

## PROGRAMME

# European Technical School on Hydrogen and Fuel Cells 2014

Aegean Pearl Hotel, Rethymnon, Crete, Greece, 23-27 June 2014



### Sunday, 22 June 2014

After 15:00	Arrival of participants (check-in after 15:00)
19:00-20:00	Registration
20:00-22:00	Dinner

### Monday, 23 June 2014

#### Topical Lectures

Topical lectures on the key themes: safety, storage and fuel cells

08:50-09:20	Registration
09:20-09:30	<b>Opening of the Technical School 2014</b> Vladimir Molkov, Svetlana Tretsiakova-McNally, UU (UK)
09:30-10:30	<b>Main achievements and development perspectives in the frame of Horizon 2020</b> Bert de Colvenaer, The Fuel Cells and Hydrogen Joint Undertaking, European Commission (Belgium)
10:30-11:30	<b>Hydrogen and fuel cell technologies: overview</b> Jay Keller, DoE (USA)
11:30-11:50	<i>Coffee and networking around posters</i>
11:50-12:50	<b>China hydrogen and fuel cell utilization</b> David Christopher, Tsinghua University (China)
12:50-14:10	<i>Lunch</i>
14:10-15:10	<b>Hydrogen-fuelled vehicles: technical and market status</b> Gerhard Swart, HySA (Republic of South Africa)
15:10-15:30	<i>Coffee and networking around posters</i>
15:30-16:30	<b>Progress and bottlenecks in hydrogen safety</b> Thomas Jordan, KIT (Germany)
16:30-17:00	<b>Panel discussion</b>
19:00-20:00	Welcome reception and get together evening

### Tuesday, 24 June 2014

#### Topical Lectures

Topical lectures on the key themes: safety, storage and fuel cells

10:00-11:00	<b>Scientific progress and technological bottlenecks in hydrogen storage</b> Tim Mays, University of Bath (UK)
11:00-11:20	<i>Posters and coffee break*</i>
11:20-12:20	<b>Safety of hydrogen and fuel cell technologies: industrial research perspective</b> Franck Verbecke, Areva (France)
12:20-13:50	<i>Lunch</i>
13:50-14:50	<b>Progress in RCS for hydrogen and fuel cell systems and infrastructure</b> Guy Dang-Nhu, Air Liquide (France)
14:50-15:30	<i>Posters and coffee break*</i>
15:30-16:30	<b>H2FC European Infrastructure: detailed overview of the Transnational Access activities</b> Olaf Jedicke, KIT (Germany)
16:30-17:00	<b>Panel discussion</b>

\*Note: posters will be displayed throughout the week; on the 24<sup>th</sup> June the authors are required to be present at their posters to answer questions

Wednesday, 25 June 2014

**Transnational Access and Instrumentation Workshop**

*This workshop concentrates on recent advances in the research techniques and methods and results of Transnational Access.*

09:30-09:50	<b>Experimental studies of plume dispersion</b> Gilles Bernard-Michel, CEA (France)
09:50-10:10	<b>Towards a more representative corrosion test method for metallic PEFC bipolar plates</b> Gareth Hinds, NPL (UK)
10:10-10:30	<b>Overview of engineering tools for Cyber Laboratory</b> James Keenan, UU (UK); Klaus Bittner, KIT (Germany); Manuelle Quinaud, CEA (France)
10:30-10:50	<b>Imaging and quantifying water in fuel cells with neutrons: latest methodological improvements</b> Johannes Biesdorf, PSI (Switzerland)
10:50-11:10	<i>Coffee and networking around posters</i>
11:10-11:30	<b>Transnational Access at KIT-HYKA</b> Andreas Friedrich, PS (Germany)
11:30-11:50	<b>Improved high-power test rig facility</b> Izaak Vinke, Jülich (Germany)
11:50-12:10	<b>Sensors for hydrogen and hydrogen application related quantities</b> Mark Bader, BAM (Germany)
12:10-12:30	<b>Experiments on vented deflagration and hydrogen safety of indoor facilities</b> Mikhail Kuznetsov, KIT (Germany)
12:30-14:00	<i>Lunch</i>
14:00-14:20	<b>Concentration measurement methods for LH2 (Liquid Hydrogen) pools and vapour</b> Louise O'Sullivan, HSL (UK)
14:20-14:40	<b>A new reactive gas flux imaging method based on chemiluminescence: a first application to polymer electrolyte fuel cell cathodes</b> Anthony Kucernak, Imperial College (UK)
14:40-15:00	<b>Scientific methodology improvement from access results at University of Perugia.</b> Gabriele Discepoli, UniPG (Italy)
15:00-15:20	<b>Characterisation of intumescent behaviour of fire protective coating for type 4 tanks</b> Paul Joseph, UU (UK)
15:20-15:40	<i>Coffee and networking around posters</i>
15:40-16:00	<b>Enabling low-cost fuel cell deployment: characterization of key components in high-temperature fuel cell systems</b> Stephen McPhail, ENEA (Italy)
16:00-16:20	<b>Effect of intumescent paint on fire resistance of on-board storage</b> Jean Meyer, PhD student (Germany)
16:20-16:50	<b>Round table discussion on instrumentation and transnational access</b>

Thursday: 26 June 2014 (Morning session)

**Cyber Laboratory: addressing scientific bottlenecks through modelling and simulations**

**Expert Panel on Hydrogen Safety. Moderator: Dmitriy Makarov**

09:45-10:10	<b>Development of a pseudo source approach for plane jets</b> Stefan Ledin, HSL (UK)
10:10-10:35	<b>Simulations of detonations</b> Alexei Kotchourko, KIT (Germany)
10:35-11:00	<b>Development of model evaluation protocol for hydrogen and fuel cell safety analysis: the progress of SUSANA project,</b> Boris Chernyavskiy, UU (UK)
11:00-11:20	<i>Coffee and networking around posters</i>
11:20-11:50	<b>Hands-on training of engineering tools for Cyber Laboratory</b> James Keenan, UU (UK); Klaus Bittner, KIT (Germany); Manuelle Quinaud, CEA (France)
11:50-12:05	<b>Round table discussion on modelling and simulations as a part of research infrastructure</b>

