasubramanian	Viswanathan	Indian Institute of Technology		India

The Spanish Hydrogen Association (AeH2) is a non-profit organization founded in 2002 with the main aim of promoting the hydrogen technologies development as an energy carrier, and its use in industrial and commercial applications.

AeH2 members are the most active Spanish companies, public and private institutions and researchers in hydrogen technologies, which share a common interest: boost markets and the social and environmental benefits of introducing hydrogen and fuel cells in the energy system.

The AeH2 supports research, development, demonstration and market introduction of hydrogen technologies. To reach its aims, the AeH2 carries out different activities:

- Information and dissemination.
- Expertise and promotion.
- Organization and participation in conferences, seminars and meetings.
- Promotion and education.
- Lobby work for hydrogen and fuel cells.
- Provides networking forums for the exchange of ideas.

Additionally, the AeH2 has promoted the creation of the AEN/CTN 181 of "Hydrogen Technologies" and participates in the International Committee ISO/TC 197 "Hydrogen Technologies". The AeH2 cooperates with other Associations from Europe and abroad. In this sense, the AeH2 is a member of Hydrogen Europe, the European Hydrogen Association, the International Association for the Hydrogen Energy and the Partnership for Advancing the Transition to Hydrogen, and we actively collaborate with the Canadian Hydrogen and Fuel Cell Association.

Furthermore, the Association plays an important role promoting hydrogen technologies to the society, building and improving relationships and taking part in strategic, legislative and regulatory issues. The AeH2 has promoted the Spanish Technological Platform for Hydrogen and Fuel Cells, active since May 2005. The Platform works on the national strategic policy in technological fields for hydrogen and fuel cells.

www.aeh2.org | www.ptehpc.org

Timetable

	Wednesday 14th	Thursday 15th	Friday 16th
08:30 - 09:30	Registration	Plenary Session 2	Plenary Session 3
09:30 - 10:30	Conference Opening		
10:30 - 11:00		Parallel Session 3	Parallel Session 6
11:00 - 12:30	Plenary Session 1		
12:30 - 14:00	Lunch	Lunch	
14:00 - 16:00	Parallel Session 1	Parallel Session 4	
16:00 - 16:30			
16:30 - 17:30	Parallel Session 2	Parallel Session 5	
17:30 - 18:30		Poster Session 2	
18:30 - 19:30	Poster Session 1		
19:30 - 21:00			
21:00 - 23:00		Gala Dinner "Automobile and Fashion Museum"	

Poster exhibition
Trade Fair
Test & Drive

TOYOTA

ALWAYS A BETTER WAY

MIRAI

The world's first mass-produced hydrogen fuel cell vehicle

Energy diversif cation

- Hydrogen can be made using a wide variety of primary energy sources.

Fun to drive

- Smooth and quiet, with excellent low - and mid - range acceleration characteristic of motor-driven cars.

Zero emissions

- Zero emissions of harmful substances when driven.

Performance

- Cruising range is equal to a conventional gasoline-fueled vehicle; can be refueled in about three minutes.

Can be used as a power supply

- Can double as a high capacity power supply during emergencies.

The next-generation Fuel Cell Vehicle from Hyundai.

Coming soon.

HYUNDAI

New Hyundai NEXO: CO_2 emissions (g/km): 0. Consumption data: pending homologation.

Centro Nacional del Hidrógeno (CNH2)

The Spanish Hydrogen Center or Centro Nacional del Hidrógeno (CNH2) is the Spanish national research and development institution aimed to foster hydrogen and fuel cells development and implementation in that sector. Its main R&D strategic areas are: hydrogen production, hydrogen storage, transformation of hydrogen into energy, system integration, standards, safety and technological implementation.

CNH2 Facilities

With 13 laboratories and other auxiliary facilities, we provide services to the entire national and international scientific, technological and industrial community to cover the whole value chain from basic research to the industrial application.

UNIVERSIDAD DE MÁLAGA

Tweet about EHEC 2018

#EHEC2018

@AeH2_ENG

Follow us to keep updated on the latest news

FYCMA - Trade Fairs and Congress Center of Málaga

The Trade Fairs and Congress Center of Málaga –Fycma– has been conceived as a strategic place for business with the vocation to become a leading referral center for conventions and fair activities in the national and international arena, currently leading the conventions business among countries in the Mediterranean basin.

The functional and avant-garde design of the Trade Fairs and Congress Center of Málaga, together with its technological facilities, converts it into a business center of national reference, in which 1,300 events have taken place throughout its time of activity.

Fycma is sited 5 minutes away from Pablo Ruiz Picasso Málaga international airport, to just a few minutes from the historic downtown area of Malaga.

It is a functionally designed, contemporary building of 60,000 m², uniting the Málaga tradition with the avant-garde style of the 21st century. It has an exhibition area of 17,000 m² distributed in two pavilions, two auditoriums, two conference halls, an exhibition hall, fifteen multi-purpose meeting rooms, three catering areas and a parking area with a capacity for 1,200 vehicles.

A map of the city can be found at page 20

Conference Information

Registration can be done at the main entrance of the Venue from Wednesday March 14th at 08:30 h.

The **Registration & Information desk** and the **Technical Secretariat & Speakers' Room** will be continuously open.

Full Registration includes:

- Conference sessions
- Access to the exhibition
- Conference bag including contents
- Program
- Proceedings book (USB included in the conference bag)
- Test & Drive
- All lunches, morning and afternoon coffees daily
- Gala Dinner

Test & Drive registration will be available at the Registration & Information desk, placed at the main entrance of the Venue.

Your name badge is your admission ticket to: all sessions, the exhibition, catering and Gala Dinner. It is very important that you wear it all times during the whole Conference.

All morning and afternoon coffees and drinks are provided during the event in the Trade Fair & Posters area.

Lunches will take place at the **Restaurant**.

Wireless internet is available on-site at no charge. Please note that the connection speed could vary due to the number of attendees connected.

A map of the Venue can be found at the end of this document

Speakers & Chaipersons Info

Information for Speakers

PREPARATION

- Store all your files in a unique folder, especially videos (make sure videos play automatically when the slide is displayed). Office 2016 and Windows 10 will be used in lecture rooms: developing in previous versions could lead to format changes. 16/9 slides format is recommended.
- Mac users: please don't forget to bring your adaptor.
- Transport your file in a USB to the Technical Secretariat & Speakers' Room.

TECHNICAL SECRETARIAT & SPEAKERS' ROOM

- **Please, come the day before or at least 2 hours before your lecture.**
- Our technicians will transfer your presentation to a server. You can then rehearse your presentation with their assistance.

LECTURE ROOM

- Via network your presentation is made available on your lecture room, on a presentation computer operated by a technician. There will be no possibility to connect your laptop.
- It won't be possible to make any changes in the presentation once in the meeting room.
- Oral presentations will last **15 minutes**. There will be 5 minutes more for discussion and Q&As. It is important to adjust to the precise timing.

Information for Chairpersons

- Please stick to the time schedule in order to allow people to follow the program and move between sessions.
- Let the speaker know he / she is approaching the last 5 and 1 minute of talk.
- Facilitate the discussion after the presentation .
- If the audience is too passive, maintain the discussion alive for the 5 allocated minutes.

Members of the organization and local staff will be always present at the venue. If you need any help, please contact them.

Posters Information

Posters will be showcased in common areas during the whole event. Additionally, there will be two Poster Sessions (Wednesday 18:30-19:30 h. and Thursday 17:30-18:30 h.) where poster authors are requested to stand close to their posters in order to explain their communication.

We strongly encourage presenters to mount their posters as soon as they register. Posters have been identified by their abstract code during the assessment process. Nevertheless, a different Poster Code will be indicated on each poster wall at the venue (e.g. P-00). You will find these Posters Codes in this program (Poster Presentations section).

Authors are responsible for bringing their printed posters to the event. Maximum poster size: width 90 cm x height 120 cm (portrait layout). The posters area will be equipped with laminated boards. Material to affix the posters to the poster wall will be provided.

All posters should be removed after the end of the event on Friday, March 16th before 13:00 h.

Members of the organization and local staff will be always present at the venue. If you need any help, please contact them.

The Gala Dinner will take place on **Thursday, 15th March starting at 21.00 pm** at the **Automobile and Fashion Museum**, a unique museum in the world, located in an emblematic building from the City of Málaga, popularly known as "La Tabacalera" (Sor Teresa Prat Avenue 15).

The gala dinner aims to provide an interactive space to share opinions and experiences beyond the conference between the professionals within the hydrogen sector.

It is mandatory to wear the Name Badge for the Gala Dinner at the entrance of the Automobile and Fashion Museum.

The Museum exposes **an extraordinary private collection of 6,000 square meters**, which describes the artistic and historical evolution since the end of the nineteenth century through 13 thematic rooms. Almost **a hundred exclusive vehicles** restored to the highest level, **more than 200 Haute Couture pieces and Contemporary Art installations**, where you can find a variety of emblematic brands such as Mercedes, Hispano Suiza, Bugatti, Bentley, Rolls-Royce or Ferrari. Upholstered in ostrich and mink fur, precious woods, Lalique mascot, mother-of-pearl dashboard, ivory and silver handles, and unpublished custom engines.

