



international association for hydrogen energy

Clean and Abundant Energy for Sustainability



Preliminary Program

	Sunday 4	Monday 5	Tuesday 6	Wednesday 7	Thursday 8	Friday 9
8.30-10.30		Opening Session	Plenary Session	Plenary Session		
10.30-10.45		Coffee Break	Coffee Break	Coffee Break		
10.45-12.45		Plenary Session	FCS1 ICE ELT CFP2 <i>Workshop ZR</i>	FCS3 BIO2 STO2 MOD -	Meeting ISO TC 197 Meeting HIA IEA Technical Tours (Arezzo - Mantova)	Meeting HIA IEA
12.45-14.30		Lunch (Hotel)	Lunch (Hotel)	Lunch (Hotel)		
14.30-16.30		NRP1 FBH1 MHY1 SAF -	FCS2 BIO1 STO1 CHY <i>Workshop ZR</i>	Plenary Session		
16.30-16.45		Coffee Break	Coffee Break	Coffee Break		
16.45-18.45	On site Registration	NRP2 FBH2 MHY2 CFP1 -	Poster Session	Closing Session		
18.45-20.30	-	-	<i>Workshop ZR</i>			
20.30-	Welcome Reception	Dinner (Hotel)	Gala Dinner			

<i>BIO=Hydrogen Production from Biological Processes</i>	<i>ICE=Internal Combustion Engines</i>
<i>CFP=CO₂ Free Hydrogen Production</i>	<i>MHY=Metal hydrides</i>
<i>CHY=Hydrogen Production from Chemical Hydrides</i>	<i>MOD= Fundamentals, simulations, modelling</i>
<i>ELT=Hydrogen Production from Electrolysis</i>	<i>NRP=National & Regional Projects</i>
<i>FCS= Fuel cell systems</i>	<i>SAF=Safety & Standards</i>
<i>FOS=Hydrogen Production from Fossil Fuels</i>	<i>STO=Hydrogen Storage</i>

Patronages & Sponsors

Ministero dello Sviluppo Economico

Ministero dell'Università e della Ricerca

Ministero dei Trasporti



Provincia di Pistoia



Comune di Montecatini Terme



HYDROGEN IMPLEMENTING AGREEMENT



Hosts



Sunday 4 November

16.45-18.15 **On-site Registration**

18.30 **Welcome Reception**
Terme Tettuccio - Sala Portoghesi
Coktail & meet together

19.30 **Light dinner**



Monday 5 November

8.30-10.30 **Opening Session I (Room Galileo Galilei)**

Chairperson: G. Spazzafumo

E. Severi, Mayor of Montecatini Terme

A. R. Brammerini, Councillor for Environment and Energy of Tuscany

E. Vitale, Dean of Faculty of Engineering, University of Pisa

C. Marchetti "Half a century of pushing the hydrogen economy idea, some personal memories"

C. J. Winter, IAHE, Vicepresident "Energy efficiency, no: it's exergy efficiency! On hydrogen energy systems-of-change"

10.30-10.45 **Coffee Break**

10.45-12.45 **Opening Session II (Room Galileo Galilei)**

Chairperson: C. J. Winter

T. Bose "Hydrogen energy for a cleaner environment"

H. De Wit, K. Hemmes, J. L. Zachariah, H. Barten "Opportunities and potential limitations of blending hydrogen to natural gas: the greening of natural gas in The Netherlands"

J. C. Bolcich "Human resources for popular hydrogen. The Argentinean case."

13.00-14.00 **Lunch**

14.30-16.30 Technical Sessions

Session A: National & Regional Programs (Room Galileo Galilei)

Chairperson: L. Bonadio

1. T. Houghton, A. Cruden "A market-led approach to analysing the hydrogen energy economy in the UK"
2. P. Helby "Social acceptance for hydrogen vehicles: Key issues"
3. C. Roldán, G. Spazzafumo, L. Ureña "Potential production of hydrogen in Costa Rica: economic analysis"
4. F. G. Aliyev, H. Kh. Khalilova, F. F. Aliyev "Hydro Hydrogen Pilot Project for Azerbaijan Republic"
5. L. Bonadio "The Australian Hydrogen and Fuel Cells Education Program"

Session B: Hydrogen Production from Fossil & Bio Fuels (Room Eugenio Barsanti)