**Thursday: 26 June 2014 (Afternoon session)**

**Cyber Laboratory: addressing scientific bottlenecks through modelling and simulations**

**Expert Panel on Hydrogen Storage and Fuel Cells. Moderator: Manuelle Quinaud**

12:05-12:30	<b>Storage of hydrogen in solids</b> Andreas Züttel, EMPA (Switzerland)
12:30-14:00	<i>Lunch</i>
14:00-14:25	<b>Thermally coupled hydrogen storage - fuel cell systems</b> Andreas Yiotis, NCSR D (Greece)
14:25-14:50	<b>Non-linear control for fuel cell system: from simulation to rapid prototyping</b> Manuelle Quinaud, CEA (France)
14:50-15:15	<b>Experimental test of innovative sorbents based on calcium aluminates for SE-SR</b> Gabriele Discepoli, UniPG (Italy)
15:15-15:35	<i>Coffee and networking around posters</i>
15:35-16:00	<b>Study of water behavior within a PEMFC (modeling and experimental approaches)</b> Manuelle Quinaud, CEA (France)
16:00-16:25	<b>Modelling-based design of a hydrogen storage tank for a heavy duty vehicle</b> Albin Chaise, CEA (France)
16:25-17:00	<b>Round table discussion on modelling and simulations as a part of research infrastructure</b>

**Friday, 27 June 2014**

**Advanced Research Workshop**

09:45-10:10	<b>Hydrogen powered transport: safety issues and future safety strategies</b> Vladimir Molkov, UU (UK)
10:10-10:35	<b>Evaluation of hydrogen embrittlement measurement: SSRT and electrochemical hydrogen load</b> JB Jorcin, TecNALIA (Spain)
10:35-11:00	<b>Numerical analysis of hydrogen safety issues</b> Daniele Melideo, JRC (The Netherlands)
11:00-11:20	<i>Coffee and networking around posters</i>
11:20-11:45	<b>Passive ventilation to control hydrogen released into enclosures</b> Stuart Hawksworth, HSL (UK)
11:45-12:10	<b>Prediction of overpressure during vented deflagrations of localized mixtures</b> Dmitriy Makarov, UU (UK)
12:10-12:35	<b>Closing the cycle with hydrogen</b> Andreas Züttel, EMPA (Switzerland)
12:35-14:05	<i>Lunch</i>
14:05-14:30	<b>3D thermomechanical modelling in fuel cell systems</b> Murat Peksen, Jülich (Germany)
14:30-14:55	<b>The MgH<sub>2</sub>-Mg(OH)<sub>2</sub> system as a cheap, pioneering hydrogen store</b> Laura Bravo-Diaz, JRC (The Netherlands)
14:55-15:20	<b>Large-Eddy Simulation of a premixed hydrogen-air flames passing through a set of obstacles</b> Maxim Bragin, Loughborough University (UK)
15:20-15:40	<i>Coffee and networking</i>
15:40-16:05	<b>Modelling and numerical simulation of sonic jet release and dispersion in passively vented room-like enclosure</b> , Boris Chernyavskiy, UU (UK)
16:05-16:30	<b>Numerical simulation of bare hydrogen storage tank performance in bonfire</b> Sergii Kashkarov, PhD student (Ukraine)
16:30-16:55	<b>Development of safety standard for mobile hydrogen refuelling facilities in China</b> Li Zhiyong, Tongji University (China)
16:55-17:15	<b>Round table discussion and close of the School</b>
20:00-22:00	Gala dinner at the hotel

**Saturday, 28 June 2014**

Before 12:00	<b>Departure of participants (Latest check-out time for all participants is 12:00)</b>
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## POSTER SESSION

### European Technical School on Hydrogen and Fuel Cells 2014

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Tuesday, 24<sup>th</sup> June 2014



1. **Experimental investigation of hydrogen generation via aluminum-water reaction and energy production and storage using PEM Fuel Cells**, Shani Elitzur, Israel Institute of Technology (Israel).
2. **PEM Fuel Cells degradation study through catalyst layer SAXS nano-morphology mapping**, Francesco Valle, Università degli Studi di Trieste (Italy).
3. **Maritime application of PEM fuel cell**, Thomas Lamberti, University of Genoa, (Italy).
4. **Solid state modular hydrogen fuel using LiH and boric acid**, Tina Yu-Ting Su, University of Glasgow (New Zealand).
5. **Reduced order model of Solid Oxide Electrolysis Cell**, Jarosław Milewski, Warsaw University of Technology (Poland).
6. **Effects of thin-film Pd deposition on the hydrogen permeability of Pd<sub>60</sub>Cu<sub>40</sub> membranes**, Naser Al-Mufachi, University of Birmingham (UK).
7. **Platinum free electrocatalysts for H<sub>2</sub>O<sub>2</sub> Alkaline Membrane Fuel Cells (AMFC)**, Marco Bellini, Istituto di Chimica dei Composti Organometallici (Italy).
8. **Initial performance analysis of a methanol steam reformer**, Kristian Kjær Justesen, Aalborg University (Denmark).
9. **Our hydrogen community: vision**, James Sampson, Zero Carbon Futures (UK).
10. **Experimental techniques for the measurement of liquid hydrogen (LH<sub>2</sub>) and experimental phenomena**, Louise O'Sullivan, HSL (UK).