In addition, Maga Sublime Collection by Automobile and Fashion Museum shows the evolution of Haute Couture in the 20th Century through 7 exhibitions: "From Mariano Fortuny to Galliano", "Trilogy", "The Cocktail of the Forest", the wide collection of hats Vintage "From Balenciaga to Schiaparelli", "Fashion Victim", "Apotheosis" and "Too Much is never enough".

How to get there:

- EMT Bus Lines 7, 15 and 40 have stops at the door of La Tabacalera and its surroundings.
- The Green Line of the Málaga tourist bus.
- The Metro Line 110 "Benalmadena Costa – Málaga" and the commuter train from Fuengirola to María Zambrano Station interconnecting with any of the previous EMT lines.
- In the Metro Line 2 from the El Perchel stop to Princess-Huelin stop in just 3 minutes.

A map of Malaga city can be found at page 20

Malaga is located in the south of Spain on the Costa del Sol of the Mediterranean sea in the community of Andalusia. Its province lies between Granada to the east, Cadiz to the west and Cordoba and Seville to the north. It is Spain's fifth-largest city with a population of around 650,000. Malaga offers an interesting mix of a cosmopolitan business centre and a traditional Andalusian city with a relaxed atmosphere and joyful people.

Malaga has **a long and interesting history** dating back to its founding as a Phoenician town 3000 years ago. Thanks to its strategic position next to the Mediterranean Sea, this province has long been a highly disputed territory; in 550 BC the Carthaginians took control from the Phoenicians and in 218 BC the area was invaded by the Romans. The large Roman theatre located in the centre of the city stands as a testament to this period in the city's history. The Moorish rule of Southern Spain (which lasted from 700 AD until the Christian reconquest in the late 15th-century) also left behind several interesting historical sites – among them the 15th-century Gibralfaro castle and the Alcazaba fortress built in the 11th century.




Images courtesy of © Área de Turismo. Ayuntamiento de Málaga.

In modern times, Malaga has gained **international fame** for its pleasant year-round weather, which boasts around 320 days of sun per year. Since the 1970s the region has been a preferred tourist destination for thousands of North Europeans who flock each year to the surrounding towns of Marbella, Torremolinos and Benalmádena. Other popular destinations on the Costa del Sol (which is home to a thriving and diverse expatriate community) can also be found just 20 minutes west of Malaga's city centre.

Apart from being a popular tourist destination, Malaga is also **an important business centre** for Southern Spain. The city's airport and harbour are among the busiest in the country, and the newly built Technology Park and International Congress Centre on the outskirts have attracted large national and international companies to the city.

Malaga is also **a city rich in culture**; apart from the numerous historical monuments that grace its streets and plazas, it is home to some of Spain's most interesting museums and theatres.

The **geostrategic location** of Malaga in the south of Europe and bordering the Maghreb offers a variety of opportunities in the field of international relations for the economic and socio-cultural development of the zone.

In addition, the city is privileged to be the Peninsula´s premier tourist zone, converting the city into **a warm and inviting place that combines art, culture and tradition on the shoreline of the Mediterranean Sea**. Malaga´s three thousand years of history have conferred upon it the character of an open, enterprising and hospitable city; in essence a cosmopolitan city with a world outlook.

Alcazaba | Address: Calle Alcazabilla, 2 - 29012 Málaga

Castillo de Gibralfaro | Address: Camino de Gibralfaro, 11 - 29016 Málaga

Catedral | Address: Calle Molina Lario, 9 - 29015 Málaga

Teatro Romano | Address: Calle Alcazabilla, 8 - 29012 Málaga

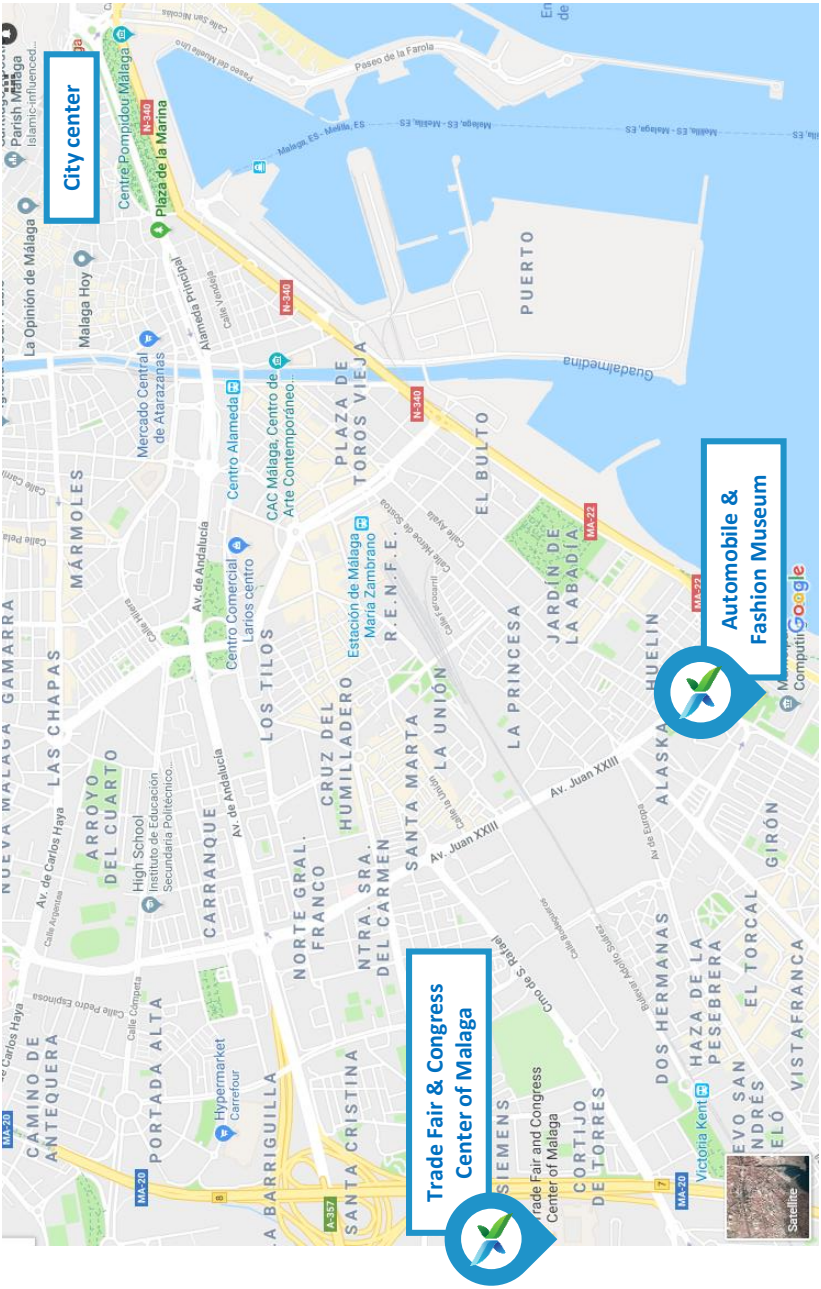
Museo Picasso Málaga | Address: Calle San Agustín, 8 - 29015 Málaga

Centre Pompidou Málaga | Address: Pje Doctor Carrillo Casaux, s/n muelle 1 - 29001 Málaga

Museo Carmen Thyssen | Address: Calle Compañía, 10 - 29008 Málaga

Images courtesy of © Área de Turismo. Ayuntamiento de Málaga.

City Map


City center
Trade Fair & Congress Center of Malaga
Automobile & Fashion Museum
Parish Málaga
Islamic-influenced...
La Opinión de Málaga
Malaga Hoy
Centre Pompidou Málaga
Plaza de la Marina
Paseo del Muelle Uno
Calle San Nicolás
Paseo de la Farola
Malaga, ES - Melilla, ES
Melilla, ES - Malaga, ES
Mercado Central de Atarazanas
Alameda Principal
Calle Vendeja
Centro Alameda
CAC Málaga, Centro de Arte Contemporáneo...
PLAZA DE TOROS VIEJA
PUERTO
Guadalmedina
EL BULTO
JARDÍN DE LA ABADÍA
MÁRMOLES
LAS CHAPAS
NUEVA MALAGA
GAMARRA
Av. de Andalucía
Centro Comercial Larios centro
LOS TILOS
Estación de Málaga María Zambrano
R. E. N. F. E.
Calle Arjona
Calle Hermo de Soraya
Calle Fernando Llanos
Calle Ayala
LA PRINCESA
Av. Juan XXIII
Calle Ucrania
LA UNIÓN
SANTA MARTA
CRUZ DEL HUMILLADERO
ARROYO DEL CUARTO
Av. de Carlos Haya
Calle Alejandría
High School
Instituto de Educación Secundaria Politécnico...
CARRANQUE
Av. de Andalucía
NORTE GRAL. FRANCO
NTRA. SRA. DEL CARMEN
HUELIN
ALASKA
Av. de Europa
Google
Computing
Calle Pedro Espinosa
Calle Competa
PORTADA ALTA
Hypermarket
Carrefour
CAMINO DE ANTEQUERA
MA-20
A-357
SANTA CRISTINA
A BARRIGUILLA
Crto de S. Rafael
Calle Belmonte
Buenos Aires Suárez
SIEMENS
Trade Fair and Congress Center of Malaga
CORTIJO DE TORRES
DOS HERMANAS
HAZA DE LA PESEBRERA
Victoria Kent
EL TORCAL
GIRÓN
VISTAFRANCA
Satellite

Trade Fair

EHEC 2018 Trade Fair: a place for networking with companies and other initiatives within the hydrogen sector.

