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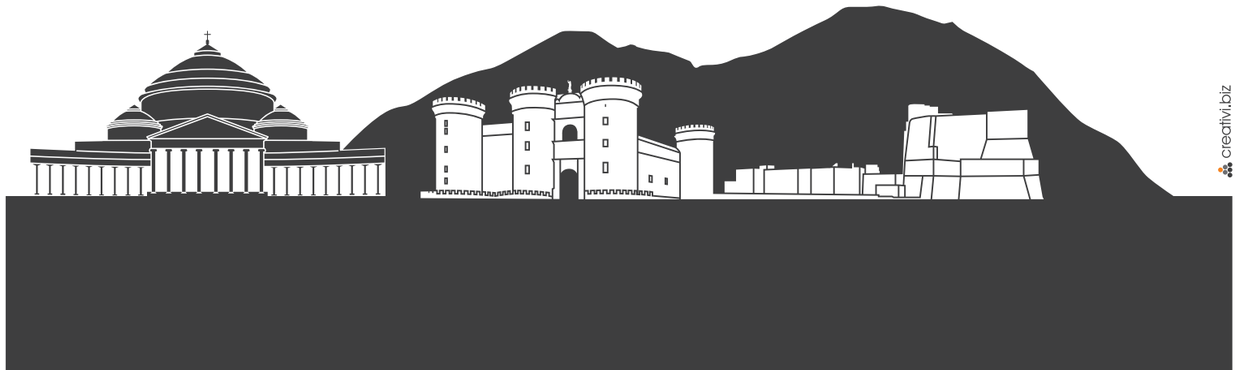

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PIERO LUNGHI CONFERENCE
EFC15
TECHNOLOGY&APPLICATIONS

European Fuel Cell
Conference & Exhibition

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PIERO LUNGHI CONFERENCE
EFC15
TECHNOLOGY&APPLICATIONS

European Fuel Cell

Conference & Exhibition

Naples

16-18 December, 2015

15 *December* ***Side Events***

organized by

ATENA FUTURE TECHNOLOGY

ENEA Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile

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FINAL PROGRAM

To Piero Lunghi. We miss you a lot.
To you our gratitude for ever.

This book is dedicated to the memory of Piero Lunghi,
creator of the European Fuel Cell Technology & Applications Conference, dear friend and colleague,
who prematurely passed away in a car accident on damned November 9, 2007.

Piero made significant contributions in the field of fuel cells in the course of his too short career.
He was the eading figure in the formation of the fuel cell research group
at the University of Perugia and several activities
and research projects initiated by him are still ongoing.
This means that, thanks to Piero, many young people are working
in this exciting research field and are coming to Rome to present their results.
Therefore, Piero's memory is in the conference name
but Piero's contribution is still in the contents of this book.

The memory of our friend Piero, his great personal generosity and energy,
survives in our hearts, his contribution and his tenacity
survive in the work of young people who carry on his vision throughout the world.

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Precision Fluid Controls

Precision Fluid Controls S.r.l., founded in 1997, is currently selling on the whole Italian market and abroad instrumentation for level, pressure, flow and temperature monitoring.
We distribute a wide range of products, according to leading Representatives companies, on a sole distribution basis. Our instrumentation is suitable both for the process control (chemical industry, shipbuilding and heavy industry) and laboratories. Precision is able to supply you with the right solution to your exigencies in various industrial fields (chemical, pharmaceutical, shipbuilding, food and beverage, semiconductors, transportation etc.).

Precision Fluid Controls S.r.l., presente sul mercato dal 1997, vende su tutto il territorio italiano strumenti di misura per il controllo di livello, portata, pressione e temperatura dedicati sia al controllo di processo che ai laboratori. Grazie al supporto costante di Società leader, Precision offre soluzioni alle vostre misure di pressione, portata, livello e temperatura in vari settori industriali (chimico, farmaceutico, navale, alimentare, semiconduttori, trasporti).Dal punto di vista commerciale Precision vanta una rete di vendita che copre tutto il territorio nazionale e organizza la propria attività tramite la rappresentanza di aziende estere specializzate su specifiche linee di prodotto.

McPhy energy

McPhy Energy is a leading developer of hydrogen-based solutions for industry and energy markets.
The company draws on its exclusive technique for storing hydrogen in solid form and its years of experience in producing hydrogen through water electrolysis to design and manufacture flexible production, storage and distribution equipment.

In the fight against climate change, hydrogen mobility is powerful tool for helping to reduce greenhouse gases and stem global warming.
As an energy transition player, McPhy Energy provides expertise in the field of zero emission mobility and is deploying an infrastructure of hydrogen refuelling stations: McFilling.

McFilling is a compact and modular system that allows:
- to produce a renewable hydrogen (completely carbon-free hydrogen), using green electricity from renewable energy
- to add modules as the fleet of hydrogen vehicles enlarges
- to implement an onsite electrolysis equipment, to dispense with the transmission and distribution of hydrogen and thus removing the carbon footprint related to these stages
- to feed the hydrogen vehicles with a green - or renewable - hydrogen

EXHIBITORS

FCLAB

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The research project "Fuel Cell Lab" (FCLAB) is part of the Cluster "Energy, Environment and Green Chemistry" funded by the National Operational Programme for "Research and Competitiveness" 2007-2013, and aims to support the development of innovative technologies for energy conversion, with the aim of creating complex energy systems that combine the needs of the cheap energy availability and environmental sustainability.
The research activities of the FCLAB project are oriented to:
• Development of innovative technologies for energy conversion, with the aim of creating energy systems that combine the needs of the cheap energy availability and environmental sustainability.
• Development of modular technology platforms based on fuel cells for stationary poly-generation and micro-CHP and for mobile and portable power.
Among the various kind of fuel cells, the research activities are oriented to the development of molten carbonate fuel cells (MCFC) for poly-generation, solid oxide fuel cells (SOFC) for micro-CHP and polymer electrolyte (PME) for mobile applications, microbial cells (MFC) for the direct conversion of organic waste into electricity (bio- electrolysis), also in combination with anaerobic digestion processes for the production of biofuels (bio-hydrogen and bio-methane).
The innovative energy conversion systems developed within this project and, therefore, with performance characteristics in terms of efficiency, and greenhouse-gas emissions that are not reflected in the panorama of the international technology sector, will greatly contribute to the growth of the involved companies, which will broaden their horizons far beyond current areas of business.

