



ICH2P-2010
INTERNATIONAL CONFERENCE ON
HYDROGEN PRODUCTION
With Emphasis on Storage and Safety

June 16 -18
Istanbul Technical University
Gumussuyu Campus
Istanbul, Turkey

FINAL PROGRAM

Organized & Sponsored by



Wednesday June 16,2010		Thursday June 17,2010		Friday June 18,2010	
9:00-9:30 Registration		9:00-9:45 Auditorium Keynote Lecture V Green Atoms: Role of Nuclear Energy for Hydrogen Production Prof. G. Naterer		9:00-10:30 Auditorium Session A-6: Fuel Cells	9:00-10:30 Mavi Salon Session B-6: Material Development
9:30-10:30 Auditorium Opening Remarks M. Hatipoglu (ICHET), I. Dincer (IAHE), M. Sahin (ITU Rector), S. Cimen (Ministry of Energy)		9:45-10:30 Auditorium Keynote Lecture VI Compact Hydrogen Storage in Cryogenic Pressure Vessels Dr. S. Aceves			
10:30-10:50 REFRESHMENT BREAK		10:30-10:50 REFRESHMENT BREAK		10:30-10:50 REFRESHMENT BREAK	
10:50-11:30 Auditorium Keynote Lecture I High Capacity Hydrogen Storage Through Carbon Based Nanostructures Prof. S. Ciraci		10:50-12:15 Auditorium Session A-3: Exergy Analysis	10:50-12:15 Mavi Salon Session B-3: Hydrogen Storage II	10:50-12:15 Auditorium Session A-7: Fuel Cell Applications	10:50-12:15 Mavi Salon Session B-7: Hydrogen Internal Combustion & Vehicles
11:30-12:15 Auditorium Keynote Lecture II Solar Reactors for Hydrogen and Carbon Neutral Fuel Production: Hydrosol Technology and Beyond Dr. A. G. Konstandopoulos					
12:15-14:00 LUNCH		12:15-14:00 LUNCH		12:15-14:00 LUNCH	
14:00-14:40 Auditorium Keynote Lecture III Liquid Hydrogen Storage Prof. S.A. Sherif		14:00-15:40 Auditorium Session A-4: Alternative Methods	14:00-15:40 Mavi Salon Session B-4: Hydrogen in Developing Countries		
14:40-15:20 Auditorium Keynote Lecture IV Biological Hydrogen Production: Prospects and Limitations for Practical Applications Prof. D. Levin					
15:20-15:30 REFRESHMENT BREAK		15:40-16:00 REFRESHMENT BREAK			
15:30-17:30 Auditorium Session A-1: Hydrogen Production From Electrolysis & Reforming	15:30-17:30 Mavi Salon Session B-1: Bio-Hydrogen	16:00-18:20 Auditorium Session A-5: Cu-Cl Cycle	16:00-18:20 Mavi Salon Session B-5: Turkish Resources for Hydrogen Production and Storage		
17:30-18:30 Auditorium Session A-2: Other Hydrogen Production Methods	17:30-18:30 Mavi Salon Session B-2: Hydrogen Storage I				