Find below the list of exhibitors

Spanish Pavilion

Canadian Pavilion

EHEC 2018 features an exhilarating 'Test & Drive' area where you will be able to drive different models of hydrogen powered vehicles. This activity will enable EHEC 2018 participants to feel the experience of testing the leading hydrogen technologies for mobility.

Renowned automobile manufacturers have brought their latest hydro-power vehicles to EHEC 2018. You will have the opportunity to Test-drive the following vehicles during the conference.

HYUNDAI

TOYOTA

Car	Hyundai NEXO	Toyota Mirai
Refuelling	Gaseous hydrogen , 700 bar	Gaseous hydrogen , 700 bar
Power	120 kW	114 kW
Top speed	179 km/h	178 km/h
Range	754 km	Beyond 550 km

You will find our Test & Drive area at the steps outside the main entrance of the **Conference:**

Test & Drive Schedule	Wednesday 14th	Thursday 15th	Friday 16th
	14:00 – 19: 30	10:00 – 13.00 14: 00 - 18:30	09:00 – 13.00

Registration for Test & Drive is compulsory. You can register at the Information & Registration desk, placed at the Main Entrance of the Conference Venue. Test & Drive is subject to reservation and availability.

A mobile hydrogen refuelling station can be found in front of the main entrance of the Conference.

Come to the 'Test & Drive' area and drive the most futuristic eco-friendly vehicles powered by hydrogen!

Plenary Session 1
Fuel Cell Electric Vehicles and Hydrogen Infrastructures

Wednesday, March 14th | 11.00 - 12.30 h.

Dr Ashish Kamat | Manager of Fuel Cell Vehicle and Battery Systems in the Advanced Powertrain department - Toyota Motor Europe

H_2 Toyota Mirai: Fuel the Future

2003: Bachelors from Mumbai University in Chemical Engineering.
2006: Masters from Magdeburg University in Chemical and Process Engineering.
2011: PhD Braunschweig TU (VW PhD program), Phosphoric Acid Fuel Cell.
2008 – 2010: VW as a PhD student.
2010-2016: VW Group Research Battery System.
2016- till now: Toyota Motor Europe as Manager of Fuel Cell Vehicle and Battery Systems in the Advanced Powertrain department.

Mr Hugo Spowers | Company Architect - Riversimple Movement Ltd.

Hugo Spowers left motorsport for environmental reasons and set up Riversimple on the basis that a step change in automotive technology is both essential and possible; and the principal barriers are not technical but to do with people, politics and business inertia.

Riversimple is a sustainable car company, developing hydrogen fuel cell cars and an all-inclusive usership model that makes energy efficiency profitable.
The Rasa prototype is the first Riversimple car designed for type approval; a pilot trial of 20 vehicles is being launched in 2018.

Plenary Session 1
Fuel Cell Electric Vehicles and Hydrogen Infrastructures

Wednesday, March 14th | 11.00 - 12.30 h.

Mr Javier Arboleda | Service Senior Manager - Hyundai Motor España

New Hyundai NEXO FCEV

Mechanical Engineer, Universidad Politécnica de Madrid (UPM). Technical Head of Hyundai in Spain and long experienced car prototype evaluator for its R&D centers. Part time teacher and frequent speaker at Universidad Nebrija and the three different automotive engineering masters of INSIA (UPM).

Member of Spanish National Hydrogen Center Automobile Laboratory Advisory Board. Frequent speaker at multiple forums and media, promoting automotive engineering knowledge, specially interested on road safety and hydrogen applications.

Mrs África Castro | Business Development - H2B2

H_2 infrastructure. Simple & challenging

Africa is an Industrial Engineer with a Masters in Renewable Energy and Energy Efficiency by the University of Zaragoza, and has completed a PDD (Management Development Program) at the IESE Business School of the University of Navarra. She has been working in energy innovation for 20 years, with the last 15 dedicated to hydrogen and fuel cells.

She has held positions of responsibility in the fields of technological innovation, corporate strategy and institutional relations at regional, national and international levels.
She is Vice-chairman of the Spanish Hydrogen and Fuel Cells Technology Platform (PTE-HPC) and is in charge of its hydrogen production working group. She is an expert in several working groups at National and European level (FCH JU).
She is Director of Business Development on H2B2 Electrolysis Technologies.

Plenary Session 2
H_2 and FC national initiatives, strategies and legislation

Thursday, March 15th | 08.30 - 10.00 h.

Mrs Mirela Atanasiu | Head of Unit Operations and Communications FUEL CELLS AND HYDROGEN JOINT UNDERTAKING

FCH JU: making hydrogen and fuel cells an everyday reality in Europe

Mirela Atanasiu gained her M.Sc. degree in Chemical Engineering/Materials Science (1995) and later her M.Sc. degree in Economics/Cybernetics and Economic Analysis (2003). Since 2016 she is the Head of Unit of Operations and Communication in the Fuel Cells and Hydrogen Joint Undertaking, FCH JU (Public-Private Partnership between European Industry and Research Community, and European Commission). Previously, for more than 12 years she was a Senior Project Manager/Team Leader for Energy Applications and Research Programme Officer on fuel cells and hydrogen technologies in the European Commission.

Mr Thorsten Herbert | Divisional Head Transport and Infrastructure / Head of Programme NIP NOW GmbH

Deployment of Hydrogen and Fuel Cell Technology in Germany

Since November 2008, Thorsten Herbert is driving the market preparation of hydrogen and fuel cell technology in the mobile sector at the National Organization Hydrogen and Fuel Cell Technology GmbH (NOW) in Berlin. Within the framework of the National Innovation Program Hydrogen and Fuel Cell Technology (NIP), he coordinates the topics of hydrogen- powered vehicles for and rail transport, the necessary hydrogen infrastructure and the on-board power supply for trucks and airplanes and he is acting as Head of Programme (NIP). In his Division Transport and Infrastructure , the Federal Ministry for Transport and Digital Infrastructure is also implementing measures to promote battery-electric mobility. After studying mechanical engineering at the TU Darmstadt, Thorsten Herbert worked for Bertrandt Ingenieurbüro GmbH and GM Powertrain Deutschland GmbH for over seven years in senior management functions for the system development of automotive fuel cell propulsion systems. In January 2015 he completed a master thesis in "Renewable Energies".

Plenary Session 2
H_2 and FC national initiatives, strategies and legislation

Thursday, March 15th | 08.30 - 10.00 h.

Dr Nigel Holmes | CEO - Scottish Hydrogen and Fuel Cell Association

The New Scottish Energy Strategy with Hydrogen & Fuel Cells for Local Energy System Decarbonisation

Nigel is Chief Executive of the Scottish Hydrogen and Fuel Cell Association (SHFCA), the trade association for development and deployment of hydrogen and fuel cell technologies. SHFCA is recognised as one of the most proactive hydrogen & fuel cell industry associations in Europe, with over 90 members mostly based in Scotland and UK but with an increasing number of members based throughout Europe and overseas. Hydrogen and Fuel Cells are now playing a key role in developing low carbon energy systems. Hydrogen produced from renewables transport is being used as a 'zero carbon & zero emission' clean fuel for hydrogen buses in Aberdeen and vehicles in Fife. The BIG HIT and Surf 'n' Turf projects in the Orkney Islands will further integrate low carbon energy for heat. These exemplar projects by SHFCA members will help deliver Scotland's ambitions to achieve a low carbon energy system, using hydrogen for energy storage and as a flexible clean energy vector. Nigel also represents SHFCA member interests on the Renewable Industry Advisory Group (RIAG), and is a steering group member for both the Scottish Transport Emissions Partnership and Community Energy Scotland.