SOLID POWER

SPONSORS

The Institute for Advanced Energy Technologies "Nicola Giordano" (hereinafter ITAE) is an Italian research centre founded in 1980 and belonging to the National Research Council (CNR) that is distributed all over Italy through a network of institutes aiming at promoting a wide diffusion of its competences throughout the national territory and at facilitating contacts and cooperation with local firms and organizations.
ITAE is one of European leading research centre in the fuel cells and renewable energy fields and a full member of the Fuel Cells and Hydrogen Joint Technology Initiative of the European Community.

The research activity is organized in 4 sectors:
1 – Direct production of electric energy technologies
2 – Hydrogen and clean fuels production
3 – Energy transformation and storage technologies
4 – Integration of new energy technologies and renewable

Beside these four lines of research, there are three support activities that cut across all research lines and are: socio-economic impact analysis of cutting-edge energy technologies; study about the regulations governing the application and use of energy technologies; technology transfer and exploitation of R&D results.

The institute is provided with 19 equipped laboratories for preparative and characterization of materials and components, energy systems and for the construction and testing of devices and prototypes.
These laboratories are located in a building which is on three levels with a total area of 4800 square meters, and includes laboratories, offices, a conference room, a library, a guest quarters and the canteen.

Moreover, the ITAE has, in an area close to its headquarters, a "Center for new energetic technology testing, innovation and industrial promotion", that is a testing center supplying technical and scientific support to companies operating in the production of innovative energy systems

Ritmare
La ricerca italiana per il mare

RITMARE Flagship Project is one of the National Research Programmes funded by the Italian Ministry of University and Research.

RITMARE
is the leading national marine research project for the period 2012-2016; the overall project budget amount to 250 million euros, co-funded by public and private resources. It is coordinated by the National Research Council and involves an integrated effort of most of the scientific community working on marine and maritime issues, as well as some major industrial groups.

RITMARE is divided into 7 sub-projects:
1. Maritime Technologies
2. Technologies for Sustainable Fishing
3. Planning of the Maritime Space in Coastal Waters
4. Planning of the Deep Marine Environment and the Open Sea
5. Observation System for the Marine Mediterranean Environment
6. Research, Training and Dissemination Structures
7. Interoperable Infrastructure for the Observation Network and Marine Data

RITMARE
• Supports training of a new generation of researchers, through the funding of innovative projects selected through call for proposal
• Strengthens the strategic presence of Italian research in Europe and in the Mediterranean
• Promotes the establishment of a permanent forum between researchers, decision makers and stakeholders in both the public and private sector, with the aim of fostering the integration and transfer of research results and thus place the knowledge as a reference starting point for strategies and management decisions

FUEL CELLS AND HYDROGEN
JOINT UNDERTAKING

FUNDING FUEL CELLS AND HYDROGEN TECHNOLOGY DEVELOPMENTS ACROSS EUROPE

The Fuel Cells and Hydrogen Joint Undertaking (FCH JU) finances Research & Development (R&D) and Demonstration projects on fuel cells and hydrogen. It is a unique public-private partnership between the European Commission, Europe's fuel cell and hydrogen industry and research organisations. A public-private partnership model works as an effective way for European intervention to coordinate R&D activities by pooling financial resources together.

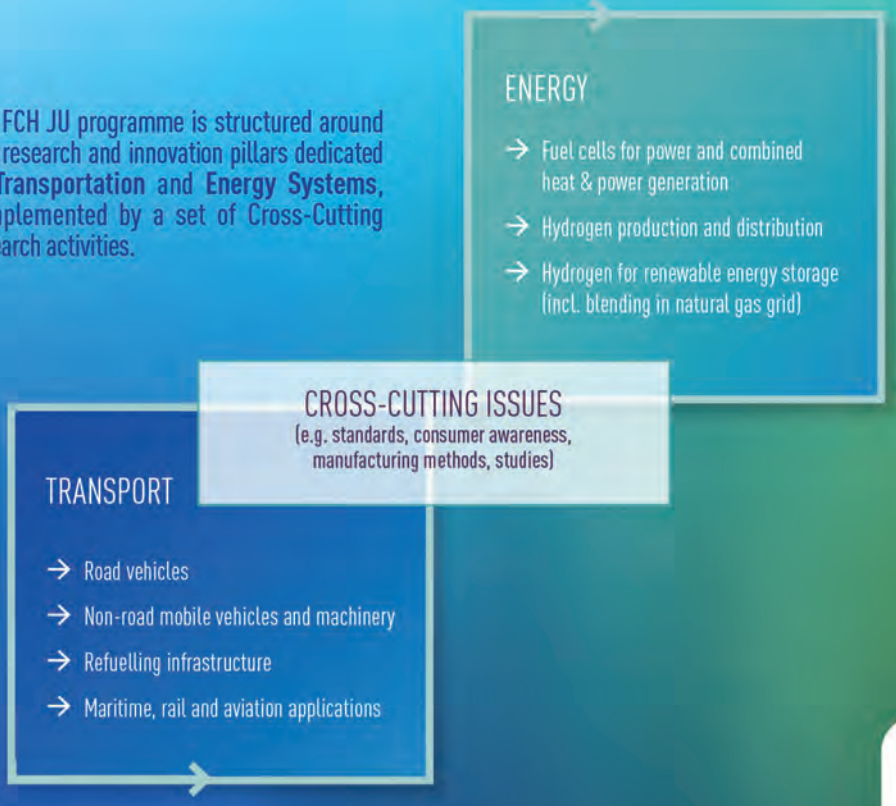
The European Union is committed to changing its transport and energy systems in pursuing a future low carbon economy. Fuel Cells and Hydrogen (FCH) technologies hold great promise for energy and transport applications from the perspective of meeting Europe's energy, environmental and economic challenges.

