**SUNDAY, JUNE 16**

**14:00 - 17:00  SPECIAL SESSION**  
Room 11

**Hydrogen and Fuel Cells: You think you’ve heard it all... think again!**


*Session Chair:*

*Eric Denhoff, CHFCA*

14:05 Government perspective on research and commercialization efforts of hydrogen and fuel cell technologies in Canada  
*M. Andrew Reynolds*, General Manager, Energy, Mining and Environment, National Research Council Canada

14:36 Industry perspective and expectations on research and commercialization efforts of automotive fuel cells in Canada  
*M. Klaus A. Berger*, Vice President, Fuel Cell Division, Mercedes Benz Canada Inc.

15:07 Academic perspective on research and commercialization efforts of hydrogen and fuel cell technologies in Canada  
*Dr. David P. Wilkinson*, Director, UBC Clean Energy Research Centre, Canada Research Chair, FEIC, FCAE and FCIC

15:38 Energy Landscape in Emerging Economies: A South African Perspective  
*Prof. Bruno G. Pollet* FRSC, Director of Hydrogen South Africa (HySA) Systems Competence Centre

16:15 Open Panel Discussion

**MONDAY, JUNE 17**

**8:30 - 10:00  OPENING REMARKS & PLENARY SESSION**  
Ballroom A

**OPENING REMARKS**

8:30  
*Daryl Wilson*, Chairman CHFCA; President & CEO, Hydrogenics Corporation, Canada  
*Eric Denhoff*, President & CEO, Canadian Hydrogen and Fuel Cell Association
MONDAY, JUNE 17

PL1 - POWER, TRANSPORTATION AND ENERGY STORAGE

Session Chair:
**Dr. Andreas Truckenbrodt**, CEO AFCC Automotive Fuel Cell Cooperation, Canada

8:50 **Daryl Wilson**, Chairman, CHFCA; President & CEO, Hydrogenics Corporation, Canada

9:08 **Bruno Forget**, Business Manager, On-Sites & Hydrogen Energy, Air Liquide

9:26 PL1.3 - Hyundai's FCEV: A Pathway to the New Possibilities
**Dr. Byung Ki Ahn**, Director, Fuel Cell Group, Hyundai Motor Group, South Korea

10:30 - 11:50  **CONCURRENT SESSIONS**

Technical Session  Room 9

CS01 - FABRICATION AND TESTING OF NANOSTRUCTURED CATALYSTS

Session Chairs:
**Dr. Tsong P. Perng**, Professor, National Tsing Hua University, Taiwan
**Arman Bonakdarpour**, Researcher, University of British Columbia, Canada

10:35 CS01.1 - Fabrication and Testing of Nanostructured Catalysts
**Dr. Tsong P. Perng**, Professor, National Tsing Hua University, Taiwan

10:53 CS01.2 - Graphitized Mesoporous Carbon Supported Non-Noble Metal Catalysts for Oxygen Reduction Reaction in PEM Fuel Cells
**Lei Zhang**, Research Council Officer, National Research Council Canada

11:11 CS01.3 - Development of Metal Silicide Networked Nanostructures as Catalyst Support for PEMFCs
**Dr. Mohammad Norouzi Banis**, Postdoctoral Fellow, University of Western Ontario, Canada

11:29 CS01.4 - Oxygen Reduction Activity and Stability of Magnetron Sputtered Pt Catalysts and GLAD-Deposited Niobium Oxide Support Structures
**Arman Bonakdarpour**, Research Associate, Clean Energy Research Centre, University of British Columbia, Canada

Technical Session  Room 19

CS02 - BRIDGING THE SCALES: MULTI-SCALE MODELING I

Session Chairs:
**Dr. Marc Secanell**, Assistant Professor, University of Alberta, Canada
**Dr. Mathias Gerard**, Research Engineer, CEA-LITEN, France
CS02.1 - Impact of the Microstructural and Thermal Properties on Performance of Air-Cooled Fuel Cell Systems

*Abhishek J. Nanjundappa, PhD, Simon Fraser University, Canada*

CS02.2 - A Multi-Scale Agglomerate-Based Membrane Electrode Assembly Model

*Dr. Marc Secanell, Assistant Professor, University of Alberta, Canada*

CS02.3 - Effects of Ionomer Distribution on Agglomerate Effectiveness in Catalyst Layers of Polymer Electrolyte Fuel Cells