Mr Hiroshi Katayama | Deputy Director - Advanced Energy Systems and Structure Division/Hydrogen and Fuel Cells Strategy Office, Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry (METI), Government of Japan

Challenges for Japan's Energy Transition - Hydrogen Basic Strategy-

Hiroshi Katayama is the Deputy Director responsible for the energy policy focusing on new technologies including hydrogen and fuel cells as well as batteries and distributed energy resources. His mission is to promote Japan's energy transition towards low carbon, sustainable and secure energy systems. He is responsible for a number of R&D and demonstration projects with over $300 million annual budget. As a main editor he recently led the formulation of "Basic Hydrogen Strategy" by the Ministerial Council on Renewable Energy, Hydrogen and Related Issues in December 2017. He is a technical official of METI With a Master of Engineering from Tokyo Institute of Technology, and a Master of Public Administration from London School of Economics. Over 10 years, he was engaged in policy planning and coordination in several divisions including information technology policy, intellectual property policy and energy policy.

Plenary Session 2
H_2 and FC national initiatives, strategies and legislation

Thursday, March 15th | 08.30 - 10.00 h.

Mrs Denisa Kasova | Northern Innovation Board

Green Hydrogen Economy

Denisa started her career in Bratislava, Slovak Republic, at an international advertising agency BBDO, soon thereafter getting full responsibility for a number of domestic and international accounts in the position of Account Manager. In 1997 she has moved to the Netherlands for personal reasons. Once in Groningen, after experiencing the cultural differences and challenges she got used to Dutch business habits and was offered a position of Account Manager at Ogilvy advertising agency in Groningen

Denisa is an entrepreneur, honarary consul of Slovak Republic and currently director of an Innovation Board in the Northern Netherlands. In 2001 she established her own strategic communication agency, from 2007 till 2013 she was a general manager of the international energy business school Energy Delta Institute, 2013 - 2016 a CEO of digital consulting company Storm Digital and as of April 1st 2016 a director of the Innovation Board in the Northern Netherlands.

Drs Ing Patrick Cnubben | Northern Innovation Board

Green Hydrogen Economy

Drs. Ing. Patrick Cnubben (1965) studied Chemical Engineering at the Hogere Technische School Heerlen (1989) and studies Chemistry at the University of Amsterdam (1993) and has been employed successively by Pré Consultants, Philips, Energy Research Centre of the Netherlands, PricewaterhouseCoopers and Technology Center North Netherlands before his involvement within the Energy Valley Foundation.

Within the Energy Valley Foundation, which is now merged into the New Energy Coalition, he has been active for over 15 years now and is focussed and responsible is for the realisation of large scale investments in the field of Bio Energy & Gas enhancing amongst else the production and use of (biogenic) energy carriers such as Green Gas, (Bio)LNG and Hydrogen. The facilitation of business development - from idea generation through the realisation phase towards the operational phase - with and within industrial clusters on subjects such as Green Gas, (Bio)LNG, Power to Gas, biomass conversion technologies and Hydrogen in the Northern-Netherlands is key.

Patrick is member of several organisations such as a member of the executive board of the Dutch National LNG Platform which executes the public privately organised Green Deal LNG Rhine & Wadden, he also is the secretary of the TaskForce LNG North Netherlands which functions as a regional branch of this Green Deal. He is also involved in structuring the North-Netherlands Green Hydrogen ambitions.

Plenary Session 3:
Hydrogen Opportunities and Challenges

Friday, March 16th | 09.00 - 10.00 h.

Mr Eirik Trygve Bøe | HyER Vice-President |HyER – Hydrogen, fuel cells and electro-mobility in European regions

The role of cities and regions for European hydrogen and fuel cell development

Eirik T. Bøe represents the Liberal Party (Venstre) in Akershus County Council where he chairs the committee for Planning, Economic development and Environment.

Mrs Yane Laperche Riteau | Canadian Hydrogen and Fuel Cell Association (CHFCA

Canada Country Update: Initiatives on Hydrogen and Fuel Cell

Yane Laperche-Riteau - has more than 20 years of diversified European sales & marketing experience. Throughout her career, she has been responsible for identifying promising markets, increasing sales and implementing communications and advertising campaigns.

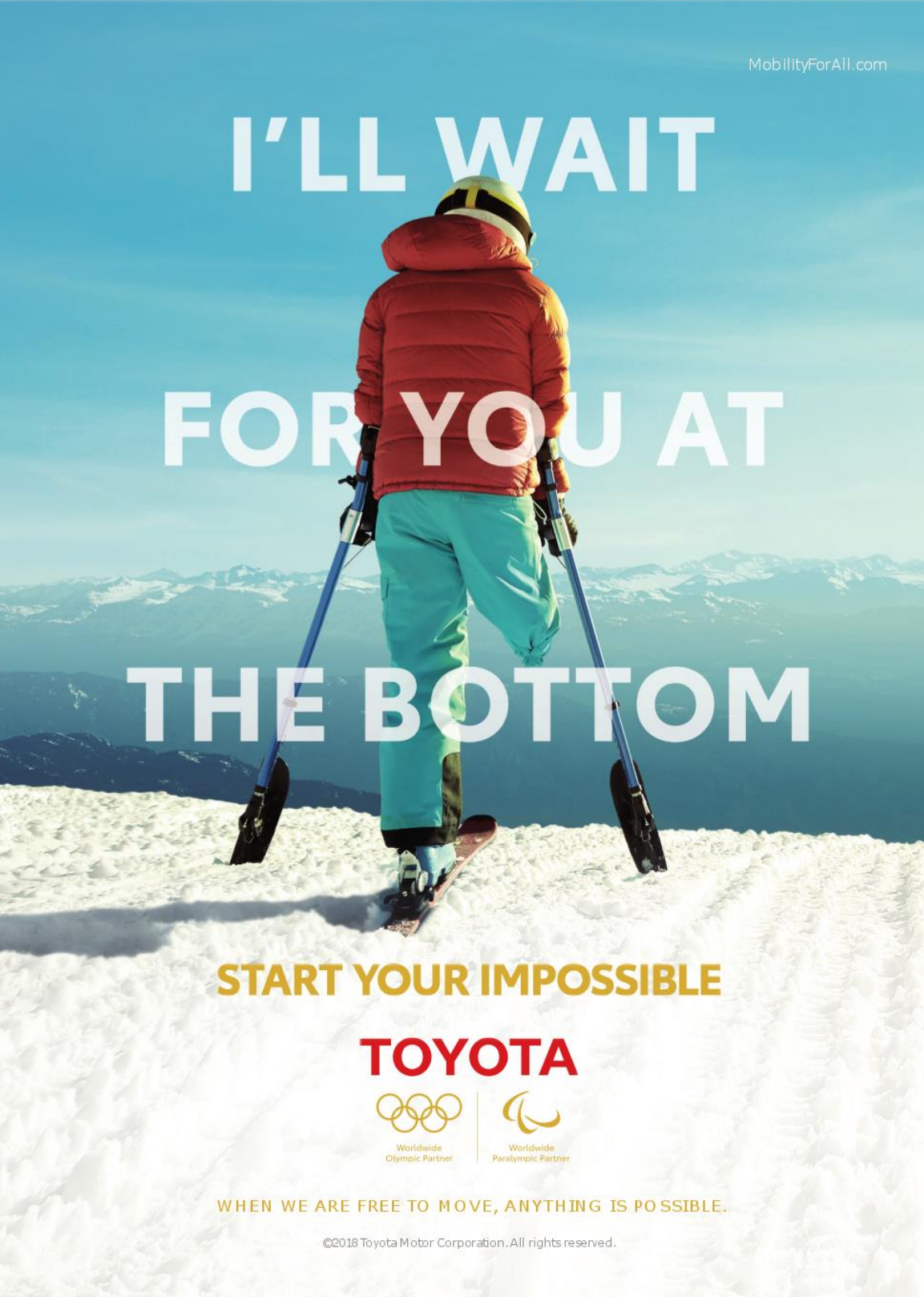
She joined Ballard Power Systems Inc. in October 2013 as Business Development Director for Europe, covering the whole range of Ballard fuel cell products from stationary to heavy duty applications. She has been in the Fuel Cells industry since 2008 working for IdaTech LLC and developing sales mainly in Europe. Ballard Power Systems, Inc is a member of the Canadian Hydrogen and Fuel Cell Association.

Mrs Sabrine Skiker | Hydrogen Europe

Hydrogen economy at cross-roads : now is the time

Sabrine Skiker is Communication and EU Policy Manager at Hydrogen Europe. She is responsible for structuring hydrogen and fuel cell sub sectors such as the heavy duty sector. She previously worked as a Senior Consultant at UK consultancy Element Energy, offering extensive project experience across the hydrogen mobility sector.