Chairperson: R. K. Malhotra

1. M. F. Bleeker, S. R. A. Kersten, H. J. Veringa "Deactivation of iron oxides in the steam-iron process with pyrolysis oil"
2. D. P. Serrano, J. A. Botas, R. Guil-Lopez "H₂ Production from methane pyrolysis over commercial carbon catalysts: kinetic and deactivation study"
3. G. Calì, M. Caboni, A. Orsini, A. Pettinau "Simulation of a CO₂ absorption process in a laboratory-scale coal-to-hydrogen plant"
4. C. Martos, J. Dufour, A. Ruiz "Synthesis of molybdenum-doped catalysts for the high temperature water gas shift reaction"
5. T. Ohkubo, Y. Shudo, Y. Hideshima "Environmental and economical evaluation on hydrogen energy use of biogas origin"
6. Y. Shudo, T. Ohkubo, Y. Hideshima "Exergy analysis of the demonstrative plant for co-production of hydrogen and benzene from biogas"

Session C: Hydrogen Storage in Metal Hydrides (Room Felice Matteucci)

Chairperson: K. Yvon

1. Yu. M. Matsevyt, V. V. Solovey, N. A. Chernaya "Development and creation of an effective design of a metal-hydride hydrogen accumulator"
2. B. Molinas, A. A. Ghilarducci, M. Melnichuk, H. L. Corso, F. Agresti, A. Bianchin, P. Palade, G. Principi, H. A. Peretti "Scaling-up study for the production of a doped Mg-based hydride"
3. M. Verga, F. Armanasco, C. Guardamagna, C. Valli, A. Bianchin, S. Lo Russo, A. Maddalena, G. Principi "Experimental tests on high temperature hydride hydrogen storage system"
4. M. Botzung, S. Chaudourne, M. Latroche, A. Percheron-Guegan, C. Perret, P. Marty, O. Gillia "Development and simulation of a hydrogen storage unit using metal hydrides"
5. M. Polanski, J. Bystrzycki "Improvement of hydrogen sorption kinetics in nanocrystalline MgH₂ catalyzed with metal oxides nanoparticles"
6. S. Barison, F. Agresti, S. Lo Russo, A. Maddalena, P. Palade, G. Principi, G. Torzo "Li amide mixed with Mg hydride, a promising system for solid state hydrogen storage"

Session D: Safety & Standards (Room Antonio Pacinotti)

Chairperson: J. L. Aprea

1. P. S. Puri "Novel methods of hydrogen leak detection"
2. R. Gerboni, E. Salvador "Liquid hydrogen transportation systems: risk analysis in energy modelling"
3. N. Grasso, N. Ciannelli, F. Pilo, M. Carcassi, F. Ceccherini "Guidelines for fire corps standard operating procedures in the event of hydrogen releases"
4. N. Grasso, F. Pilo, N. Ciannelli, M. Carcassi, N. Mattei, F. Ceccherini "Fire prevention technical rule for gaseous hydrogen transport in pipelines"
5. E.A.C. Neeft, H. Schut, G.J. Witkamp "Diffusion mechanisms of hydrogen in the wall of natural gas transmission pipelines"
6. J. L. Aprea "Hydrogen energy demonstration plant in Patagonia: description and safety issues"

16.30-16.45 Coffee Break

16.45-18.45 Technical Sessions

Session E: National & Regional Programs (Room Galileo Galilei)

Chairperson: U. Bünger

1. I. Yasuda, M. Arakawa, S. Takahira, G. J. Kramer, A. Madgavkar, S. Damle-Mogri, Y. Koide, J. Huijsmans "A case study of hydrogen fuel production in the Greater Tokyo area"
2. A. Benedetti, A. Mussinato, E. Ponte "Hydrogen energy for the future: studies, research and projects of the Piedmont Hydrogen System"
3. P. Fulini, E. Cecchini "Hydrogen Project for Arezzo: Realization of an underground hydrogen pipeline with experimentation of fuel-cell in industrial realities. HydroLAB – The network between hydrogen and the renewable energetic sources"
4. F. Montignac, I. Noirot, S. Chaudourne "Multicriteria Evaluation-Aiding methods, a help for hydrogen R&D evaluation and orientation"
5. B. Gnörich "Hydrogen and fuel cell state-of-the-art assessment in the Roads2HyCom Project"

Session F: Hydrogen Production from Fossil & Bio Fuels (Room Eugenio Barsanti)

Chairperson: P. S. Puri

1. A. G. Okunev, S. N. Trukhan, A. I. Lysikov "Study of sorption enhanced reforming of hydrocarbons in pilot scale fixed bed reactor"
2. M. O'Connell, G. Kolb, C. Hofmann, D. Tiemann, V. Hessel "Mass production of micro-structured fuel processors - A key technology for future distributed energy generation"
3. M. Sohrabi, A. Irandoukht "Application of water gas shift reaction in production of hydrogen: effect of calcination temperature on catalysts activity"
4. Y. Shirasaki, T. Tsuneki, Y. Ota, I. Yasuda, S. Tachibana, H. Nakajima, K. Kobayashi "Development of membrane reformer system for highly-efficient hydrogen production from natural gas"
5. G.J. Kraaij, S. Specchia, G. Bollito, L. Mutri, D. Wails "Biodiesel fuel processor for APU applications"