*Dr. Ehsan Sadeghi, Postdoctoral Fellow, Simon Fraser University, Canada*

CS02.4 - PEMFC Modeling: Coupling of Ageing Models and Performance Models at Different Scale to Improve Fuel Cell System Strategies

*Dr. Mathias Gerard, Research Engineer, CEA-LITEN, France*

**Technical Session**

**Room 16**

**CS03 - SOLID OXIDE FUEL CELLS: MATERIAL DEVELOPMENT**

**Session Chair:**

*Dr. Brant Peppley, Director, Queen’s-RMC Fuel Cell Research Centre, Queen’s University, Canada*

CS03.1 - Micro-Tubular Solid Oxide Fuel Cell Stack

*Dr. Amir R. Hanifi, Postdoctoral Researcher, University of Alberta, Canada*

CS03.2 - Computational Performance Modelling of Detailed SOFC Electrodes

*Duncan A. Gawel, MASc Candidate, Queen’s – RMC Fuel Cell Research Centre, Canada*

CS03.3 - Development of a Universal SOFC Test Cell Fixture

*Jeff Hogewoning, Engineer, Greenlight Innovation, Canada*

**Technical Session**

**Room 14**

**CS04 - HYDROGEN PRODUCTION TECHNOLOGIES: ELECTROLYSIS**

**Session Chairs:**

*Dr. Dmitri Bessarabov, Director, HySA Infrastructure Center of Competence, South Africa*

*Dr. Bradley Easton, Associate Professor, University of Ontario Institute of Technology, Canada*

CS04.1 - Hydrogen South Africa (HySA) Infrastructure Center of Competence: Updates on PEM Electrolysers Development for Renewable Hydrogen Production and Storage Activities

*Dr. Dmitri Bessarabov, Director, HySA Infrastructure Center of Competence, South Africa*
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10:53 CS04.2 - Model Assisted Design and Performance of Polymer Electrolyte Membrane Electrolyser Operating at High Pressures
Emile T. Ojong, Fraunhofer ISE, Germany

11:11 CS04.3 - Characterisation Tools Development for PEM Electrolyser
Jan Van der Merwe, HySA Infrastructure Centre of Competence, South Africa

11:29 CS04.4 - Development of MEA Materials for the Production of Hydrogen Using CuCl/HCl Electrolyzers
Dr. Bradley Easton, Associate Professor, University of Ontario Institute of Technology, Canada

Business Session
Room 13
CS05 - HOW CITIES ARE MOVING TO HYDROGEN FUEL CELLS
Session Chair:
Ira Wolff, Business Development, NORAM Engineering and Constructors Ltd.

10:35 CS05.1 - The Critical Importance of Overarching Hydrogen Policy
Dr. David Hart, Director, E4TECH, Switzerland

10:53 Cllr. Bruce Hayne, City of Surrey, BC, Canada

11:11 CS05.3 - Hydrogen Deployment in the San Francisco Bay Area and California
Damian Breen, Director, Strategic Incentives Division, Bay Area Air Quality Management District, USA

11:29 Solveig Schytz, Group Leader, Venstre group, Akershus County Council, Oslo, Norway

Business Session
Room 18
CS06 - HFC AIRPLANES AND TRAINS
Session Chair:
Francois Girard, Group Leader- Electrochemical Materials, National Research Council Canada

10:35 CS06.1 - Report from the 2013 International Conference on Hydrogen and Rail Applications
Robert R. Stasko, Principal & CEO, Science Concepts International, Canada

10:53 CS06.2 - Flying Test Bench for Realistic Aeronautical Environment – Antares DLR H2
Dr. Josef Kallo, Head of electrochemical systems, German Aerospace Center - DLR, Germany

11:11 CS06.3 - Consideration of Fuel Cells for Future Airplanes
Joe Breit, Associate Technical Fellow, The Boeing Company, USA

11:29 Dennis Beal, Vice President, Global Vehicles, FedEx Express, USA
Business Session

CS07 - AUXILIARY POWER UNITS

Session Chair: Shanna Knights, Manager, Research, Ballard Power Systems

10:35 CS07.1 - Advanced Engineered Fuel Cell Systems
Ryan Sookhoo, Director, Business Development Power Systems Group, Hydrogenics Corporation, Canada