She has been involved in the fuel cell bus sector since 2013 and generally in transport and energy at EU level since 2008. Sabrine holds two Masters degrees in European Politics from the Institute of Political Science of Strasbourg (FR) and the Catholic University of Eichstätt-Ingolstadt (DE).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Oral Presentations Schedule

	Wednesday 14th		Thursday 15th			Friday 16th
	14:00 - 16:00	16:30 - 18:30	10:30 - 12:30	14:00 - 16:00	16:30 - 17:30	10:30 - 12:30
	Parallel 1	Parallel 2	Parallel 3	Parallel 4	Parallel 5	Parallel 6
Auditorium	HYSAFE Session: Hydrogen safety	Renewable H2: Bio-Hydrogen & Gasification	Renewable H2: Electrolysis 1	Renewable H2: Electrolysis 2	Renewable Hydrogen 1	Renewable Hydrogen 2
Room 1.1	Hydrogen and FC applications	Hydrogen Production: Catalysts 1	Hydrogen Production: Catalysts 2	Hydrogen Production: Catalysts 3	Hydrogen Production: Purification & Membranes	Hydrogen Production: Fossil Sources
Room 2.1	Hydrogen Storage 1	Hydrogen Storage 2	Fuel cell systems: Stacks & Modelling	Fuel cell systems: Modelling	FC applications: Stationary & Transport	FC applications: Transport
Room 2.2	Fuel Cell Components: HighT & PEM	Fuel Cell Components: PEM	Fuel Cell Components: PEM & Catalysts	European Projects FCH JU	European Projects & Other applications	Fuel Cell Components: Catalysts
Room 1.4			Hydrogen Economy	Public Strategies & Environment	Hydrogen Economy & Research	

Wednesday 14th - Parallel Session 1 - Auditorium 2

HYSAFE Session: Hydrogen safety

14:00 **HySafe - Safety of Hydrogen as an Energy Carrier**
Jedicke , O
Karlsruhe Institute of Technology, IKET

14:20 **Hydrogen safety sensor stability testing—impact of the chemical environment** code15
Ortiz Cebolla, R[1] ; Weidner, E[1] ; Bonato, C[1] ; Moretto, P[1] ; Buttner, W[2] ; Wright, H[2]
[1]*Joint Research Centre*
[2]*National Renewable Energy Laboratory*

14:40 **Influence of the production route on the hydrogen environment embrittlement of austenitic stainless steels** code51
Egels, G[1] ; Fussik, R[2] ; Theisen, W[3] ; Weber, S[2]
[1]*Ruhr-Universität Bochum*
[2]*Bergische Universität Wuppertal* [3]*Ruhr-Universität Bochum*

15:00 **HIAD - Hydrogen Incident and Accident Database** code167
Melideo, D ; Dolci, F ; Moretto, P
European Commission

15:20 **Safety design of a system hydrogen storage tank-TPRD** code66
Dadashzadeh, M; Makarov, D ; Molkov, V
Ulster University (HySAFER)

15:40 **The need for a statutory basis to establish modern safety directives** code128
Keller, H[1] ; Langenbach, C[2] ; Pilz, W[3] ; Schulz-Forberg, B[4]
[1]*KIT*
[2]*German Aerospace Centre (DLR)*
[3]*Airbus Defence and Space (formerly)*
[4]*Federal Institute for Materials Research and Testing (formerly)*

Parallel Session sponsored by:

hySafe INTERNATIONAL ASSOCIATION FOR HYDROGEN SAFETY

Chairperson:
Olaf Jedicke
BAM, Germany

Wednesday 14th - Parallel Session 1 - Room 1.1

Hydrogen and FC applications

14:00 **AURORA Project: hydrogen systems and safety concerns in a transportable system for power supply** code204

Pozo Baquero, R[1] ; Andújar Márquez, J[2] ; Solera Rico, D[1] ; Domínguez Sánchez, T[3] ; Ramírez Rodríguez, A[4] ; Rodríguez Olmo, M[1]
[1]ARIEMA Enerxía S.L.
[2]Universidad de Huelva
[3]Kemtecnia-Energía Renovable S.L.
[4]Sacyr Construcción S.A.U.,

14:20 **Could hydrogen co-feeding save the diesel engines?** code149

Cortés-Reyes,M; Auñón,J; Herrera,C; González-Aragón,M; Larrubia,M; Alemany, L
University of Malaga

14:40 **Experimental Hydrogen reactor for Rydberg and Ultra Dense Hydrogen states for energy applications** code91

Zeiner-Gundersen, S
University Of Iceland

15:00 **CO_2 methanation using Ru based catalysts for storage and distribution of energy: activation of catalyst strategies** code144

Durán, P ; Esteban, I ; Francés, E ; Herguido, J ; Peña, J
I3A - Universidad Zaragoza

15:20 **On-board generation of hydrogen to improve in-cylinder combustion and after-treatment efficiency and emissions performance of a hybrid hydrogen–gasoline engine** code163

Martin, J ; Millington, P
Johnson Matthey Technology Centre

15:40 **Optical characterization of hydrogen-air laminar combustion under cellularity conditions** code97

Tinaut, F ; Reyes, M ; Melgar, A ; Rodríguez, M
University of Valladolid

Chairperson:
Yane Laperche-Riteau
Ballard Power Systems INC, Canada

Wednesday 14th - Parallel Session 1 – Room 2.1

Hydrogen Storage 1

14:00 **Hydrogen Storage in Li-Decorated Metal-Graphyne Framework** code43
Thogluva Janardhanan, D ; Sandeep, K
Department of Chemistry, Indian Institute of Technology Ropar

14:20 **First in Africa pilot scale LOHC hydrogenation plant: A field study** code95
Bessarabov, D ; Modisha, P ; Gemmer-Berkbilek, K ; Schroedl, B
HySA Infrastructure Center, North-West University

14:40 **Enabling a safe, efficient and scalable hydrogen infrastructure via Liquid Organic Hydrogen Carriers (LOHC)** code64
Schneider, M ; von der Heydt, C ; Teichmann, D
Hydrogenious Technologies GmbH

15:00 **Activation effect on a Co-Ru-C thin film catalyst for the hydrolysis of sodium borohydride** code89
Arzac, G[1] ; Paladini, M[1] ; Godinho, V[1] ; Beltrán, A[2] ; Jiménez de Haro, M[1] ; Fernández, A[1] ; Agar Monclova, A[1]
[1]*Materials Science Institute of Seville, CSIC-UNIV. SEVILLE*
[2]*UNIV. SEVILLE*

15:20 **Reversible Hydrogen Storage in Ti and Li-Functionalized Calix[4]arene** code93
Kumar, S ; Dhilip Kumar, T
Indian Institute of Technology Ropar

15:40 **Hydrogen production from the hydrolysis of sodium borohydride ($NaBH_4$): Study of the CMC influence in the recyclability of the by-product** code180
Nunes, H[1] ; Silva, D[1] ; Rangel, C[2] ; Pinto, A[1]
[1]*Faculty Of Engineering, University of Porto*
[2] *LNEG – National Laboratory of Energy and Geology*

Chairperson:
Klaas Kunze
BMW AG, Germany

Wednesday 14th - Parallel Session 1 – Room 2.2

Fuel Cell Components: HighT & PEM

14:00 **Cell Voltage Monitoring All in One. A new low cost solution for degradation analysis on Polymer Electrolyte Fuel Cells** code13
Vivas Fernández, F ; de las Heras Jiménez, A ; Segura Manzano, F ; Andújar Márquez,J
University of Huelva

14:20 **Effect of various biogas contaminants on the performance of solid oxide fuel cells** code1
Escudero, M ; Serrano, J ; Fuerte, A
CIEMAT

14:40 **Phyllosilicate minerals as sealants for Molten Carbonate Fuel Cell stacks** code7
Milewski, J ; Wejrzanowski, T ; Szabłowski, Z ; Ćwieka, K ; Szczęśniak, A ; Baron, R
Warsaw University of Technology

Chairperson:
Elena Carcadea
ICSI RM. VALCEA, Italy

Wednesday 14th - Parallel Session 2 – Auditorium 2

Renewable H2: Bio-Hydrogen & Gasification

16:30 **Design and demonstration of a lab-scale fluidized-bed membrane reactor for biogas steam reforming** code31

de Nooijer, N[1] ; Melendez, J[2] ; Fernandez, E[2] ; Pacheco Tanaka, D[2] ; van Sint Annaland, M[1] ; Gallucci, F[1]
[1]Eindhoven University of Technology
[2]Tecnalia Energy and Environment

16:50 **BioHyMeth^{control}: Combined, flexible, biological hydrogen and methane production** code35

Schoth, J ; Brunstermann, R ; Küppers, M ; Widmann, R
Universität Duisburg-Essen

17:10 **Effect of bio-oil conditioning by phenols extraction on the activity of Ni-based catalyst for the steam reforming process** code99

Valle, B ; García-Gómez, N ; Arandia, A ; Remiro, A ; Bilbao, J ; Gayubo, A
University of the Basque Country

17:30 **Semi-pilot microbial electrolysis cell (MEC) for hydrogen production and pig-slurry valorization** code114

San Martín Becares, M ; Alonso García, R ; Pelaz Guerra, G ; Morán Palao, A ; Escapa González, A
Universidad de León (IRENA)

Chairperson:
Jose Ángel Peña
Aragon Institute of Engineering Research (I3A), Spain