Session G: Hydrogen Storage in Metal Hydrides (Room Felice Matteucci)

Chairperson: C. M. Rangel

1. J. Gervasoni "Interaction of Hydrogen and its isotopes in metallic and rare earths systems"
2. M. Pentimalli, F. Padella, L. Pilloni, E. Imperi, P. Matricardi, "LaNi₅/ABS composite material for hydrogen storage"
3. J. M. Wheeler, T. W. Clyne "Nanoindentation of Metal Hydrides"
4. S. K. Pandey, R. K. Singh, A. Srivastava, O.N. Srivastava "Investigations on hydrogen storage behavior of CNT admixed Mg₂Ni"
5. S. Z. Zaginaichenko, Z. A. Matysina, D. V. Schur "Theoretical study of hydrogen solubility in lanthan-magnesium-nickel alloys of different structures and their phase mixtures"
6. C. M. Rangel, V. R. Fernandes, Y. Slavkov, L. Bozukov "Novel hydrogen generator/storage based on metal hydrides"

Session H: CO₂ Free Hydrogen Production (Room Antonio Pacinotti)

Chairperson: J. C. Bolcich

1. T. L. Gibson, N. A. Kelly "Optimization of solar powered hydrogen production using photovoltaic-electrolysis devices"
2. P. Ritterskamp, A. Kuklya, M. Wüstkamp, K. Kerpen, C. Weidenthaler, M. Demuth "Production of hydrogen and oxygen from water with titanium silicide and solar radiation including storage of the gases"
3. G. Torzillo, A. Scoma, C. Faraloni, A. Ena, U. Johanningmeier "Photobiological hydrogen production with the microalga Chlamydomonas reinhardtii"
4. S. Sari, I. Eroglu, U. Gündüz, M. Yücel, L. Türker "Development of helical tubular reactor for hydrogen producing photosynthetic bacteria"
5. L. Bianchi, G. Colica, F. Mannelli, E. Micheletti, R. De Philippis "Feasibility of a two-stage process for hydrogen production from vegetable residues"
6. G. Laurency "High pressure hydrogen generation from formic acid under mild conditions"



Tuesday 6 November

8.30-10.30 Plenary Session (Room Galileo Galilei)

Chairperson: T. Bose

J. M. Agator, S. Avril, U. Bünger, S. Herman, W. Weindorf, M. Weeda "Hyways – Towards a European hydrogen energy roadmap"

G. Rovera "Cooperative European hydrogen and fuel cell research programs in road transportation"

D. Nolan, A. Pigneri "A technology roadmap for Australia's hydrogen distribution infrastructure"

10.30-10.45 Coffee Break

10.45-12.45 Technical Sessions

Session I: Fuel Cell Systems (Room Galileo Galilei)

Chairperson: J. Elter

1. A. A. Evers "How hydrogen and fuel cells can conquer the international marketplace!"
2. O. Ballabio, P. Caracino, Y. Dubitsky, A. Sin, M. Arimondi, A. Faucitano, A. Buttafava, D. Dondi "Polymeric fluorine free electrolyte for application in DMFC"
3. E.N. Gribov, E.V. Parkhomchuk, I.M. Krivobokov, A.G. Okunev "Supercritical CO₂ Assisted synthesis of nafion-zeolite composite membranes for direct methanol fuel cells"
4. R. Perren, F. Barth, P. Paulmier "Risk analysis, safety and homologation of hydrogen vehicles for the demonstration project HYCHAIN"
5. B. Du, R. Pollard, J. Elter "Advanced technologies for in situ fuel cell performance diagnostics and system control optimization"
6. J. Elter, R. Pollard, Q. Guo, D. Rodriguez, C. Smith, B. Du "Technology status and challenges for commercial stationary PEM fuel cell power applications"

Session J: Internal Combustion Engines (Room Eugenio Barsanti)

Chairperson: L. M. Das

1. S. Gilchrist "Increasing diesel efficiency through hydrogen fuel injection"
2. Th. Wallner, H. Lohse-Busch, N. Shidore "Operating strategy for a hydrogen engine for improved drive-cycle efficiency and emissions behaviour"
3. S. O. Akansu, B. Çeper, N. Kahraman "Numerical analysis of hydrogen-air combustion in a engine"
4. B. Morrone, A. Unich "Numerical investigation on the effects of natural gas and hydrogen blends on engine combustion"
5. S.K. Singh "Investigations on the hydrogenation characteristics of rare earth pentanickelides type materials and its use as alternate fuel in I.C. Engine"
6. L. M. Das, G. N. Kumar "Performance evaluation of hydrogen-fuelled engine test rigs for transport and distributed decentralised energy sector"