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15:20-15:30 REFRESHMENT BREAK	
<p style="text-align: center;">15:30-17:30 Auditorium Session A-1 Hydrogen Production from Electrolysis & Reforming Session Chair: Prof. I. Dincer</p> <p>[AN-1] Steam Reforming of Methane to Syngas over NiAl₂O₄ Spinel Catalysts (N. Salhi, A. Boulahouache, C. Petit, A. Kiennemann, C. Rabia)</p> <p>[AN-64] Carbon Nanotube and Porous Supports on Catalytic Performance of Ni Catalysts in Methane Cracking for Hydrogen Production (S. K. Beyaz, G. Ozan, E. Simsek, A. Hasimoglu, N. Tekin, M.E. Kibar, F.D. Lamari)</p> <p>[AN-29] Effect of H₂ Produced through Steam-Methane Reforming on CHP Plant Efficiency (O. Le Corre, C. Rahmouni, K. Saikaly, I. Dincer)</p> <p>[AN-5] Comparison Between the Materials of Electrodes of Electrolysers for the Hydrogen Production (R. B. Slama)</p> <p>[AN-84] Development and Testing of a Highly Efficient Proton Exchange Membrane (PEM) Electrolyzer Stack (M. Mat, O. Selamet, F. Becerikli, Y. Kaplan)</p> <p>[AN-97] Hydrogen Production Probability Distribution for a PV-Electrolyser System (E. Akyuz, C. Coskun, Z. Oktay, I. Dincer)</p>	<p style="text-align: center;">15:30-17:30 Mavi Salon Session B-1: Bio-Hydrogen Session Chair: Prof. D. Levin</p> <p>[AN-51] Factors Affecting the Long-term Stability of Biomass and Hydrogen Productivity in Outdoor Photofermentation (D.D. Androga, E. Ozgur, I. Eroglu, U. Gunduz, M. Yucel)</p> <p>[AN-8] Enrichment of Hydrogen Producing Bacteria Using Ultrasonication (E. Elbeshbishy, H. Hafez, G. Nakhla)</p> <p>[AN-55] Biohydrogen Production in an Outdoor Panel Photobioreactor on Dark Fermentation Effluent of Molasses by <i>R. capsulatus</i> hup- (S. G. Avcioglu, E. Ozgur, U. Gunduz, M. Yucel, İ. Eroglu)</p> <p>[AN-30] Energetic and Exergetic Investigation of H₂ Production Driven by Biogas-based Electricity (C. Coskun, E. Akyuz, Z. Oktay, I. Dincer)</p> <p>[AN-67] Life Cycle Analysis of Direct and/or Indirect Hydrogen Production via Digester Gas in Wastewater Treatment Plants (A. Abusoglu)</p> <p>[AN-115] Comparative Exergetic Performance Analysis of H₂ Production From Oil Palm Wastes and Some Other Biomasses (Y. Kalinci, A. Hepbasli, I. Dincer)</p> <p>[AN-130] Progress in Biohydrogen Production via Cellulose Fermentation (D. B. Levin, N. Cicek, R. Sparling)</p>
<p style="text-align: center;">17:30-18:30 Auditorium Session A-2: Other Hydrogen Production Methods Session Chair: Prof. O. Le Corre</p> <p>[AN-120] Design and Analysis of a Photocatalytic Hydrogen Production System With Mixed-Metal Photoinitiated Electron Collection (C. Zamfirescu, I. Dincer, G.F. Naterer)</p> <p>[AN-133] Efficiency evaluation of a biomass gasification-based hydrogen production (M.K. Cohce, M.A. Rosen and I. Dincer)</p> <p>[AN-135] Solar Hydrogen Production via Electricity: A Comparative Study (A. S. Joshi, I. Dincer, B. V. Reddy)</p>	<p style="text-align: center;">17:30-18:50 Mavi Salon Session B-2: Hydrogen Storage I Session Chair: Prof. T. Ozturk</p> <p>[AN-62] The Processing of Mg-Ti for H₂ Storage; Mechanical Alloying and Plasma Synthesis (G. Cakmak, Z. Karoly, I. Mohai, T. Ozturk, J. Szepvolgyi)</p> <p>[AN-86] Effect of Different Pd Additions on MgH₂-based Alloys Produced by Reactive Milling Under H₂ (M. O. T. da Conceicao, D. S. Dos Santos)</p> <p>[AN-15] Effect of Nano-Structured TiO₂ on Dehydrogenation Characteristic of Mg(NH₂)₂/LiH Mixture (R. R. Shahi)</p> <p>[AN-78] Exergy Analysis of a High-Pressure Multistage Hydrogen Gas Storage System (M. Ozsaban, A. Midilli, I. Dincer)</p> <p>[AN-80] Production and Hydrolysis of Sodium Borohydride (R. Alibeyli, S. Arslan)</p>