10:53 CS07.2 - Compact, Military-Fuel-Enabled PEM and SOFC Power Systems
Dr. Paul George, Research Leader, Battelle, USA

11:29 Jason Hanlin, Director of Technology Development, The Center for Transportation and the Environment (CTE), USA

Business Session

CS08 - INTERNATIONAL INITIATIVES: SOUTH AFRICA, ARGENTINA AND EUROPE

Session Chair: Dr. Dmitri Bessarabov, Director, DST HySA Infrastructure Competence Centre

10:35 CS08.1 - Growing Momentum in South African Hydrogen and Fuel Cell Industry
Karim Kassam, Vice President, Business & Corporate Development, Ballard Power Systems Inc
Tristan Clarke, Fuel Cell Commercialisation Manager, Anglo American, United Kingdom

10:53 CS08.2 - The Nordic Countries – Ideal for Hydrogen commercialization
Jon Bjorn Skulason, General Manager, Icelandic New Energy, Iceland

11:11 CS08.3 - Wind Energy and Hydrogen: Combined Experiences in Pico Truncado Experimental H2 Plant in Argentine Patagonia
Rafael Oliva, Lecturer and Category III Researcher, Universidad Nacional de la Patagonia Austral, Argentina

11:29 Mandy Mytelwa, Deputy Director, Hydrogen and Energy, Department of Science and Technology, South Africa

Business Session

CS09 - THE BUSINESS OF INFRASTRUCTURE FOR VEHICLES

Session Chair: Chris Sacré, President and CEO, Sacré-Davey Engineering

10:35 CS09.1 - Building Renewable Hydrogen Infrastructure in Norway
Ulf Hafseld, CEO, HYOP, Norway
10:53 CS09.2 - Vancouver Hydrogen Energy Infrastructure and Vehicle Programs  
**Colin C. Armstrong**, President, HTEC Hydrogen Technology & Energy Corporation, Canada

11:11 CS09.3 - Northeast Hydrogen Highway Initiative  
**Charles Myers**, President, Massachusetts Hydrogen Coalition, USA

11:29 CS09.4 - A California Road Map: Bringing Hydrogen Fuel Cell Electric Vehicles to the Golden State  
**Catherine Dunwoody**, Executive Director, California Fuel Cell Partnership, USA

12:45 - 14:00 Plenary Session  
**Session Chair:**  
**Tim Karlsson**, Director, Industry Canada

12:50 PL2.1 - Fuel Cell Vehicles - Where are they?  
**Dr. Andreas Truckenbrodt**, CEO & CTO, Automotive Fuel Cell Cooperation, Canada

13:08 **Dr. Andrea Sudik**, Manager, Unit Cell Design, Fuel Cell Stack & System Research Department, Ford, USA

13:26 **Matt McClory**, Principal Engineer, Powertrain System Control Department, Toyota Motor Engineering & Manufacturing North America (TEMA)


14:30 - 15:50 Concurrent Sessions  
**Technical Session**

14:35 CS10.1 - Electro-Dissolution of Platinum in Acidic Media Upon Potential Cycling  
**Dr. Gregory Jerkiewicz**, Professor, Queen's University, Canada

14:53 CS10.2 - Study of the Formation of Surface Oxide on Platinum Electrodes in Aqueous CF3SO3H  
**Yoshihisa Furuya**, Engineer, Nissan Motor Company Co., Ltd., Canada

15:11 CS10.3 - Multifaceted Analysis of Cathode Catalyst Layer Degradation Mechanisms in PEM Fuel Cells  
**Dr. Anthony Kucernak**, Professor, Imperial College London, United Kingdom
15:29 CS10.4 - Highly Corrosion Resistant Platinum - Niobium Oxide - Carbon Nanotube Electrodes for the Oxygen Reduction in PEM Fuel Cells

Dr. David Mitlin, University of Alberta, Canada

Technical Session

Room 19

CS11 - RECONSTRUCTIONS AND MICRO-SCALE MODELING OF TRANSPORT PROCESSES

Session Chairs:
Dr. Mohamed El Hannach, Research Assistant, Simon Fraser University Canada
Dr. Andreas M. Putz, Research Scientist, AFCC Automotive Fuel Cell Cooperation, Canada