Session K: Hydrogen Production from Electrolysis (Room Felice Matteucci)

Chairperson: J. M. Jaksic

1. L. C. Moulthrop, J. Hayes, M. Spaner, S. Porter "Commercial PEM water electrolyzers in renewable energy capture: requirements, performance and promise"
2. S. Vasudevan "Hydrogen – by water electrolysis"
3. T. I. Bratanich, K. I. Ludanov, T. V. Permyakova, V. V. Skorokhod "New method and autonomous installation for solar energy chemical accumulation by hydrogen"
4. A. Kundu, J. H. Gil, J. H. Jang, H. R. Lee, S. H. Kim, C. R. Jung, H. Y. Cha, B. S. Ku, C. M. Miesse, K. S. Chae, Y. S. Oh "Hydrogen production from water using auto-electrolytic process"
5. S. E. Johnsen, R. Tunold "Hydrogen evolution on LaNi₅ in alkaline solution electrochemical characterization and modeling"
6. J. M. Jaksic, N. V. Krstajic, M. M. Jaksic "Electrocatalysis for hydrogen and oxygen electrode reactions: retrospect and prospect"

Session L: CO₂ Free Hydrogen Production (Room Antonio Pacinotti)

Chairperson: P. Lucchese

1. P. Lovera, D. Haubensack, T. Gilardi, J. Paul-Joseph, G. Rodriguez, A. Le Duigou "Comparison of predicted hydrogen productions under various conditions of coupling with a nuclear reactor"
2. T. Gilardi, J. Paul-Joseph, G. Rodriguez, A. Le Duigou, P. Lovera, D. Haubensack "Preliminary design of a hydrogen production plant using high temperature steam electrolysis coupled with a very high temperature nuclear reactor"
3. V. Barbarossa, S. Brutti, B. Brunetti, M. Diamanti, G. Ricci "Study of I⁻/I₂ poisoning of Fe₂O₃-based catalysts for the H₂SO₄ decomposition in sulfur-iodine cycle for hydrogen production"
4. M. Neises, M. Roeb, J.-P. Säck, P. Rietbrock, J. Dersch, M. Schmitz, C. Sattler "Operational strategy of a two-step thermochemical process for solar hydrogen production"
5. L. Seralessandri, M. Bellusci, F. Padella, A. Santini, F. Varsano "The oxygen-releasing step in the water splitting cycle by MnFe₂O₄-Na₂CO₃ system"
6. V.I. Anikeev "Advanced thermochemical hydrogen generated cycles"

Workshop Zero Regio: Vehicles (Room Antonio Meucci)

Chairpersons: H. Lienkamp & L. Grimolizzi

1. C. Klein, B. Weber, A. Melzi, R. Canobio, A. Rota, S. Sutti and A. Rastogi "FCV demonstration in Zero Regio"
2. K. Wipke, S. Sprik, H. Thomas, J. Kurtz, J. Garbak "FCV learning demonstration: Project midpoint status and first generation vehicle results"
3. P.A. Guadix, F.J. Pino, J.J. Martínez, M.F. Rosa and E. López "Project Hercules: Renewable hydrogen generation from solar energy as fuel to an electrical vehicle based on fuel cell technology"
4. Y. Angelis, D. Aklil, R. Gazey "The Pure Project"
5. U. Büniger, H. Landinger, M. Zerta "HyLights- Evaluation of past and assessment of coming demonstration projects on hydrogen for transport in Europe"
6. C. Thimm "ZEMShips-the first fuel cell passenger ship in Hamburg"

13.00-14.00 Lunch

14.30-16.30 Technical Sessions

Session M: Fuel Cell Systems (Room Galileo Galilei)

Chairperson: E. Entchev

1. P. Corbo, F. Migliardini, O. Veneri "PEFC stacks as power sources in scooter and minibus applications"
2. E. Sengül, H. Erdener, I. Eroglu, N. Baç "Effects of sulfonated polyether-etherketone (SPEEK) and composite membranes on the proton exchange membrane fuel cell (PEMFC) performance"
3. G. Squadrito, O. Barbera, G. Giacoppo, F. Urbani, E. Passalacqua "1 kW PEFC stack design based on CAD_{fc} methodology"
4. E. Jannelli, M. Minutillo, A. Perna, D. Di Bona, M. Monsurrò "Experimental analysis of a back-up power generator based on a PEMFC"
5. E. Valenzuela, P.J. Sebastian, S. A. Gamboa "Self assembled nanoelectrodes for PEM fuel cells"

Session N: Hydrogen Production from Biological Processes (Room Eugenio Barsanti)