Thursday June 17, 2010	
9:00-9:45 Auditorium Chair: Prof. Murat Aydin Keynote Lecture V Green Atoms: Role of Nuclear Energy for Hydrogen Production Prof. G. Naterer	
9:45-10:30 Auditorium Keynote Lecture VI Compact Hydrogen Storage in Cryogenic Pressure Vessels Dr. S. Aceves	
10:30-10:50 REFRESHMENT BREAK	
<p style="text-align: center;">10:50-12:15 Auditorium Session A-3: Exergy Analysis Session Chair: Dr. C. Colpan</p> <p>[AN-54] Exergy Analysis of a Micro-Cogeneration System Based on PEM Fuel Cell (A. Kaytaz, M. Baranak, A. Ersoz, A. Sarioglan, F. Akgun) [AN-128] A Comparative Life Cycle Analysis of Hydrogen Production via Thermochemical Water Splitting Using a Cu-Cl Cycle (A. Ozbilen, I. Dincer, M. A. Rosen) [AN-69] Exergoeconomic Analysis of Hydrogen Production by High Temperature Electrolysis via Geothermal Energy (M. Kanoglu, A. Ayanoglu, A. Abusoglu) [AN-26] Exergoeconomic Analysis of Hydrogen Production from Plasma Gasification of Sewage Sludge using Specific Energy Cost (SPECO) Method (Y. Kalinci, A. Hepbasli, I. Dincer)</p>	<p style="text-align: center;">10:50-12:15 Mavi Salon Session B-3: Hydrogen Storage II Session Chair: Dr. S. Yazici</p> <p>[AN-94] Comparison of Three Different Hydrogen Storage Options for a PV-Based Hydrogen Production System (A. Yilanci, I. Dincer, H. K. Ozturk, E. Cetin, E. Y. Ulu) [AN-19] Hydrogen Storage Properties of Trans-Diaquabis (3 hydroxybenzoato-κO¹(bis-nicotinamideκN¹)copperII (Z. Ozturk, D. A. Kose, A.K. Sekizkardes) [AN-39] Hydrogen Adsorption on Carbon Nanotubes Purified By Different Methods, (N. Karatepe, N. Yuca) [AN-96] Hydrogen Storage And Metal Organic Frameworks (Z. Ozturk, D. A. Kose, A. K. Sekizkardes)</p>
12:15-14:00 LUNCH	
<p style="text-align: center;">14:00-15:40 Auditorium Session A-4: Alternative Methods Session Chair: Prof. S.A. Sherif</p> <p>[AN-87] Thermodynamic Evaluation of Dual-Pressure Claude Cycle for Hydrogen Liquefaction (N. Kayaci) [AN-10] Hydrogen Production and Liquefaction by Geothermal Heat and Power, (A. Bolatturk, M. Kanoglu, C. Yilmaz) [AN-18] Hydrogen Generation Using Plasma Technologies and Their Applications on Fuel Cells, (M. D. Kozlu, B. Ibrahimoglu) [AN-100] Performance Assessment of an Integrated PV/T and Triple Effect Cooling System for Hydrogen and Cooling Production (T. A. H. Ratlamwala, M. A. Gadalla and I. Dincer)</p>	<p style="text-align: center;">14:00-15:40 Mavi Salon Session B-4: Hydrogen in Developing Countries Session Chair: Dr. N. Lymberopoulos</p> <p>[AN-22] Review of Hydrogen Energy Strategies in Developing Countries (O. Tabakoglu, N. Lymberopoulos) [AN-7] Naturalhy Project Objectives & Some Results (A. Yildirim) [AN-136] UNIDO-ICHET Support to Hydrogen And Fuel Cell Technologies in Turkey (S. Yazici) [AN-46] History of Hydrogen Production in Turkey (V. Mihaladiz) [AN-74] Codes & Regulations on Hydrogen Production and Storage (E. D. Tekkaya, M.F. Serincan, S. Yazici) [AN-139] Lessons Learned From the CRES Wind-Hydrogen System For Application in Remote Areas (E. Varkaraki)</p>
15:40-16:00 REFRESHMENT BREAK	15:40-16:00 REFRESHMENT BREAK
<p style="text-align: center;">16:00-18:20 Auditorium Session A-5: Cu-Cl Cycle Session Chair: Prof. G. Naterer</p> <p>[AN-73] Design of Systems for Hydrogen Production Based on the Cu-Cl Thermo-chemical Water Decomposition Cycle: Configurations and Performance (M. F. Orhan, I. Dincer, M. A. Rosen) [AN-81] Solar Powered Production of Hydrogen with the Cu-Cl Thermochemical Cycle (Z. Wang, G. Naterer, K. Gabriel, E. Secnik, R. Gravelins, V. Daggupati) [AN-82] Comparison of Molten Salt Heat Recovery Options in the Cu-Cl Cycle of Hydrogen Production (S. Ghandehariun, M. Rosen, G. Naterer, Z. Wang) [AN-28] Effects of Atomization Conditions and Flow Rates on Spray Drying for Cupric Chloride Particle Formation (V. Daggupati, M. Slowikowski, G. F. Naterer, K. S. Gabriel, R. J Gravelins, Z. L. Wang) [AN-79] Electrochemical Mass Transfer Irreversibility of Cuprous Chloride Electrolysis for Hydrogen Production (A. Odukoya, G. F. Naterer) [AN-25] Exergoeconomic Analysis of A Hybrid Copper Chlorine Cycle Driven by Geothermal Energy for Hydrogen Production (M.T. Balta, I. Dincer, A. Hepbasli) [AN-83] Pressure Drop of Packed Bed In A Hydrogen Production Reactor (K. Pope, G. F. Naterer, Z. Wang)</p>	<p style="text-align: center;">16:00-18:20 Mavi Salon Session B-5: Turkish Resources for Hydrogen Production & Storage Session Chair: Dr. A. Yildirim</p> <p>[AN-71] ICHET Support to Hydrogen Production from Hydrogen Sulphide in the Black Sea (G. Tabakoglu, N. Lymberopoulos) [AN-44] A New Cell Designed to Separate Hydrogen from Hydrogen Sulphide (M. Sahin) [AN-91] Hydrogen Production from H₂S in Black Sea and Industrial Waters using Green Energy (K. Petrov, D. Uzun, S. Z. Baykara, D. Ebrasu, M. Gulin, A. Veziroglu) [AN-17] Recent Developments in Sodium Borohydride Production (M. D. Kozlu, S. Kuliyeve, B. Ibrahimoglu)</p>