Dr. Mohamed El Hannach, Research Assistant, Simon Fraser University Canada

14:53 CS11.2 - Simulation of Effective Transport Properties of Gas Diffusion Layers Coated With Micro-Porous Layers in Dry and Wet Conditions
Zahra Tayarani Yoosefabadi, PhD, Simon Fraser University, Canada

15:11 CS11.3 - FIB-SEM Supported Structure Generation and Characterization of Ink Based PEM Fuel Cell Catalyst Layers
Dr. Andreas M. Putz, Research Scientist, Automotive Fuel Cell Cooperation, Canada

15:29 CS11.4 - Modeling Membrane Degradation via Pt Nano-Deposits in Polymer Electrolyte Membrane
Mohammad Javad Eslamibidgoli, Simon Fraser University, Canada

Technical Session

Room 16

CS12 - DIRECT FUEL CELLS

Session Chairs:
Dr. Carsten Cremers, Team Leader, Fuel Cells, Fraunhofer ICT, Germany
Dr. Bradley Easton, Associate Professor, University of Ontario Institute of Technology, Canada

14:35 CS12.1 - Experimental Analysis of Liquid Water and Sulfuric Acid Transport within a Flowing Electrolyte – Direct Methanol Fuel Cell
David Ouellette, Research Assistant, Carleton University, Canada

14:53 CS12.2 - Development of Alkaline Anion Exchange Membrane Direct Ethylene Glycol Fuel Cells
Dr. Carsten Cremers, Team Leader, Fuel Cells, Fraunhofer ICT, Germany
15:11 CS12.3 - Synthesis and Characterization of Pt and Pd-based Catalysts for Ethanol Fuel Cells
Dr. Khalid Fatih, Research Officer, Electrochemical Materials, National Research Council Canada

15:29 CS12.4 - The Influence of Synthetic Parameters on the Structure and Activity of Pt-Mn Alloy Catalysts for Ethanol Oxidation
Dr. Bradley Easton, Associate Professor, University of Ontario Institute of Technology, Canada

Technical Session
Room 18

CS13 - HYDROGEN FROM RENEWABLE SOURCES I

Session Chairs:
Boris Tartakovsky, Research Officer, National Research Council Canada
Alakh Prasad, President & CEO, Quadrogen Power Systems, Canada

14:35 CS13.1 - Techno-Economic Analysis of Fuel Production from a Woody Biomass Feedstock Via Distributed Fast Pyrolysis Pathways
Duncan Brown, University of Victoria, Canada

14:53 CS13.2 - Microbial Electrolysis Cell Scale-Up for Hydrogen Production from Wastewater
Boris Tartakovsky, Research Officer, National Research Council Canada

15:11 CS13.3 - Ultra Clean and Extra Green Quadgeneration Technology Demonstration from Landfill Gas at a Commercial Greenhouse in Delta, BC
Alakh Prasad, President & CEO, Quadrogen Power Systems, Canada

15:29 CS13.4 - Development of Low Cost and Durable PEM Water Electrolysers. Research and Demonstration Activities in the FCH-JU Projects NEXPEL and NOVEL
Dr. Magnus Thomassen, Senior Scientist, SINTEF, Norway

Technical Session
Room 9

CS14 - HYDROGEN, FUEL CELLS AND ELECTROCHEMICAL CONCEPTS FOR LARGE-SCALE GRID ENERGY STORAGE

Session Chairs:
Dr. David P. Wilkinson, Director, UBC Clean Energy Research Centre, Canada Research Chair, FEIC, FCAE and FCIC
Prof. Bruno G. Pollet, FRSC, Director of Hydrogen South Africa (HySA) Systems Competence Centre
**Technical Session**

**Room 11**

**CS15 - HYDROGEN STORAGE ON METAL HYDRIDES I**

**Session Chairs:**

Dr. David Mitlin, University of Alberta, Canada  
Kai Herbrig, Technische Universität Dresden, Germany

14:35 CS15.1 - Metal Hydrides as Hydrogen and Heat Storage System for Satellite Applications  
Alexander Reissner, Research Scientist, University of Applied Sciences Wiener Neustadt, Austria