Chairperson: M. Krupp

1. O. Pakarinen, H. Tähti, A. Lehtomäki, J. Rintala “Dark fermentative hydrogen production from grass silage”
2. R. Brunstermann, ST. Kahse, R. Widmann “Testing of different materials as inoculum for the production of hydrogen by dark fermentation at mesophilic conditions in batch-tests”
3. S.-S. Cheng, J.-S. Lin, S.-C. Kuo, S.-L. Li, Z. K. Lee, Y. H. Wang “Process study on anaerobic hydrogen fermentation of kitchen waste”
4. O. A. Bereketidou, N. D. Charisiou, M. A. Goula “Potential for hydrogen and methane production from biomass residues in Greece”
5. M. Krupp, R. Widmann “Biohydrogen production by dark fermentation: experiences of continuous operation in large lab scale”

Session O: Hydrogen Storage (Room Felice Matteucci)

Chairperson: B. Sørensen

1. S. Sartori, X. Qi, N. Eigen, J. Muller, B. C. Hauback, T. Klassen, M. Dornheim “Synthesis, structure and properties of Mg- and K- containing alanates for hydrogen storage”
2. P. Le Parlouër, C. Mathonat “Development of a new thermogravimetric and calorimetric technique for the determination of energetics, thermodynamics and kinetics of hydrogen storage in various materials “
3. A. Klerke, R. Z. Sørensen, C. H. Christensen, U. Quaade, J. K. Nørskov “Compact hydrogen production from ammonia stored in solid metal amines”
4. A. Léon, J. Rothe, M. Fichtner “Insights into the evolution of the dopants in NaAlH₄ doped with different precursors by ball milling”
5. B. Sørensen “Geological hydrogen storage”

Session P: Hydrogen Production from Chemical Hydrides (Room Antonio Pacinotti)

Chairperson: L. Laversenne

1. V. M. Tretyak, N. V. Egorov “On the hydrogen generation by means of the light metals hydrolysis”
2. C. Cento, P. Gislou, P. P. Prosini “Hydrogen generation by hydrolysis of NaBH₄”
3. R. Oronzio, G. Monteleone, A. Pozio, M. De Francesco, S. Galli “New reactor design for catalytic sodium borohydride hydrolysis”
4. L. Laversenne, J. Andrieux, J. M. Millet, A. Auroux, C. Goutaudier, B. Bonnetot “Transition metal salts as catalysts for the hydrolysis of sodium borohydride”
5. J. Andrieux, L. Laversenne, C. Goutadier, J. C. Viala, B. Bonnetot “Hydrogen storage in sodium borohydride: characterization and stability of hydrolysis by-products”

Workshop Zero Regio: Infrastructure (Room Antonio Meucci)

Chairpersons: A. Rastogi & C. Klein

1. A. Boening, H. Lienkamp and A. Rastogi "Experience with hydrogen infrastructure in Zero Regio"
2. J. Reijerkerk "Hydrogen infrastructure - Today and tomorrow"
3. J. Schneider, L. Gambone, M. McDougall, M. Dudgeon, C. Powars, D. Patel, F. Barth, S. Colom "70 MPa gaseous hydrogen storage fueling testing"
4. J. Smolenaars "On-site hydrogen generators"
5. L. Grimolizzi, S. De Sanctis "Experience with approval formalities for Zero Regio hydrogen refuelling infrastructure in Italy"
6. U. Hafselde, S. Wolf, M. Sloth "Building hydrogen regions - The Scandinavian Hydrogen Highway Partnership"

16.30-16.45 Coffee Break

16.45-18.45 Technical Sessions

Workshop Zero Regio: Socio-Economic Aspects (Room Antonio Meucci)

Chairpersons: A. Rota & B. Weber

1. P. Helby "Reaching out to the public - a comparison of approaches and results"
2. A. Hansen "When will hydrogen become economic?"
3. L. Chernyavs'ka, F. Gulli and C. Lanfranconi "External costs of motor fuel cycles and environmental approach to hydrogen taxation"
4. V. Blandow, S. Haendschke, P. Godfroj, E. Papadopoulou "HYLIGHTS - Regional aspects of implementing large scale demonstration projects on hydrogen for transport in Europe"
5. R. Bleischwitz, K. Fuhrmann "Innovation systems and policies for hydrogen communities"