Wednesday 14th - Parallel Session 2 – Room 1.1

Hydrogen Production: Catalysts 1

16:30 **H_2 production by sorption enhanced steam methane refoming. Effect of RedOx cycles on the performance of the catalyst** code160
Navarro, M ; López, J ; Plou, J ; Grasa, G ; Murillo, R
Instituto de Carboquímica (ICB-CSIC)

16:50 **Catalytic ammonia decomposition for hydrogen production using 3D printed structures** code108
Lucentini, I ; Casanovas, A ; Llorca, J
Universitat Politècnica de Catalunya

17:10 **Anodic aluminum oxide supported Cu catalyst for oxidative steam reforming of methanol** code42
Kim, D ; Kim, J ; Jang, Y ; Kim, J
Kyungpook National University

17:30 **Hydrogen Production Process from 2G biofuel: DME as an alternative to fossil-fuel** code151
González-Gil, R[1] ; Herrera, C[1] ; Larrubia, M[1] ; Epling, W[2] ; Pieta, I[3] ; Alemany, L[1]
[1]*University of Malaga*
[2]*University of Virginia*
[3]*Institute of Physical Chemistry, Warsaw*

17:50 **Innovative catalysts for H_2 conversion to SNG via CO_2 methanation** code139
Ricca, A ; Truda, L ; Palma, V
University of Salerno

18:10 **Novel nanomaterials for the hydrogen evolution reaction** code196
Díaz-Coello, S ; Montero, C ; García, G ; Rodríguez, J ; Arévalo, M ; Pastor, E
University of La Laguna

Chairperson:
Pilar Ramírez de la Piscina
University of Barcelona, Spain

Wednesday 14th - Parallel Session 2 – Room 2.1

Hydrogen Storage 2

16:30 **Theoretical Study of the Magnesium Hydride Decomposition** code203
AlMatrouk, H[1] ; Chihaia, V[2] ; Alexiev, V[3]
[1]Kuwait Institute for Scientific Research
[2]Institute of Physical Chemistry Ilie Murgulescu
[3]Institute of Catalysis, BAS

16:50 **Analysis of reaction mixtures of liquid organic hydrogen carriers using 2D-GC-TOF-MS and GC-SQ-MS** code98
Modisha, P[1] ; Bosmann, A[2] ; Wasserscheid, P[2] ; Bessarabov, D[1]
[1]HySA Infrastructure, Country: South Africa
[2]Frederich Alexander University

17:10 **Electrochemical Hydrogen Compression as New Disruptive Technology in Hydrogen Purification and Storage** code223
Bos, A ; Mulder, M ; Veltman, P
HyET Hydrogen

17:30 **Vehicle integration and testing of a cryo-compressed hydrogen storage system in an upper segment automotive fuel cell application and conclusions from two years of driving experience** code103
Kunze, K; Movsisyan, G ; Schwartz, C
BMW AG

17:50 **Hydrogen underground storage - potential reservoir effects investigated with high-resolution computer tomography** code83
Flesch, S ; Pudlo, D
Friedrich Schiller University Jena, Institute of Geosciences

18:10 **Hydrogen storage potential of MIL-101 at 200K** code56
Lupu, D ; Coldea, I ; Misan, I ; Lazar, M ; Blanita, G
National Institute for R&D of Isotopic and Molecular Technologies

Chairperson:
Dmitri Bessarabov
HySA Infrastructure Center, North-West University, South Africa

Wednesday 14th - Parallel Session 2 – Room 2.2

Fuel Cell Components: PEM

16:30 **Local degradations induced in a PEMFC stack by start-up/shut-down cycles: investigations coupling in-situ and ex-situ analyses** code137
Escribano, S ; Micoud, F ; Guétaz, L ; Rodosik, S
CEA/LITEN

16:50 **Interleaved, switched-inductor, multi-phase, multi-device DC/DC boost converter for non-isolated and high conversion ratio fuel cell applications**
Garrigos, A ; Marroquí, D ; García, A ; Blanes, J ; Gutiérrez, R code90
Miguel Hernandez University of Elche

17:10 **Structural characterization of PEM fuel cell catalyst layer using N_2 adsorption porosimetry: effects of ink composition and ink processing** code33
Salari, S[1] ; McCague, C[1] ; Tam, M[2] ; Jankovic, J[2] ; Stamper, J[2] ; Bahrami, M[1]
[1]Simon Fraser University
[2]Automotive Fuel Cell Cooperation

17:30 **Insights on the degradation of HT-PEMFC with Ni-P-Al bipolar plates** code79
Alegre, C[1] ; Alvarez-Manuel, L[2] ; Mustata, R[3] ; Valiño, L[4] ; Lozano, A[5] ; Barreras, F[6]
LIFTEC-CSIC-UNIZAR

18:10 **New single cell hardware for the study of metallic grids for PEMFC electrodes**
Conde, J ; Folgado, M ; Ferreira-Aparicio, P ; Chaparro, A code153
CIEMAT

Chairperson:
María Jesús Lázaro Elorri
Instituto de Carboquímica - CSIC, Spain

Thursday 15th - Parallel Session 3 – Auditorium 2

Renewable H2: Electrolysis 1

10:30 **Development of Highly Efficient Raney Nickel Electrodes for Alkaline Water Electrolysis** code52

Schiller, G ; Ansar, A ; Liu, T ; Reissner, R
German Aerospace Center (DLR)

10:50 ***Megawatt scale PEM electrolysis for energystorage and decarbonisation of industrial hydrogen use*** code217

Vaes, J ; Thomas, D ; Schutyser, W
Hydrogenics Europe

11:10 **Test protocols for accelerated in situ degradation of alkaline water electrolysis under dynamic operating conditions** code171

Perez, R[1] ; Abadía, L[1] ; Canalejas, R[1] ; Gil, V[2]
[1]*Hydrogen Foundation of Aragón*
[2]*Hydro. Found. of Aragón / Araid Foundation*

11:30 **High pressure alkaline electrolyzers - the first choice for renewable energy applications** code218

Fell, H ; Espeseth, R
HydrogenPro

11:50 **Process intensification of alkaline water electrolysis using forced electrolyte flow through 3D electrodes** code5

de Radiguès, Q ; Dalne, T ; Proost, J
[1]*Univeristé catholique de Louvain*

Chairperson:
Jarek Milewski
Warsaw University of Technology, Poland

Thursday 15th - Parallel Session 3 – Room 1.1

Hydrogen Production: Catalysts 2

10:30 **Structure and photoactivity of Ag-CdS photocatalysts prepared by solvothermal method at different temperature** code132

Soto, E ; Vaquero, F ; Navarro, R ; García Fierro, J
Institute of Catalysis and Petrochemistry (ICP-CSIC)

10:50 **Hydrogen production by oxidative reforming of ethanol in a fluidized bed reactor using a Pt-Ni/CeO_2-SiO_2 catalyst** code142

Palma, V ; Ruocco, C ; Ricca, A
University of Salerno

11:10 **Innovative ZoneFlow® Technology offers Breakthrough Solutions for Steam Reforming based Hydrogen-Syngas Generation** code135

Ratan, S[1] ; Ralston, M[1] ; de Wilde, J[2]
[1]*ZoneFlow Reactor Technologies LLC*
[2]*Universite Catholique de Louvain*

11:30 **Cu-ZnO/HAP catalysts: characterization and activity in WGS reaction in realistic reformate mixture** code130

Boukha, Z ; Ayastuy, J ; González-Velasco, J ; Gutiérrez-Ortiz, M
University of The Basque Country (UPV/EHU)

Chairperson:
Victoria L. Barrio
UPV/EHU, Spain

Thursday 15th - Parallel Session 3 – Room 2.1

Fuel cell systems: Stacks & Modelling

10:30 **Technological aspects of an auxiliary power unit with internal reforming methanol fuel cell** code175

Papavasiliou, J[1] ; Schütt, C[2] ; Kolb, G[2] ; Neophytides, S[1] ; Avgouropoulos, G[3]
[1]FORTH/ICE-HT
[2]Fraunhofer ICT-IMM
[3]University of Patras

10:50 **Impact and mitigation of the reversible losses in a PEMFC stack** code172

Escribano, S ; Micoud, F ; Rosini, S ; Laforêt, H ; Finkler, A ; Antoni, L
CEA/LITEN

11:10 **Start-up and validation of a test station for 1 – 10 kW PEM stacks** code209

Olavarrieta, J[1] ; Hidalgo, D[1] ; Sánchez, M[1] ; Blanco, S[2]
[1]Centro Nacional del Hidrógeno (CNH2)
[2]UCLM

11:30 **Catalyst structure influence on PEM fuel cell performance** code145

Carcadea, E[1] ; Varlam, M[1] ; Marinoiu, A[1] ; Raceanu, M[1] ; Ismail, M[2] ; Ingham, D[2]
[1]National R&D Institute for Cryogenics and Isotopic Technologies
[2]University of Sheffield