Hydrogen can be produced using renewable energy sources, offering a clean fuel for road transportation. Moreover, hydrogen offers the ability to store electricity, addressing the intermittent character of renewable energy. When coupled with highly efficient, silent and clean fuel cells as energy convertors, hydrogen opens up new horizons for decreasing Europe's dependency on imported fossil fuels.

The aim of the FCH JU is to accelerate the market introduction of these technologies, realising their potential as an instrument in achieving a carbon-lean energy system.

Established in 2008, the FCH JU has supported 169 projects to date. Its second phase was approved by the Council of the European Union in May 2014 under the Horizon 2020 EU funding programme, with a total budget of €1.33 billion as FCH 2 JU. This marks Europe's continued confidence and support for fuel cells and hydrogen as key technologies for decarbonising our energy system, and creating a secure sustainable energy supply capable of generating new jobs.

The FCH JU programme is structured around two research and innovation pillars dedicated to **Transportation** and **Energy Systems**, complemented by a set of Cross-Cutting research activities.



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The Electrochemistry Division of the Italian Society of Chemistry (SCI) – founded on 1974 and according to the objectives undertaken by the SCI – aims at the research advancement in its specific field, as well as to promote teaching and to develop strategic relationships with Industry. At this purpose the Electrochemistry Division organizes, promote and sponsors different inizitives such as congresses, workshops and schools. Moreover it is very attentive to education, and to the enhancement of young people, through Degree and PhD Awards and supporting Conference participation. For further information please visit **www.soc.chim.it/it/divisioni/elettrochimica/HOME**

ROAD SHOW

18th December

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Fuel Cell & Hydrogen Energy Association (FCHEA) is the trade association for the fuel cell and hydrogen energy industry, dedicated to the commercialization of fuel cells and hydrogen energy technologies. FCHEA members represent the full global supply chain, including fuel cell materials, components and systems manufacturers, hydrogen producers and fuel distributors, government laboratories and agencies, trade associations, utilities, and other end users.

Fuel Cells Bullettin is the leading monthly newsletter dedicated to reporting and analysing business and technology developments in the global fuel cell sector. The newsletter – published as a Digital Edition – contains a mix of news on automotive and mobile, small and large stationary, portable and micro, hydrogen fuelling and energy storage, commercialisation and research activities and demonstrations. Each issue has a feature article on a specific company, project, technology or topic of interest, as well as an extensive summary of new US patents, and a comprehensive events calendar.

Renewable Energy Focus magazine and its website provide a forum for debate and dialogue between research, industry, financial organisations and government bodies worldwide. With in-depth coverage and incisive editorial on all areas of renewable energy, Renewable Energy Focus takes an objective look at bioenergy, energy efficiency, energy infrastructure, energy storage (including fuel cells), geothermal, green buildings, hydro power, photovoltaic (PV), solar heating and cooling, solar thermal, wave and tidal energy, and wind power.

Shmuel De-Leon Energy, Ltd. is a leading company in the field of power sources knowledge. The company provides comprehensive collection of power sources knowledge tools and services:

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- Power sources solutions
- Representing Energy Storage testing and research equipment companies in Israel

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AltEnergyMag is an eMagazine full of News, Articles and Interviews covering the trends and breakthroughs in the Alternative Energy Industry, with an emphasis on the state of the art and on the horizon technologies that have strong prospects of commercialization. Since 2002 our philosophy has been to create an outlet where the industry can collaborate and report on itself. We offer those of you who work or have a passion for the Alternative Energy to contribute articles, news and product information for your peers to read and discover.

American Elements is the world leader in the industrial application of materials science. It has also been a key source for academic and corporate research, advancement and new product development in SOFC and PEM fuel cell materials and has been a decade long participant in the materials development component of the U.S. Dept. of Energy's SECA program. Our fundamental expertise in the properties, applications and cost-effective manufacturing of advanced and engineered materials, including ultra high purity refining (99,9999%) and nanotechnology (Mono Atomic Elements) scales allows us to meet the needs of thousands of global manufacturers (including over 30% of the Fortune 50), all U.S. and many foreign national laboratories, universities throughout the world, and our customers in a wide variety of industry groups, including energy, electronics, aerospace, defense, automotive, optics/photovoltaics, green technologies and pharma/cosmetics. The company provides both technical guidance and manufactured products in its 10,850 page online catalogue which includes over 3.000 elemental metal, metallic compound, ceramic and crystalline stock items. American Elements also produces numerous customer proprietary formulations from our network of production facilities strategically placed throughout the world.

Fast a not for profit private organization founded in 1897, represents 32 Italian scientific and technical associations covering the most important and priority European industrial sectors. Thanks to the competencies and expertise of the associations belonging to FAST network, the Federation is able to address significant stakeholders at regional and national level and to guarantee a permanent liaison with the most relevant EU industrial and research networks. FAST has a long standing relationship with different regional and local authorities providing them support in shaping and programming their policies with regards to innovation, research (FAST is a member of the Enterprise Europe Network, manages the Hyer secretariat -HyER - in Brussels), education and training and technical assistance to SMES.

H2IT is an independent and non-profit organization, launched in 2004 to formalize the activities of the working groups of the Italian Hydrogen Taskforce and promote the creation of an infrastructure for the use of hydrogen. The goal is to stimulate and develop the market for the use of hydrogen, to create a strong industry voice of companies and institutes involved in the sector, and to secure a leading role for Italy in the world market.