16.45-18.45 Poster Session

1. M. Tsaj, S. Warren, A. Veziroglu, Y. Que "New energy innovators' life style, adoption of new energy products and their media usage -- Using UNIDO-ICHET website users as an example"
2. F. Tunzio, G. Galeno "Renewable hydrogen production via electrolysis: a wind farm case"
3. K.P. Adzakpa, K. Agbossou "Diagnosis of renewable energy systems: case of renewable hydrogen production and utilization units"
4. I.O. Mohamed, A. O. Farag "Solar hydrogen system configuration using genetic algorithms"
5. G. Pino, M. Paolucci, R. Marceca, F. Geri, C. Borgianni "Hydrogen production by CO₂ and solar energy"
6. H. Tähti, J. Rintala "Dark fermentative hydrogen production from silage effluent and glucose in 70° C UASB-reactor"
7. I. Crolla, G. Paulino, E. Castelló, C. Etchebehere "Evaluation of the biohydrogen production capacity by anaerobic dark fermentation from different industrial wastewater"
8. M. Bellusci, C. Alvani, A. La Barbera, F. Padella, L. Seralessandri "Hydrogen production by water split in Manganese Ferrite thermocycle: a comparison among nanodimensioned MnFe₂O₄ obtained by different synthetic routes"
9. N. Monnerie, M. Roeb, M. Schmitz, D. Quantius, R. Avezuela, A. Noglik, D. de Lorenzo, C. Sattler "Development of processes for solar and nuclear thermo-chemical production of hydrogen"

10. F. H. Rahman, M. Kassim, R. Daik and W. R. W. Daud "Inorganic synthesis of tris (1-carboxyl-2-phenyl-1,2-ethylenedithiolenic-s,s') tungsten complex as photocatalyst for water photolysis"
11. A. M. Eslami, F. Rashidi, A. A. Hamidi "Energy benefits of hydrogen fueled combined cycle power plant integrated with pre-combustion CO₂ capturing system"
12. A. Ceccherini, B. Facchini, L. Innocenti "Experimental and numerical analysis of catalytic POX reforming for hydrogen rich syngas production from natural gas"
13. V. Gallardo, C. R. Bordallo, I. G. Viera, V. Rico, J. Cotrino, A. R. González- Elipe "Hydrogen Generation by means of Cold Plasma"
14. A. Vita, L. Pino, F. Cipiti, M. Laganà, V. Recupero "Structured platinum/ceria catalyst to hydrogen production"
15. V. Recupero, L. Pino, M. Laganà, F. Cipiti, A. Vita "5 kWe LPG hydrogen generator for PEFC residential applications"
16. L. Trevisani, M. Fabbri, F. Negrini "Dynamic circuital model suitable for PEM fuel-cells, electrolyzers, and regenerative fuel-cells"
17. L. Gutierrez, G. Orozco, L.G. Arriaga, J. Manríquez "TiO₂ electrode for methanol oxidation and oxygen evolution reactions"
18. B. Laoun, L. Serir "Exergy analysis of a polymer electrolyte membrane fuel cell"
19. B. Laoun, L. Serir "A simple visual basic computer package for studying high pressure hydrogen produced by high pressure water electrolysis"
20. G.-J. Hwang, S.-R. Jeong, K.-S. Sim, K.-E. Kim, I.-Y. Jang, A.-S. Kang "Polymer electrolyte membrane electrolysis (PEME) using the covalently cross-linked PEEK membrane"
21. G.-J. Hwang, S.-R. Jeong, J.-H. Yu, S.-K. Woo, H.-S. Choi "Hydrogen production performance of the high temperature steam electrolysis (HTSE) having Ni-YSZ/YSZ/LSM"
22. H.-S. Choi, H.-J. Kim, S.-O. Ryu, K.-S. Sim, G.-J. Hwang "The characteristics of thermal treatment on (La, Sr) MnO₃Oxygen-electrode (anode) for high temperature electrolysis system"
23. J. Hélyary, D. Poullain, J. Saillard, A. Beaucamp, D. Autissier "Sensitivity and characterisations of NH₃BH₃ based compositions for hydrogen generation"
24. C. M. Rangel, V.R. Fernandes, R. Asilva, B. Bonnetot, L. Laversenne, A. Cuni, V. Minkina, J. Perrin "Production of hydrogen by borohydrides: in search of low cost non-noble efficient catalysts"
25. L. Zubizarreta, A. Arenillas, J.J. Pis "Tailoring carbon gels textural properties for H₂ storage"
26. D.V. Schur, S.Yu. Zaginaichenko, V.A. Bogolepov, A.F. Savenko, A.P. Pomytkin, Z.A. Matysina "Metal hydride torch"
27. J. A. Puzkiel, J. L. Gervasoni "Theoretical and experimental study of the intrinsic physical properties of the Mg - MgH₂ system"
28. A. S. Chernikov, L. A. Izhvanov, A. I. Solovey "The installations for water cooling and water heating based on metal hydride heat pumps"
29. T.S. Mandzhukova, M. Khrussanova, E. Grigorova, P. Stefanov, M. Khristov, P. Peshev "Effect of NiCo₂O₄ additives on the hydriding properties of magnesium"
30. G. Andreasen, D. Barsellini, A. Visintin, W. E. Triaca "High surface area faceted platinum catalysts for PEM fuel cells"
31. S.-K. Woo, J.-H. Yu, J.-H. Yu, S. Lee "Fabrication and microstructures of thin wall micro scale tubes for portable SOFC"
32. A. Morozan, A. Dumitru, C. Nastase, S. Vulpe, F. Nastase, A. Andronie, I. Stamatina "Small fuel cells for low-medium power generation: current status and recent trends"
33. L. S. Schell "Quantifying the value of distributed fuel cells in California"
34. W. Doyen, W. Mues, W. Adriansens, B. Cobben, P. Haest, R. Leysen "New-Zirfon® separator for alkaline water electrolysis"