**Friday
June 18, 2010**

9:00-10:30 Auditorium Session A-6: Fuel Cells Session Chair: Prof. H. Gorgun	9:00-10:30 Mavi Salon Session B-6: Material Development Session Chair: Prof. A. Ata
[AN-129] Effect of Fuel Side Impurities on the Performance of a PEMFC (M.F. Serincan) [AN-88] Transient Heat Transfer Modeling Of Solid Oxide Fuel Cells Operating With Humidified Hydrogen (C. O. Colpan, F. Hamdullahpur, I. Dincer) [AN-85] Development Of New Nano Sized Catalysts For Direct Ethanol Fuel Cells (S. A. Beyhan, F. Kadirgan, J. M. Leger) [AN-72] Preparation of Multi-layered Pt/Co Anodes for Proton Exchange Membrane Fuel Cells (PEM) by DC Magnetron Sputtering, (O. K. Ozdemir)	[AN-40] Study of the Microstructure and Mechanical Properties of 6000 Series Al-Mg-Si Alloys Used in Manufacturing of High Pressure Hydrogen Storage Tanks (O. Alniak, A. Ogur, M. Erturk, C. Karakaya) [AN-45] Alumina-Based Membrane Production for Hydrogen Separation Applications (F. N. Tuzun, M. Sakarya, A. K. Sekizkardes) [AN-57] Characterization and Photocatalytic Activity of CuO-doped TiO ₂ catalysts: Degradation of Methylene Blue Dye (M. S. Boroglu, I. Boz, M. Z. Zengin, S. N. Koc) [AN-14] Development Of Porous Structure And High Adsorption Capacity Of Date Pits Activated Carbon By Carbon Dioxide And Steam Activations (M. Belhachemi, F. Addoun)
10:30-10:50 REFRESHMENT BREAK	10:30-10:50 REFRESHMENT BREAK
10:50-12:15 Auditorium Session A-7: Fuel Cell Applications Prof. F. Kadirgan	10:50-12:15 Mavi Salon Session B-7: Hydrogen Internal Combustion & Vehicles Prof. I. Boz
[AN-61] Characteristic Investigation of YSZ Electrolyte from SOFC, (N. Evcimen, R. Sezer, A. Ekerim) [AN-92] A Sample DC Power Distribution System For Fuel Cell Applications (E. Cetin, A. Yilanci, H. K. Ozturk, I. Kasikci, M. Colak, S. Icli) [AN-42] Applicability of Fuel-Cell Based Hybrid Battery Systems for Small Electric Vehicles,(Y. Soydan, A. Senol, A. O. Kapti, M. Ardicli)	[AN-119] Hydrogen Production From Urea for Enhanced Fuel Efficiency of Vehicles (C. Zamfirescu, I. Dincer) [AN-58] Experimental and Comparative Study Using High Pressure Hydrogen Tank and Electrolyzer in SI Engines as Supplementary Fuel, (Y. Karagoz, M. Eroglu, T. Sandalci) [AN-66] Research on Different Methods of Obtaining Hydrogen from Water and the Use of Hydrogen as an Added Fuel in Internal Combustion Engines, (F. Eroglu) [137] Fuel Cell and Battery Electrical Vehicles Compared (S. Yazici)
12:15-14:00 LUNCH END OF THE CONFERENCE	