PROGRAM

PLENARY SESSION

16th December

08:00-09:30	**Registration** **Welcome and formal opening**
	location: **Auditorium**
09:30-09:45	**Welcome to the Conference and formal opening** *Angelo Moreno, Conference chairman*
09:45-10:00	**Welcome and formal opening from Institutions**
	WORLD ROADMAPS AND NEW HORIZONS
10:00-10:20	**Horizon 2020: priorities and future perspectives for Fuel Cell and Hydrogen deployment. The role of FCH-JU** *Bert De Colvenaer | FCH JU*
10:20-10:40	**Fuel Cell Progress and Perspectives in the United States** *Gregory Kleen | DOE*
10:40-11:10	**Coffee Break**
11:10-11:30	**State of the art and long term strategy in Germany** *Klaus Bonhoff | NOW*
11:30-11:50	**State of the art and long term strategy of Hydrogen Energy development in Japan** *Eiji Ohira | NEDO*
11:50-12:10	**Worldwide strategies and policies aimed to improve Hydrogen and Fuel Cell technology development and commercialization** *Bernard Frois | IPHE*
12:10-12:30	**"Mobilità Idrogeno Italia" - Strategic Plan for deployment of Hydrogen Infrastructures** *Angelo Moreno | ENEA*
12:30-13:30	**Question time & round tab**
13:30-14:00	**Press briefing**
13:30-14:30	**Lunch**

PARALLEL SESSION 1

16th December

SESSION 1a PEM MATERIALS

location: Aragonese

14:40-15:00 **EFC15239**
The effects of the composition of microporous layers on the permeability of gas diffusion layers
Orogbemi Olutomisin Manase | University of Sheffield

15:00-15:20 **EFC15183**
Durability evaluation of innovative FEP-based gas diffusion media for PEM fuel cells
Latorrata Saverio | Politecnico di Milano

15:20-15:40 **EFC15288**
Electrochemical and membrane electrode assembly (MEA) studies of performance stability of supported platinum catalyst
Paritosh Kumar Mohanta | Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW)

15:40-16:00 /
/

SESSION 1b NEW IDEAS IN FUEL CELL TESTING

location: Sveva

14:40-15:00 **EFC15121**
Upgrading a commercial PEMFC-test bench for the integration of test gases and gas leakage studies for individual stack cavities
Koehrmann Frank | NEXT ENERGY - EWE-Forschungszentrum fuer Energietechnologie e. V. at the University of Oldenburg

15:00-15:20 **EFC15301**
Voltage peak attenuation obtained with the integrated steamer and full ceramic new kit for cell testing and gas analysis in the open-flanges™ set-up
Ihringer Raphael | Fiaxell Sarl

15:20-15:40 **EFC15079**
SOFC's anode protection by bias current application: first experimental results on a short stack.
Squadrito Gaetano | CNR-ITAE

15:40-16:00 **EFC15248**
Isochoric Differential Apparatus: an enhancement of classic Sievert instrument
Testi Matteo | FBK

SESSION 1c SOFC MODELLING

location: Santa Lucia

14:40-15:00 **EFC15138**
Dynamic modeling of solid oxide fuel cell-engine hybrid system
Kang Sanggyu | Korea Institute of Machinery and Materials

15:00-15:20 **EFC15006**
The influence of electrolyte type on dynamic response of 1 kW-size SOFC stack
Milewski Jarek | Warsaw University of Technology

15:20-15:40 **EFC15119**
SOFC operation under partial direct reforming: numerical study on the impact of carbon deposition on electrochemical performance
Ferrero Domenico | Politecnico di Torino

15:40-16:00 **EFC15148**
A novel planar solid oxide fuel cell configuration for indirect internal reforming
Elizalde Francisco | University of Guanajuato

PARALLEL SESSION 2

16th December

SESSION 2a PEM MATERIALS

location: Aragonese

16:10-16:30 **EFC15296**
Iodine doped graphene as catalyst for fuel cells
Adriana Marinoiu | National RD Institute for Cryogenics and Isotopic Technologies- ICSI

16:30-16:50 **EFC15166**
New high-temperature proton conducting polymer nanocomposite membranes
Latorrata Saverio | Politecnico di Milano

16:50-17:10 **EFC15032**
Electrocatalytic layers based on reduced graphene oxide for PEM electrochemical systems
Grigoriev Sergey | National Research University "Moscow Power Engineering Institute"

17:10-17:30 **EFC15166**
Synchrotron SAXS and GISAXS characterization of Pt catalyst nano-morphology in high temperature PEM fuel cells
Taccani Rodolfo | Università degli Studi di Trieste

SESSION 2b NEW FUEL CELL DESIGN STRATEGIES

location: Sveva

16:10-16:30 **EFC15074**
Structural and conceptual challenges in high-temperature fuel cells
Michel Cassir | PSL Research University

16:30-16:50 **EFC15087**
Design and experimental evaluation of a novel SOFC stack concept with parallel-connected cells
Ihringer Raphael | Fiaxell Sarl

16:50-17:10 **EFC15009**
Control strategies to minimize cell degradation in fuel cell gas turbine hybrids
Zaccaria Valentina | U.S. Department of Energy, NETL

17:10-17:30 **EFC15285**
ANN-based control strategy for a natural gas fuelled Solid Oxide Fuel Cell as a Distributed Generation unit
Szablowski Lukasz | Warsaw University of Technology, Institute of Heat Engineering

SESSION 2c REFORMING

location: Santa Lucia

16:10-16:30 **EFC15096**
Green fuels from Biogas via tuned Reforming/Fischer-Tropsch route: performances of Rh/CeO2 and FeOx based catalysts
Vita Antonio | CNR-ITAE

16:30-16:50 **EFC15142**
Methane steam reforming intensification by innovative structured catalysts configuration
Ricca Antonio | University of Salerno

16:50-17:10 **EFC15140**
Oxidative Steam Reforming of Ethanol on mesoporous silica supported Pt-Ni/CeO2 catalysts
Ruocco Concetta | University of Salerno

17:10-17:30 **EFC15102**
Hydrogen produced in Pd-composite membrane reactor via bioethanol reforming reaction over Me/CeO2 (Me Ni, Rh-Ni) catalysts
Iulianelli Adolfo | Institute on Membrane Technology of the Italian National Research Council (Cnr-itm)

17:30-19:00 **Cocktail & Poster Session**

PARALLEL SESSION 3

17th December

SESSION 3a PEM LAB TESTS

location: Aragonese

9:00-9:20 **EFC15023**
Performance Analysis of Polybenzimidazole Fuel Cells Subjected to Different Ageing Tests
Taccani Rodolfo | Università degli Studi di Trieste

9:20-9:40 **EFC15061**
Polymer Fuel Cell Stack based on Sulfonic Acid Membranes with Extended Operating Temperature Range up to 120 °C
Ruiu Tiziana | German Aerospace Center (DLR)