20.30

Gala Dinner
Grand Hotel & La Pace



Wednesday 7 November

8.30-10.30 Plenary Session (Room Galileo Galilei)

Chairperson: C. Marchetti

G. Principi, S. Barison, F. Agresti, P. Palade “Materials for hydrogen storage in solid state: a survey”

E. Entchev, M. Manning, I. Coyle, J. Graydon, D. Kirk, N. Gray, M. Swinton “Optimization and field demonstration of hydrogen electrolyzer/ high efficiency gas furnace hybrid system”

Q. Li, J. O. Jensen, P. Noyé, C. Pan, N. J. Bjerrum “A review: recent development of PBI membranes for PEMFC”

10.30-10.45 Coffee Break

10.45-12.45 Technical Sessions

Session Q: Fuel Cell Systems (Room Galileo Galilei)

Chairperson: J. B. Hansen

1. G. De Lorenzo, P. Fragiaco “Energy analysis of a hybrid system with a molten carbonate fuel cell (MCFC) fed by methane: part one”
2. G. De Lorenzo, P. Fragiaco “Energy analysis of a hybrid system with a molten carbonate fuel cell (MCFC) fed by methane: part two”
3. H. Yakabe “SOFC and PEFC Hybrid System”
4. M. Gariglio, F. De Benedictis, M. Santarelli, M. Cali, G. Orsello “Experimental activity on two Siemens tubular solid oxide fuel cell cogeneration plants in a real industrial environment”
5. A. Brisse, M. Marrony, D. Perednis, J. Schefold, M. José-Garcia, M. Zahid “Reversibility of solid oxide fuel cell for hydrogen production by high temperature electrolysis”
6. J. B. Hansen, N. Christiansen “Solid oxide fuel cell development at Topsoe Fuel Cell A/S”

Session R: Hydrogen Production from Biological Processes (Room Eugenio Barsanti)

Chairperson: W. Ahrer

1. Y. Kato, K. Essaki, T. Muramatsu, M. Kato “Hydrogen production from ethanol by equilibrium shifting using lithium silicate”
2. W. Ahrer, P. A. M. Claassen “HYVOLUTION - Non-thermal production of pure hydrogen from biomass”
3. B. Uyar, I. Eroglu, M. Yücel, U. Gündüz, L. Türker “Biological hydrogen production by Rhodobacter sphaeroides O.U. 001 from organic acid mixtures”
4. A. A. Zeidan, E. W. J. van Niel “Developing a thermophilic hydrogen-producing co-culture for efficient utilization of mixed sugars”
5. K. Willquist, A. J. M. Stams, C. Dijkema, E. W. J. van Niel “Dependence on carbon sources of the hydrogen tolerance of the extreme thermophilic caldicellulosiruptor saccharolyticus”

Session S: Hydrogen Storage (Room Felice Matteucci)

Chairperson: G. Principi

1. B. K. Gupta, P. Selvan, M. Sterlin, O. N. Srivastava "Hydrogen storage: Shift towards new hydrides"
2. D. Mori, K. Hirose "Recent challenges of hydrogen storage technologies for fuel cell vehicles"
3. L. Zubizarreta, A. Arenillas, J. J. Pis "Carbon materials for H₂ storage"
4. L. Zubizarreta, A. Arenillas, J. J. Pis "Doping carbon microspheres for H₂ storage application"
5. K. Yvon "Seasonal hydrogen storage near ambient conditions"

Session T: Fundamentals, simulations, modelling (Room Antonio Pacinotti)

Chairperson: G. García

1. F. Cipiti, L. Pino, A. Vita, M. Laganà, V. Recupero "Model-based analysis of reactor geometrical configuration on CO preferential oxidation performance"
2. A. Marangon, M. Schiavetti, M. Carcassi, P. Pittiglio, P. Bragatto, A. Castellano "Turbulent hydrogen deflagration induced by obstacles in real confined environment"
3. N. Akhtar, P. Schumann, C. Graf "Modelling of the heat transfer in tubular solid oxide fuel cells within Matlab/Simulink"
4. E. Holzbecher, J. Fuhrmann, H. Zhao, H. Langmach, K. Gärtner "Modelling of direct methanol fuel cells for microelectrical applications"
5. G. García, E. Ayerbe, B. Alzueta, R. Garde, M. Aguado "Modelling of electrochemical devices for RES-H₂ integration"
6. B. Alzueta, E. Ayerbe, G. García, R. Garde, M. Aguado "Computer application development for fuel cells based residential systems"