14:53 CS15.2 - Body Centered Cubic Magnesium Niobium Hydride with Facile Room Temperature Absorption and Four Weight Percent Reversible Capacity  
Dr. David Mitlin, University of Alberta, Canada

15:11 CS15.3 - High-Dynamic Hydrogen Storage in Magnesium Alloy Composites  
Kai Herbrig, Technische Universität Dresden, Germany

15:29 CS15.4 - Hydrogen Storage Properties of NaBH4/Mg2NiH4 Composite System  
Arman Bonakdarpour, Researcher, University of British Columbia, Canada

**Business Session**

**Room 13**

**CS16 - AUTOMOTIVE OUTLOOK: THE ROAD TO COMMERCIALIZATION**

**Session Chair:**

Craig Webster, Director of Clean Transportation, Powertech Labs Inc

Lisa C. Jerram, Senior Research Analyst, Navigant Research, USA
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14:53 CS16.2 - BMW Efficient Dynamics Hydrogen
Eveline Weidner, Project Manager, BMW Group, Germany

15:11 CS16.3 - Direct Hydrogen PEM Fuel Cell Manufacturing Cost Analysis for Automotive Applications
Yong Yang, President, Austin Power Engineering LLC, USA

Dr. Alan C. Lloyd, President, International Council on Clean Transportation, USA

Business Session

Room 12

CS17 - URBAN TRANSIT AND ZERO EMISSION BUSSES:
CHALLENGES AND OPPORTUNITIES I

Session Chair:
Bruno Forget, Business Manager, Onsites & Hydrogen Energy, Air Liquide Canada

14:35 CS17.1 - A Compelling Value Proposition for the Evolution of Fuel Cell Hybrid Busses
Gary Schubak, Ballard Power Systems, Canada

14:53 CS17.2 - California’s Fuel Cell Electric Bus Rollout Strategy
Catherine Dunwoody, Executive Director, California Fuel Cell Partnership, USA

15:11 CS17.3 - The Aberdeen Hydrogen Bus Project
Emma Watt, City Development Executive, Aberdeen City Council, United Kingdom

15:29 CS17.4 - Lessons Learned: The Hybrid Fuel Cell Bus “Phileas” in Regular Route Service in the Cologne Area
Jens Conrad, Project Manager, Regionalverkehr Köln GmbH, Germany

Business Session

Room 10

CS18 - MARINE AND PORT APPLICATIONS FOR HYDROGEN AND FUEL CELLS

Session Chair:
Denis Conor, DFAIT

14:35 CS18.1 - Hydrogen Fuelled Ships
Ernst Radloff, Senior Development Officer, Transport Canada

14:53 Victor La Rosa, President & CEO, Total Transportation Services, Inc. (TTSI), USA

15:11 Robert Del Core, Director, Business Development Power Systems Group, Hydrogenics Corporation, Canada
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15:29  CS18.4 - San Pedro Bay Ports Technology Advancement Program
Rose Siengsubcharti, Environmental Specialist Associate, Port of Long Beach, USA

Technical Session  Room 14
CS19 - CATALYST LAYER STRUCTURE AND CHARACTERIZATION

Session Chairs:
Dr. Nada Zamel, Fraunhofer ISE, Germany
Dr. Jean Hamelin, Professor, Institut de recherché sur l’hydrogène, Canada

Dr. Bradley Easton, Associate Professor, University of Ontario Institute of Technology, Canada

16:43  CS19.2 - ORR Kinetics and Their Link to the Polarization Curve: Fundamental Understanding of the Limiting Behavior
Dr. Nada Zamel, Fraunhofer ISE, Germany

17:01  CS19.3 - A Novel Process for Fabricating Membrane-Electrode Assemblies with Low Catalyst Loading
Dr. Shahram Karimi, Professor, Lambton College, Canada

17:01  CS19.4 - Numerical Simulation and Experimental Results of Sputtered Multi-Layered Electrodes with Low Platinum Loading for PEMFC
Dr. Jean Hamelin, Professor, Institut de recherché sur l’hydrogène, Canada

Technical Session  Room 19
CS20 - BRIDGING THE SCALES: MULTI-SCALE MODELING II

Session Chairs:
Alexander Bellemare-Davis, Research Scientist, Ballard Power Systems, Canada
Dr. Richard Hanke-Rauschenbach, Max Planck Institute Magdeburg, Germany