9:40-10:00 **EFC15192**
Investigating the effect of water vapor and residual methanol on the anode of high temperature pem fuel cell
Thomas Sobi | Aalborg University

10:00-10:20 **EFC15017**
PEM fuel cell operating with nitrogen dioxide as contaminant
Acevedo Gomez Yasna | Royal Institute of Technology

SESSION 3b SOFC MATERIALS

location: Sveva

9:00-9:20 **EFC15151**
Complete Relaxation of Stresses During Reduction of Fuel Cells
Frandsen Henrik Lund | Technical University of Denmark

9:20-9:40 **EFC15152**
Synergic interaction between CeO2 and tin in SOFC anodes.
Boaro Marta | University of Udine

9:40-10:00 **EFC15249**
Durability and stability of tungsten and nickel combined with cerium anode for SOFC with H2S containing fuel
Escudero Maria Jose | CIEMAT

10:00-10:20 **EFC15037**
Direct Utilisation of Ethanol in Solid Oxide Fuel Cells using a Protective Catalytic Layer-modified Anode
Arico' Antonino Salvatore | CNR-ITAE

SESSION 2c BIOFULLED HIGH-TEMPERATURE FUEL CELLS

location: Santa Lucia

9:00-9:20 **EFC15075**
Analysis of the exploitation of biogas from waste in high efficiency SOFC plants: from WWTP to agro-industrial sectors
Gandiglio Marta | Politecnico di Torino

9:20-9:40 **EFC15077**
Harvesting Energy from Wastewater: the SOFCOM Polygeneration Plant
Lanzini Andrea | Politecnico di Torino

9:40-10:00 **EFC15139**
Performance characterization of a novel sorbent for anaerobic gas desulfurization finalized to high temperature fuel cell applications
Barelli Linda | University of Perugia

10:00-10:20 **EFC15135**
Vanadium-Ceria Catalysts for H2S abatement from biogas to feed to MCFC
Barba Daniela | University of Salerno

10:20-10:40 **Coffee Break**

PARALLEL SESSION 4

17th December

SESSION 4a PEM AUTOMOTIVE

location: Aragonese

10:40-11:00 **EFC15155**
AutoStack - Core - Industry led European consorti-um to develop next generation automotive stack hardware
Jörissen Ludwig | ZSW

11:00-11:20 **EFC15088**
Concept for fuel cell based mobility with closed CO2-cycle
Christoph Immisch | CUTEC-Institut GmbH

11:20-11:40 **EFC15244**
Detection of coolant leakage for thermal management system of fuel cell vehicle
Park Jisoo | Chungnam National University

11:40-12:00 **EFC15068**
Efficient Hydrogen Supply System with Cascaded PEMFC Stack and Ejector
Jenssen Dirk | Volkswagen AG

SESSION 4b MODELLING APPROACHES

location: Sveva

10:40-11:00 **EFC15217**
The openFuelCell project: recent progress and future developments
Beale Steven | Forschungszentrum Jülich GmbH

11:00-11:20 **EFC15211**
Coupling Continuum and Pore-Network Models in Polymer-Electrolyte Fuel Cells
Weber Adam | Lawrence Berkeley National Laboratory

11:20-11:40 **EFC15112**
Full multi-scale modelling approach of PEMFC degradation mechanisms: upscaling method by a bottom-up approach
Mathias Gerard | CEA LITEN

11:40-12:00 **EFC15251**
Effect of the current collector structure on the performance of the molten carbonate fuel cells: the combined computational and experimental study
Lee Chang-whan | KIST

SESSION 4c SOFC FUELLING

location: Santa Lucia

10:40-11:00 **EFC15021**
Operation of micro-tubular solid oxide fuel cells with a porous zirconia support on methane fuel
Panthi Dhruba | The University of Tokyo

11:00-11:20 **EFC15025**
SOFC fed with European standard road diesel by an adiabatic pre-reforming fuel processor for 1000 hours
Kleinohl Nils | OWI Oel-Waerme-Institut GmbH

11:20-11:40 **EFC15067**
The effect of doping on the ionic conductivity of SOFCs Ni-YSZ anodes operated in carbon- and sulfur-containing fuels
Rolland Mélanie | Department of Industrial Engineering, Università degli Studi di Trento

11:40-12:00 **EFC15120**
SOFC Anodes for the Direct Utilization of Ethanol as Fuel
Venancio Selma Aparecida Venancio | Hydrogen Laboratory COPPE/UFRJ (Federal University of Rio of Janeiro

PARALLEL SESSION 5

17th December

SESSION 5a PEM MATERIALS

location: Aragonese

12:10-12:30 **EFC15164**
A highly active and stable Pt-skin over PtCu3/C intermetallic shell ORR electrocatalyst
Hocevar Stanko | National Institute of Chemistry

12:30-12:50 **EFC15275**
Cobalt-doped carbon nanofibers as effective ORR catalyst
Mahmoud Mohamed | Minia University

12:50-13:10 **EFC15022**
Advancement of Group 4 and 5 Metal Oxide Cathode Based Cathode for PEFCs
Ota Kenichiro | Yokohama National University

SESSION 5b PEM MODELLING

location: Sveva

12:10-12:30 **EFC15078**
Mass transport issues in low Platinum loading catalyst layers for polymer fuel cells
Baricci Andrea | Politecnico di MIlano

12:30-12:50 **EFC15062**
Modelling membrane hydration and water balance of a PEM fuel cell
Liso Vincenzo | Aalborg University

12:50-13:10 **EFC11080**
Physical modeling of cathode impedance in low temperature fuel cells
Zago Matteo | Politecnico di Milano - Department of Energy

SESSION 5c SOFC FUELLING

location: Santa Lucia

12:10-12:30 **EFC15230**
Convion SOFC system development
Stenberg Henri | Convion

12:30-12:50 **EFC15076**
Crossing effects of contaminants on SOFC single cells fed by biogas
Papurello Davide | Politecnico di Torino

12:50-13:10 **EFC15144**
Experimental and modeling investigation of IT-SOFC for use with biogas and syngas mixtures
Donazzi Alessandro | Politecnico di Milano