11:50 **Temperature and Stress Distributions in micro-Tubular SOFC** code107

Han, Y[1] ; Siegel, J[1] ; Rizzo, D[2] ; Yesilyurt, S[3]
[1]University of Michigan
[2]US Army Tank Automotive Research, Development and Engineering Center
[3]Sabanci University

12:10 **Investigating a single European hydrogen market by looking at the minimum cost of transporting hydrogen via trucks between France and Germany** code60

Lahnaoui, A[1] ; Wulf, C[1] ; Heinrichs, H[1] ; Dalmazzone, D[2]
[1]Forschungszentrum Jülich (IEK-STE)
[2]ENSTA PARISTECH

Chairperson:
Olaf Jedicke
Karlsruher Institut of Technology, Germany

Thursday 15th - Parallel Session 3 – Room 2.2

Fuel Cell Components: PEM & Catalysts

10:30 **Measuring relative diffusivity of PEM fuel cell catalyst layer using modified Loschmidt cell: effects of ink composition, ink processing, and operating temperature and humidity** code70

Salari, S[1] ; McCague, C[1] ; Stumper, J[2] ; Bahrami, M[1]
[1]Simon Fraser University
[2]Automotive Fuel Cell Cooperation Corporation

10:50 **Synthesis of Copolymers based on Sulfonated Polysulfone: A Thermo-Mechanical Study** code109

Ureña Torres, M[1] ; Pérez Prior, M[1] ; Del Río Bueno, C[2] ; Várez Álvarez, A[1] ; Iojoiu, C[3] ; Levenfeld Laredo, B[1]
[1]Universidad Carlos III de Madrid
[2]Institute of Polymer Science and Technology (ICTP-CSIC)
[3]LEPMI. University of Grenoble

11:10 **Innovative ionic liquids co-polymers as membrane electrolytes for fuel cell applications** code188

Ortiz, A ; Ortiz, I
Univerity of Cantabria

11:30 **Performance assessment of alternative membranes for Electrochemical Hydrogen Compressor (EHC) in portable PEM fuel cell applications** code202

Matera, F ; Gatto, I ; Saccà, A ; Carbone, A ; Pedicini, R
CNR-ITAE

11:50 **Enhancement of oxygen reduction reaction activity on carbon-support-free titanium oxynitride catalyst by pyrolysis under reductive atmosphere** code58

Chisaka, M
Hirosaki University

12:10 **Experimental and modeling study of an electrochemical hydrogen compressor** code113

Nordio, M[1] ; Mulder, M[2] ; Raymakers, L[2] ; Van Sint Annaland, M[1] ; Gallucci, F[1]
[1]Eindhoven university of technology
[2]Hydrogen efficiency technlogies (Hyet)

Chairperson:
Elena Pastor
University Of La Laguna, Spain

Thursday 15th - Parallel Session 3 – Room 1.4

Hydrogen Economy

10:30 **The impact of e-mobility in a future energy system dominated by renewable electricity** code193

Michalski, J[1] ; Bünger, U[2]
[1]*Ludwig-Bölkow-Systemtechnik GMBH*

10:50 **Water electrolysis in conjunction with fish hatcheries – a viable business concept** code136

Sundseth, K[1] ; Møller-Holst, S[1] ; Midthun, K[1] ; Tveit, K[2]
[1]*SINTEF Materials and Chemistry*
[2]*Småkraftforeninga*

11:10 **Use of hydrogen in off-grid installations. A techno-economic assessment** code155

Gracia, L[1] ; Bourasseau, C[2] ; Casero, P[1]
[1]*Hydrogen Foundation of Aragon*
[2]*CEA TECH*

11:30 **The value of hydrogen to future low-carbon energy systems** code191

Dodds, P
University College London

11:50 **Advancing the H2 Economy in Europe via Expansion of Fuel Cell and Hydrogen Applications** code174

Chatzikyriakou,D[1] ; Madden,B[2] ; Standen, E[2] ; Loureiro, J[3] ; Nock, W[2] ; Takamatsu,H[1]
[1]*Toyota Motor Europe*
[2]*Element Energy*
[3]*Alten, Belgium*

12:10 **Hydrogen Role in Decarbonizing the European Energy System** code111

Tlili, O[1] ; Mansilla, C[1] ; André, J[2] ; Heller, C[2] ; Perez, Y[3] ; Seguin, V[4]
[1]*I-tésé, CEA, Université Paris Saclay*
[2]*Air Liquide*
[3]*RITM, University Paris-Sud and Université Paris-Saclay*
[4]*CEA Liten*

Chairperson:
Mirela Atanasiu
Fuel Cell And Hydrogen Joint Undertaking (FCH JU), Belgium

Thursday 15th - Parallel Session 4 – Auditorium 2

Renewable H2: Electrolysis 2

14:00 **Single cell PEM electrolysers for H2 production: key design parameters for small-scale application** code210

Tomas-Garcia, A[1] ; Mirzaeian, M[1] ; Chisholm, G[2] ; Olabi, A[1]
[1]University of the West of Scotland
[2]Peak Scientific Instruments, Ltd, SME

14:20 **Operando monitoring of local current density distributions in PEMWE, AWE, and AEMWE** code47

Biswas, I; García Sanchez, D ; Schulze, M
[1]German Aerospace Centre (DLR)

14:40 **Development of a novel power-to-methanol technology based on a tubular proton conducting SOEC** code30

Schwabe, F; Schwarze, L; Lippmann, W; Partmann, C; Hurtado, A
Technische Universität Dresden

15:00 **Anion exchange membrane electrolyzer – Status of technology and first research steps within the project "AEL-MALFE"** code104

Tannert, D; Voigt, A; Fischer, U; Krautz, H
Brandenburg Technical University Cottbus-Senftenberg (BTU)

15:20 **Synthetic fuels production by graphite-assisted electrolys** code219

Fernandes, V[1] ; Furtado, O[1] ; Rodrigues, J[2] ; Rangel, C[1]
[1]LNEG
[2]GSYF

Chairperson:
Guenter Schiller
German Aerospace Center (DLR), Germany

Thursday 15th - Parallel Session 4 – Room 1.1

Hydrogen Production: Catalysts 3

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Elias, K[1] ; Bednarczuk, L[2] ; Assaf, E[1] ; Ramírez de la Piscina, P[2] ; Homs, N[2]
[1] *Universidade de São Paulo*
[2] *Universitat de Barcelona*

14:20 **The influence of the surface carbon on the H_2 formation in the ethanol reforming on Co/Al_2O_3** code157

Ferencz, Z; Baán, K; Oszkó, A; Kónya, Z ; Erdohelyi, A
University of Szeged

14:40 **Influence of promoters addition to Co-based catalysts on acetic acid steam reforming** code73

Megía, P; Carrero, A; Calles, J ; Vizcaíno, A
Rey Juan Carlos University

15:00 **Efficient H_2 production by photocatalytic water splitting under visible light over modified TiO_2-based catalysts** code138

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[1] *University of Catania*
[2] *University of Palermo*

15:20 **Deactivation dynamics of a Ni supported catalyst during the steam reforming of volatiles from in-line biomass pyrolysis** code80

Ochoa , A ; Arregi , A ; Gutiérrez, A ; Amutio , M ; Gayubo , A ; Olazar , M ; Bilbao , J ; Castaño , P
University of the Basque Country (UPV/EHU)

Chairperson:
Guianguido Ramis
University of Genova, Italy

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Heuser , P; Ryberg , D ; Grube , T ; Robinius , M ; Stolten , D
Forschungszentrum Juelich (IEK-3)

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Corbella , X[1] ; Roda , V[2] ; Torres , R[1] ; Husar , A[2]
[1]*EEBE UPC – Barcelona Tech.*
[2]*Institut de Robòtica i Informàtica Industrial, CSIC-UPC*

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Rossetti , I[1] ; Tripodi , A[1] ; Compagnoni , M[1] ; Ramis , G[2]
[1]*Università degli Studi di Milano*
[2]*Università degli Studi di Genova*

15:00 **Analysis of a scenario to supply an industrial area with renewable hydrogen using matlab** code105

Voigt , A ; Fischer , U ; Tannert , D ; Krautz , H
Brandenburg Technical University Cottbus-Senftenberg (BTU)

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Gutiérrez-Martín , F ; Palacios-Cangas , L ; Sacristán-Larrio , A ; Rodríguez-Antón , L
Universidad Politécnica de Madrid

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Yañez , M[1] ; Ortiz , A[1] ; Ortiz , I[1] ; Brunaud , B[2] ; Grossmann , E[2]
[1]*Univerity of Cantabria*
[2]*Carnegie Mellon University*

Chairperson:
Majid Bahrami
Simon Fraser University, Canada

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National Hydrogen Center (CNH2)

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[1]German Aerospace Center (DLR) [2]Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW) [3]Aalborg University
[4]Mościcki Industrial Chemistry Research Institute (ICRI) [5]IK4-CIDETEC
[6]European Commission, Directorate-General Joint Research Centre (JRC)

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CIEMAT

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[1]TECNALIA [2]Eindhoven University of Technology [3]CEA [4]Politecnico di Milano [5]Universita degli Studi di Salerno [6]Universidade do Porto
[7]ICI CALDAIE SPA [8]HyGear B.V. [9]Quantis Sàrl, Parc Scientifique

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Canalejas , R[1] ; Simón , J[1] ; Hyde , K[2] ; Albertín , E[1]
[1]Hydrogen Foundation of Aragón (FHA)
[2]ITM Power

Chairperson:
Laurent Antoni
CEA/LITEN, France

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[1] Hydrogen Foundation of Aragón (FHA)
[2]Instituto IMDEA Energía
[3]University of Ljubljana
[4]Environment Park S.P.A

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[1]Forschungszentrum Jülich (IEK-STE)

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[1]University of Málaga.
[2]University of Seville.