13.00-14.00 Lunch

14.30-16.00 Closing Session – I (Room Galileo Galilei)

Chairperson: G. Orsello

V. A. Goltsov, T. N. Veziroglu, L. F. Goltsova "IAHE modern hydrogen civilization conception: sound fundamentals of the way to hydrogen market viability"
P. Garibaldi "IPHE: Where we are after four year of international activity"
R. Dey "Access to global markets via harmonization of regulations, codes and standards"

16.00-16.15 Coffee Break

16.15-18.00 Closing Session – II (Room Galileo Galilei)

Chairperson: S. De Sanctis

N. Beck, A. García-Conde, Y. Sato, M.-R. de Valladares "Current IEA HIA R,D&D contributions to hydrogen sustainability"
R. Vellone Perspectives of Italian Hydrogen and Fuel Cells Programme and synergies to European Technology Platform

Presentation of WHEC 2008, Brisbane, Queensland, Australia
Presentation of WHTC 2009, New Delhi, India

Social Program

Sunday 4 November

Welcome Cocktail and Light Dinner Terme Tettuccio - Sala Portoghesi

You will spend a pleasant evening in an historical place in Montecatini Terme, with its rooms liberty style.



Tuesday 6 November

Gala Dinner

Grand Hotel & La Pace

The event will take place in a fascinating location where You will taste the famous Tuscan food and wines and appreciate Italian hospitality. The evening will be delighted by music and shows.

Monday 5 November (for accompanying persons)

One day excursion to Florence

Florence is one of the most beloved cities in the world, an open sky museum famous worldwide. The famous *Dome*, *Palazzo Vecchio* and *Square Della Signoria*, *The Uffizi* and the delight of *Ponte Vecchio* with its *gold shops* so ancient and famous.

Thanks to our beautiful Mediterranean climate, You will spend one day in Florence taking a glance at shops where You can buy leather goods and shoes Italian style. Then after shopping You will relax in a typical "Trattoria" and have good and healthy food, and over all, taste Tuscan wine from Chianti hills.



Tuesday 6 November (for accompanying persons)

Visiting Montecatini Terme & Beauty Treatment

Half day excursion through Montecatini Terme to admire the Park and Liberty structure. Walking from the people square, you can see the Grand Hotel & La Pace, ancient and prestigious hotel, the town Hall, the Spa Establishments and the Park. By bus you may reach Montecatini Alto, ancient medieval village where you can admire a wonderful view on the valley. Visit of the old town and then return to Montecatini Terme.

A pleasant moment for a treatment of health and amusement at the Beauty Centre Excelsior in Montecatini Spas.



Face Care - To give Your face a tonic and regenerate aspect

- Purifying Masque of face and neck, with thermal mud and relaxing massage.

Body Care - For a tonic and tanned skin

- One entry to the thermal oasis+body massage with essential oils.
- Body massage with Mediterranean citrus oils, and body tan.

Notice: For each of these services is included the use of our exclusive kit "Montecatini Spa" composed by: cotton bathrobe and towel, slipper, bathing cap. We suggest to use a swimsuit.

Technical Tours

Thursday 8 November

Tour #1 Arezzo Project (half day)

More than 700 craftsmen use Hydrogen for manufacturing processes in the Arezzo goldsmith's district. Considering the peculiar nature of this situation, the installation of micro CHP (heat and power co-generation) FC units in goldsmith workshops in San Zeno industrial area were carried out. Hydrogen will flow through a pipelines network in order to optimise logistics for both traditional use and energy consumption.

In the next future Hydrogen could be produced on site and supplied also for different uses (also for "automotive" applications), with the intention to create the conditions for the energy autonomy of the area for electricity and heat production.

Departure from Montecatini Terme by bus and return to Montecatini Terme in the morning. Cost € 35,00 p.p.



Tour # 2 Mantova Multi Fuel Station (full day)



In the framework of the "Zero Regio" project, a multi-fuel station was opened on September 21st 2007. Such a station will deliver compressed gaseous Hydrogen at 35 MPa. The current fleet of vehicles which will be refuelled consists of three FIAT Panda equipped with PEMFC.

During the visit it should be possible to see refuelling operations and to test the vehicles.

Departure from Montecatini Terme by bus. Lunch in a typical restaurant and return to Montecatini Terme in the afternoon. Cost € 50,00 p.p.

Each tour will be organized only with a minimum of 20 persons.