13:10-14:10 **Lunch**

PARALLEL SESSION 6

17th December

SESSION 6a HT-PEM SYSTEMS

location: Aragonese

14:10-14:30 **EFC15029**
Recent Results from the JU Project CISTEM
Rastedt Maren | NEXT ENERGY • EWE Research Centre for Energy Technology at the University of Oldenburg

14:30-14:50 **EFC15108**
Long term performance optimization of a high temperature PEM fuel cell based cogeneration system
Najafi Behzad | Politecnico di Milano

14:50-15:10 **EFC15252**
Modeling and simulations of 5kWe HT-PEMFC system for residential heat and power generation
Han Donghee | INHA University

SESSION 6b HIGH-TEMPERATURE FUEL CELL MATERIALS

location: Sveva

14:10-14:30 **EFC15031**
Electrochemical and Microstructural Studies of the Redox Behaviour of a Ni-YSZ Anode
Vladikova Daria | IEES-BAS

14:30-14:50 **EFC15049**
Study of microstructural properties of durable electrodes for MCFC and correlation to long-term operation of single cells.
Frattini Domenico | University of Naples Parthenope, Department of Engineering

14:50-15:10 **EFC11048**
Influence of Lithium on the Sintering Behavior and on Electrical Properties of Gd-Doped Ceria Electrolyte for lT-SOFC
Accardo Grazia | Università Parthenope Napoli

SESSION 6c REGULATIONS, CODES & STANDARDS

location: Santa Lucia

14:10-14:30 **EFC15308**
Activities for deregulation and standardization on fuel cell technologies
Hashimoto Noboru | Panasonic Corporation

14:30-14:50 **EFC15207**
Variability and Comparability of Testing Procedures for PEMFC Modules and Stacks regarding Performance and Safety Aspects
Harms Corinna | NEXT ENERGY - EWE Research Centre for Energy Technology

14:50-15:10 **EFC15209**
Solid Oxide Cell and Stack Testing, Safety and Quality Assurance (SOCTESQA)
Lang Michael | German Aerospace Center (DLR)

PARALLEL SESSION 7

17th December

SESSION 7a GRID BALANCING & ENERGY STORAGE

location: Aragonese

15:20-15:40 **EFC15013**
Romanian participation into European assessment project by the name of HyUnder, multi-criterial analyses of salt cavern locations
Iordache Ioan | ICIT Rm. Valcea

15:40-16:00 **EFC15118**
Battery and hydrogen-based systems to store electric energy from renewable sources: performance and comparisons
Cristofaro Roberta | Fuel Cell Lab

16:00-16:20 **EFC15167**
EDEN: Novel power-to-power system for enhanced hydrogen storage in solid state
Crema Luigi | Fondazione Bruno Kessler

SESSION 7b SOFC MATERIALS

location: Sveva

15:20-15:40 **EFC15185**
Effect of synthetic route on performance of La0.8Sr1.2Fe0.9Cu0.1O4±δ electrodes for symmetrical solid oxides fuel cells
Cordaro Giulio | Politecnico di Milano

15:40-16:00 **EFC15228**
Strontium and copper doped lanthanum cobaltites: new cathode materials for Solid Oxide Fuel Cells?
Glisenti Antonella | University of Padova

16:00-16:20 **EFC11146**
Evaluation of Ba deficient NdBaCo2O5+d oxide as cathode material for IT-SOFC
Donazzi Alessandro | Politecnico di Milano

SESSION 7c HYDROGEN PRODUCTION & CATALYSIS

location: Santa Lucia

15:20-15:40 **EFC15297**
Catalytic Hydrogen Production from Ammonia over Ru/La(x)-Al2O3 (x 0–10 mol %)
Park Hyun S. | Korean Institute of Science and Technology

15:40-16:00 **EFC15082**
CO2 to Methanol through direct catalytic conversion by structured promoted CeO2 based catalysts
Palella Alessandra | CNR-ITAE

16:00-16:20 **EFC15055**
Catalytic activity of Me/CeO2-based (Me Rh, Pt) catalysts in pellet and monolith form towards the steam reforming of n-dodecane
Italiano Cristina | CNR-ITAE

PARALLEL SESSION 8

17th December

SESSION 8a GRID BALANCING & ENERGY STORAGE

location: Aragonese

16:40-17:00 **EFC15103**
Techno-economic analysis of power-to-gas storage options of wind farms in day-ahead markets
Lanzini Andrea | Politecnico di Torino

17:00-17:20 **EFC15069**
Reducing wind farm forecast errors and providing balancing energy with a fuel cell / electrolyzer system
Grueger Fabian | Reiner Lemoine Institut gGmbH

17:20-17:40 **/**
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SESSION 8b OFF-GRID SYSTEMS

location: Sveva

16:40-17:00 **EFC15287**
FCPowered RBS: a demonstration project to supply Telecom Stations through FC technology. Installation of Remote Sites and Data Analysis.
Mulone Vincenzo | University of Rome Tor Vergata

17:00-17:20 **EFC15291**
Alkammonia: Fuel Cell for the global industry telecommunications
Carletta Federica | FAST

17:20-17:40 **EFC11274**
Design and fabrication of miniaturized pem fuel combined microreactor with self regulated hydrogen mechanism
Balakrishnan Arvind | University of Freiburg, IMTEK.