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[1]Universidad Pablo de Olavide
[2]Universidad Loyola Andalucia

Chairperson:
Jan Michalski
Ludwig-Bölkow-Systemtechnik GMBH, Germany

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[1]*INTA*
[2]*Universidad de Huelva*

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Chairperson:
Ilenia Rossetti
Università Degli Studi Di Milano, Italy

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[1] *Instituto de Tecnología Química (ITQ)*
[2] *Coorstek Membrane Sciences*

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[1]*Eindhoven University of Technology*
[2]*Tecnalia*

Chairperson:
Andras Sandor Erdohelyi
University Of Szeged, Hungary

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[1]Instituto Nacional de Técnica Aeroespacial (INTA)
[2]Universidad de Sevilla
[3]Commonwealth Scientific and Industrial Research Organization (CSIRO)

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Vanesa Gil
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Antoni , L ; Maroño , M ; Palacin , F
Hydrogen Europe Research

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Jens Mitzel
DLR, Germany

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Chairperson:
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University College London, UK

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Rossetti , I[1] ; Bahadori , E[1] ; Ramis , G[2]
[1]*Università degli Studi di Milano*
[2]*Università degli Studi di Genova*

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[1]*Enagas* [2]*Gas Natural Fenosa* [3]*Abengoa Innovacion*
[4]*FCC Aqualia* [5]*ICP-CSIC* [6]*Tecnalia Research and Innovation*
[7]*Centro Nacional del Hidrogeno (CNH2)*

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[1]*Centro Nacional del Hidrógeno (CNH2)* [2]*Universidad Central de Chile*
[3]*Universidad del Desarrollo* [4] *Universidad Politécnica de Madrid (UPM)*
[5]*Universidad de las Fuerzas Armadas*

11:30 **P2G from renewable hydrogen** code195

[1]Brey , J ; [2]Castro, A
[1]*Universidad Loyola Andalucia* [2]*H2B2*

11:50 **Hydrogen production by coupling concentrated solar energy with a high temperature steam electrolyser** code10

Monnerie , N ; Reinhold , J ; Thelen , M ; Roeb , M ; Sattler , C
DLR German Aerospace Center

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Amao , Y[1] ; Kai , A[2]
[1]*Osaka City University*
[2]*Oita University*

Chairperson:
Fernando Isorna Llerena
INTA, Spain

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[1]*Institute for Energy Technology (IFE)*
[2]*Marion technologies*
[3]*CSIC-ICB*

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[1]*Coorstek Membrane Science*
[2]*University of Oslo*
[3]*Instituto de Tecnología Química (ITQ)*

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[1]*Tecnalia Research & Innovation*

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Westbye , A[1] ; Di Felice , L[1] ; Aranda , A[1] ; Dietzel , P[2]
[1]*Institutt for Energiteknikk*
[2]*University of Bergen*

Chairperson:
Narcís Homs
University of Barcelona, Spain

Friday 16th - Parallel Session 6 – Room 2.1

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Centro Nacional del Hidrógeno (CNH2)

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[1]*Daimler AG*
[2]*NuCellSys GmbH*
[3]*MS2 Engineering und Anlagenbau GmbH*
[4]*Paul Scherrer Institut*
[5] *ETH Zürich*

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[1]*CEA-LITEN*
[2]*Univ. Grenoble Alpes*

Chairperson:
Francisco Tinaut
University of Valladolid, Spain

Friday 16th - Parallel Session 6 – Room 2.2

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[1]*Simon Fraser University*
[2]*Automotive Fuel Cell Cooperation*

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[1]*Instituto de Catálisis y Petroleoquímica, CSIC* [2]*Diamond Light Source*

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[1]*Instituto de Carboquímica – CSIC* [2]*Universidad de La Laguna*

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Chairperson:
Carmen M. Rangel
LNEG, Portugal

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[1]Instituto De Energías Renovables (Unam) [2]Universidad De Ciencias Y Artes De Chiapas
[3]Universidad Politécnica De Chiapas [4]Universidad Politécnica Del Estado De Morelos

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[1]CNH2 [2]Adix Ingeniería [3]ITECAM
[4]AIN [5]Flubetech [6]Hidrógena Desarrollos Energéticos

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[1]Centro Nacional Del Hidrógeno (CNH2),
[2]Universidad Nacional De Educación A Distancia (UNED) ,
[3]Universidad Europea De Madrid (UEM) ,
[4]Hidrógena Desarrollos Energéticos ,

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[1]Centro de Automática y Robótica (CAR) CSIC_UPM
[2]Instituto de Cerámica y Vidrio (ICV) CSIC

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Centro Nacional Del Hidrogeno, Spain

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[1]ITQ (UPV-CSIC)
[2]UiO

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[1]University of Cantabria
[2]LNEG

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[1]*ITHES (UBA-CONICET)*
[2]*University of Malaga*

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[1]*Institute of Organic Chemistry with Centre of Phytochemistry, BAS* [2]*Institute of Catalysis, BAS* [3]*Institute of Inorganic Chemistry AS CR v.v.i.* [4]*University of Jan Evangelista Purkyne* [5]*Institute of General and Inorganic Chemistry, BAS*

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CNH2 Open Doors Days

On the occasion of the **European Hydrogen Energy Conference** (**EHEC 2018**) **Centro Nacional del Hidrógeno (CNH2)** organizes an **Open Doors Days** for the **congress attendees**, as a parallel event to the congress. Thanks to our excellent communication by high speed train (AVE) from Madrid, Seville and Malaga, during 12th and 13th of March you can visit the facilities and laboratories of **Centro Nacional del Hidrógeno (CNH2)** in **Puertollano**, where you can also arrange **B2B meetings** with person in charge of each R&D lines of CNH2.

Program March 12th and 13th

- 8:00 – 11:00 Arranged B2B meetings
- 11:00 – 11:30 CNH2 presentation
- 11:30 – 13:00 Visit to CNH2 laboratories and facilities
- 13:00 – 14:00 Lunch
- 14:00 – 19:00 Arranged B2B meetings

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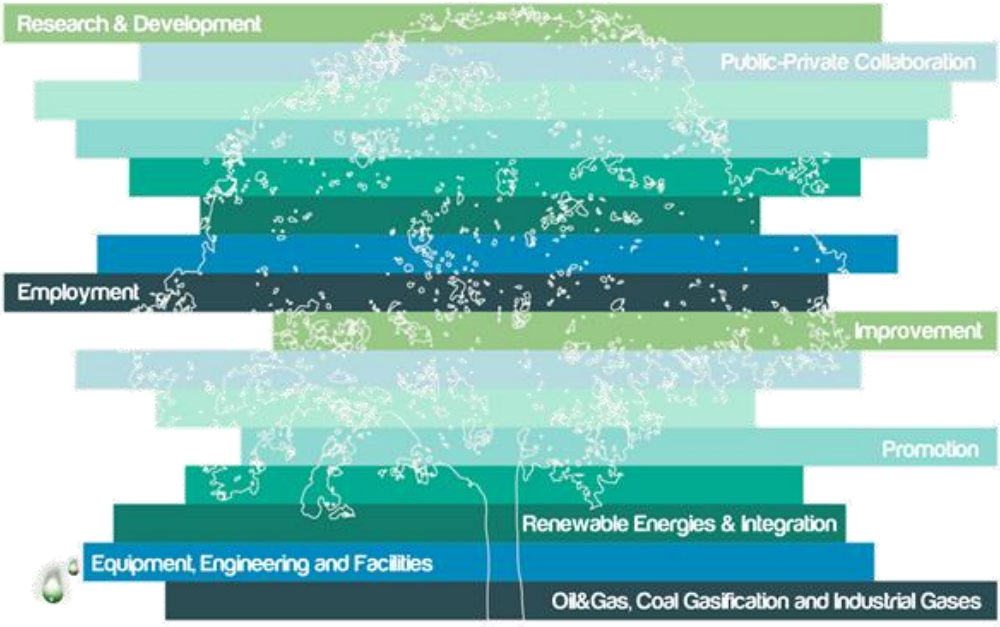

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Trade Fair & Posters
Technical Secretariat & Speakers' Room
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