SESSION 8c HYDROGEN PRODUCTION & CATALYSIS

location: Santa Lucia

16:40-17:00 **EFC15083**
Fuel production by photocatalytic conversion of CO2 and Water from the cement works emissions
Palella Alessandra | CNR-ITAE

17:00-17:20 **EFC15182**
Fermentative hydrogen production by the hyperthermophilic bacterium Thermotoga neapolitana
Pradhan Nirakar | University of Cassino and Southern Lazio

17:20-17:40 **EFC15197**
Innovative fuel cell, electrolysis, and hydrogen energy technologies for transport
Colella Whitney | Johns Hopkins University (JHU)

17:40-19:00 **Cocktail & Poster Session**

PARALLEL SESSION 9

18th December

SESSION 9a PEM LAB TESTS

location: Aragonese

9:00-9:20 **EFC15260**
Hydrogen Recirculation and Purge Strategy in Self-humidified PEM Fuel Cell System
Migliardini Fortunato | Istituto Motori of National Research Council of Italy

9:20-9:40 **EFC15051**
Kinetics of water sorption and desorption in Nafion® membrane: influence of the interfacial mass transfer coefficient.
Sophie Didierjean | Lorraine University

9:40-10:00 **EFC15041**
Water nucleation mechanism in planar breathing fuel cells
Erwan Coz | CEA Grenoble

10:00-10:20 **EFC15200**
PFSA Membrane Degradation in The Hydrogen Inlet Region: a Macroscopic Approach
De Moor Gilles | LEPMI UMR 5279 CNRS

SESSION 9b FUEL CELL SYSTEM INTEGRATION

location: Sveva

9:00-9:20 **EFC15173**
New concept of highly integrated MSR – HT PEMFC system for small portable power units
Hocevar Stanko | National Institute of Chemistry

9:20-9:40 **EFC15198**
Innovative fuel cell systems for addressing constraints in stationary power
Colella Whitney | Johns Hopkins University (JHU)

9:40-10:00 **EFC15298**
Sofc stack coupled with dry reforming
Cinti Giovanni | Università degli Studi di Perugia

10:00-10:20 **EFC15035**
SOFC Hybrid Plants: Experimental Analysis on a Re-Compression System
Ferrari Mario Luigi | University of Genoa

SESSION 9c ALTERNATIVE FUEL CELLS

location: Santa Lucia

9:00-9:20 **EFC15264**
Development of miniature enzymatic fuel cells for healthcare applications
Di Lorenzo Mirella | University of Bath

9:20-9:40 **EFC15188**
Polyacrinolytrile derived carbon based nanofiber mats as anodes in Microbial Fuel Cells
Massaglia Giulia | Italian Institute of Technology IIT (CSHR(at)polito)

9:40-10:00 **EFC15186**
Porous electrode optimization in anion-exchange membrane fuel cells
Carlson Annika | Royal Institute of Technology

10:00-10:20 **EFC15018**
Silver/Manganese Dioxide Compounds for Enhanced Oxygen Reduction Capabilities in Fuel Cell/Battery System
Musil Mike | The University of Tokyo

10:20-10:40 **Coffee Break**

PARALLEL SESSION 10

18th December

SESSION 10a PEM LAB TESTS

location: Aragonese

10:40-11:00 **EFC15084**
Novel macro-segmented fuel cell approach to investigation of localized degradation in PEMFCs
Rabissi Claudio | Politecnico Di Milano

11:00-11:20 **EFC15145**
Electrochemical Impedance Spectroscopy for PEM Fuel Cell Degradation Diagnostics
Ivan Pivac | FESB University of Split

11:20-11:40 **EFC15086**
Local electrochemical impedance spectroscopy measurements of the cathode ionic resistance of a PEMFC. A tool for the characterization of degradation
Gaumont Thomas | CEA

11:40-12:00 **EFC15045**
Determination of Reversible and Irreversible Voltage Losses in PEM Fuel Cells
Gazdzicki Pawel | German Aerospace Center (DLR)

SESSION 10b FUEL CELLS IN REVERSE MODE

location: Sveva

10:40-11:00 **EFC15170**
Coupling of a high temperature electrolyser with concentrated solar energy
Monnerie Nathalie | DLR

11:00-11:20 **EFC15038**
Enhanced performance and cost-effective materials for long-term operation of PEM water electrolysers coupled to renewable power sources
Arico' Antonino Salvatore | CNR-ITAE

11:20-11:40 **EFC15008**
Performance and Durability of the Molten Carbonate Electrolysis Cell (MCEC)
Hu Lan | KTH Royal Institute of Technology

11:40-12:00 **EFC15058**
Lectrochemical models development for the prediction of sofc and soec behaviors and performance
Scarfogliero Simona | University of Naples "Parthenope"

SESSION 10c DIRECT ALCOHOL FUEL CELLS

location: Santa Lucia

10:40-11:00 **EFC15115**
Experimental analysis of DMFC cathode temporary degradation
Bisello Andrea | Politecnico di Milano

11:00-11:20 **EFC15085**
Methanol tolerant Pd-based electrocatalysts for the oxygen reduction reaction
Lo Vecchio Carmelo | C.N.R. Istituto di Tecnologie Avanzate per l'Energia "Nicola Giordano"

11:20-11:40 **EFC15276**
Electrocatayltic activity of graphene containing different percentages of Nickel to ethanol oxidation
Mahmoud Mohamed | Minia University

11:40-12:00 **EFC15138**
Effect of Flow Channel Size on Carbon Dioxide and Product Water Exhausts in a Small Direct Methanol Fuel Cell
Nakashima Kohei | Meijo University

PARALLEL SESSION 11

18th December

SESSION 11a PEM PLATES

location: Aragonese

12:10-12:30 **EFC15150**
Study of the processing and geometric parameters on forming of the metallic bipolar plates of PEM fuel cell with pin-type pattern by using hydroforming method
Belali Owsia Moosa | Babol Noshirvani University of Technology

12:30-12:50 **EFC15176**
Effect of Mixed Torsion and Bending on Performance of Bendable Polymer Electrolyte Fuel Cell based on PDMS Endplates
Park Taehyun | Seoul National University

12:50-13:10 **/**
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SESSION 11b FUEL CELL SYSTEMS

location: Sveva

12:10-12:30 **EFC15078**
SOFC in Auxiliary Power Units (APU) for aeronautic applications
Micoli Luca | University of Naples Federico II

12:30-12:50 **EFC15292**
ower Up: 500kWe alkaline fuel cell system with heat capture
Essameldin Aly Ahmed | Federazione delle associazioni scientifiche e tecniche

12:50-13:10 **EFC11294**
KnowHy - Improving the Knowledge in Hydrogen and Fuel Cell Technology for Technicians and Workers
Ispano Giulia | FAST

SESSION 11c FUEL CELLS IN THE COMMODITY INDUSTRY

location: Santa Lucia

12:10-12:30 **EFC15133**
Modeling of a MW scale PEM fuel cell power plant integrated in industrial chlor-alkali process
Guandalini Giulio | Politecnico di Milano

12:30-12:50 **EFC15136**
Coupling Solid Oxide Electrolyser (SOE) and ammonia production plant
Cinti Giovanni | Università degli Studi di Perugia

12:50-13:10 **EFC15195**
Techno-economic analysis of producing hydrogen using electrolyzers based solid oxide electrolysis cells (SOECs)
Colella Whitney | Johns Hopkins University (JHU)

SIDE EVENT

MICROBIAL FUEL CELL SESSION

PROGRAM

MICROBIAL FUEL CELL SESSION

SIDE EVENT | PROGRAM

16th DECEMBER

14,40-15,00	EFC15070	**Haluk Beyenal** Washington State University	Key Note	Evaluation of long-term performance of sediment microbial fuel cells and the role of natural resources
15,00-15,20	EFC15100	**Gajda Iwona** Bristol BioEnergy Centre		Microbial Fuel Cell - a self-powered wastewater electrolyser for electrocoagulation
15,20-15,40	EFC15109	**Pizza Francesca** Vettabbia S.c.a r.l.		Experimentation of Microbial fuel cells in progress at Milano-Nosedo Wastewater Treatment Plant
15,40-16,00	EFC15263	**Di Lorenzo Mirella** University of Bath		Towards miniature microbial fuel cells for water quality monitoring
16,10-16,30	EFC15026	**Falcucci Giacomo** Univ. of Naples "Parthenope"		Performance assessment of of Microbial Fuel Cells fed by solid organic waste
16,30-16,50	EFC15265	**Monasterio M. Sara** Univ. Degli Studi di Cagliari		A Cascade of Miniature Microbial Fuel Cells Coupled with an Electrochemical Reactor for Energy Harvesting
16,50-17,10	EFC15277	**Walter Xavier Alexis** Bristol BioEnergy Centre Univ. of the West of England		A new design of membraneless microbial fuel cell: anode and cathode sharing the same self-stratified electrolyte of urine
17,10-17,30	EFC15280	**M. Mitov** Innovative Center for Eco Energy Technologies, South-West University		Possible applications of freshwater sediment microbial fuel cells
17,30-19,00				COCKTAIL & POSTER SESSION

17th DECEMBER

9,00-9,20	EFC15313	**Abraham Nunez** IMDEA WATER	Focus Note	Microbial desalination cells: wastewater treatment coupled to freshwater production
9,20-9,40	EFC15270	**Merino J. Irene** Univ. of the West of England		Electricity and catholyte production from ceramic MFCs treating urine
9,40-10,00	EFC15095	**S. Kerzenmacher** University of Freiburg		An air-breathing enzymatic cathode with extended lifetime by continuous laccase supply
10,00-10,20	EFC15122	**Franzetti Andrea** Univ. di Milano - Bicocca		Use of MFC systems as biosensors of organics
10,20-10,40				COFFEE BREAK
10,40-11,00	EFC15222	**Erable Benjamin** Laboratoire de Génie Chimique		The method for designing oxygen reducing biocathodes influences electrocatlytic performances, electrode colonization and bacterial population of the biofilm
11,00-11,20	EFC15117	**Colombo Alessandra** University of Milan		Investigation of different configurations of MFCs for treatment of oilfield produced water
11,20-11,40	EFC15129	**Yee Li Kang** University of Malaya		Enhancement of microbial fuel cell anode through conductive polymer
11,40-12,00	EFC15111	**Davide Perrino** University of Milan		Solid organic substrates as fuel in microbial fuel cells: an electrochemical study
12,10-12,30	EFC15267	**Theodosiou Pavlina** BBiC		Gelatine as a promising printable nutrient feedstock for Microbial Fuel Cells (MFC)
12,50-13,10	EFC15205	**Marone Antonella** INRA-LBE		Coupling of microbial electrolysis cells and dark fermentation to enhance the production of biohydrogen from agro-industrial wastewaters
13,10-14,10				LUNCH
14,10-14,30	EFC15105	**Grattieri Matteo** Politecnico di Milano		Enzyme-based glucose electrode for MFC application
14,30-14,50	EFC15153	**Kamaraj Sathishkumar** Elec. Gen. Nopal Biogas Waste Biomass		Electricity Generation from Nopal Biogas Waste Biomass using Clay Cup (cantarito) Modified Microbial Fuel Cell
14,50-15,10	EFC15278	**Nastro Rosa Anna** Parthenope University of Naples		Use of a single-chamber,air-cathode MFC for Policyclic Aromatic Hydrocarbons (PAHs) remediation in water environment
15,20-15,40	EFC15227	**Martinez H. Orlando** Power Elec. Lab., Univ. of Pavia		A power management system to parallel mfcs with different electrical characteristics
15,40-16,00	EFC15190	**Agostino Valeria** Ist. It. di Tecnologia IIT		Comparison of enriched biofilm communities from different natural environment in a single chamber MFC with open air cathode
16,00-16,20	EFC15030	**Dellosso Penteado E.** University of São Paulo		Influence of anode volume on the performance of mfc treating winery wasterwater
17,30-19,00				COCKTAIL & POSTER SESSION

SIDE EVENTS

15th December
Stati generali su Idrogeno e Celle a Combustibile

15th December | thematic Workshop
New Frontiers in FC Modelling:
Probabilistic Design and Open Source Platforms

15th December | thematic Workshop
Fuel Cell Deployment and Standardization:
formulating univocal procedures relevant for industry

15th December | thematic Workshop
Neptune's Hydrogen and Fuel Cells

16th December | thematic Workshop
Monitoring, Diagnostics and Control for SOFC systems
Improving SOFC-based CHP performance through innovative diagnosis and control

18th December
The International Energy Agency Advanced Fuel Cells Implementing Agreement
Annex 37: Fuel Cell Modelling

16-17th December | Poster Sessions
Dissemination of European projects on Fuel Cell and Hydrogen

16th December
Social Event: the Young Chorus of San Carlo Theater

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY

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