Dr. Richard Hanke-Rauschenbach, Max Planck Institute Magdeburg, Germany

16:43  CS20.2 - Low Loading Cathode Catalyst Layer Mathematical Modeling and Experimental Validation
Dr. Marc Secanell, Assistant Professor, University of Alberta, Canada
17:01 CS20.3 - Simulation of Transient Carbon Monoxide Poisoning: De-Activation, Recovery, and Air-Bleed
Alexander Bellemare-Davis, Research Scientist, Ballard Power Systems, Canada

17:19 CS20.4 - Thermal Design of Air-Cooled PEM Fuel Cells
Mehdi AndishehTadbir, Simon Fraser University, Canada

Business Session
Room 16
CS21 - PROTON EXCHANGE MEMBRANES
Session Chair:
Dr. Asmae Mokrini, Research Officer, National Research Council Canada

16:25 CS21.1 - High Throughput Low-Cost Technologies for the Manufacturing of PEMs with Reduced In-plane Swelling
Dr. Asmae Mokrini, Research Officer, National Research Council Canada

16:43 CS21.2 - Proton Exchange Membranes (PEM) Designed for Fuel Cell Use at Low Relative Humidity
Dr. Michael D. Guiver, Principle Research Officer, National Research Council Canada

17:01 CS21.3 - Modeling of Water Sorption and Swelling in Polymer Electrolyte Membranes Under the Impact of Degradation
Motahareh Safiollah, Simon Fraser University, Canada

Technical Session
Room 18
CS22 - HYDROGEN FROM RENEWABLE SOURCES II
Session Chairs:
Michel Archambault, Sales Manager, The Americas - OnSite Hydrogen Generation, Hydrogenics Corporation, Canada
Babak Adeli Koudehi, PhD, Research Assistant, University of British Columbia, Canada

16:25 CS22.1 - Water Electrolysis as a Key Technology for Renewable Energies
Jürgen Mergel, Forschungszentrum Jülich GmbH, Germany

16:43 CS22.2 - The Value Propositions of Renewable Electrolysis to Leverage the Fueling Infrastructure
Michel Archambault, Sales Manager, The Americas - OnSite Hydrogen Generation, Hydrogenics Corporation, Canada
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17:01 CS22.3 - Toward Solar Hydrogen Generation: Developing Visible-Light Active Photocatalyst for Overall Water Splitting
Babak Adeli Koudehi, PhD, Research Assistant, University of British Columbia, Canada

Dr. Richard Hanke-Rauschenbach, Max Planck Institute Magdeburg, Germany

Technical Session
Room 10

CS23 - HYDROGEN PRODUCTION COUPLED WITH LARGE-SCALE GRID ENERGY STORAGE

Session Chairs:
David J. Teichroeb, Business Development, Alternative & Emerging Technology, Enbridge Inc., Canada
Mike Oliver, Vice President, Business Development, Atlantic Hydrogen Inc., Canada

16:25 CS23.1 - Hydrogen, Renewables, and Storage: An Emerging Game Changer
David J. Teichroeb, Business Development, Alternative & Emerging Technology, Enbridge Inc., Canada

16:43 CS23.2 - High Pressure Rapid Response Electrolysis
Stephen Jones, Global Business Development Manager, ITM Power, United Kingdom

17:01 CS23.3 - Neither Fish nor Fowl--Making the Business Case for Power-to-Gas
Rob Harvey, Director, Energy Storage, Hydrogenics Corporation, Canada

17:19 CS23.4 - CarbonSaver as a Renewable Energy Storage System
Mike Oliver, Vice President, Business Development, Atlantic Hydrogen Inc., Canada

Technical Session
Room 11

CS24 - HYDROGEN STORAGE ON METAL HYDRIDES II

Session Chairs:
Dr. Richard Chahine, Professor, University of Quebec Trois-Rivieres / Scientific Director, H2CAN
Alexander Reissner, Research Scientist, University of Applied Sciences Wiener Neustadt, Austria
16:25 CS24.1 - Doped Na3AlH6 as Storage Material in Al-Alloy Hydrogen Storage Tank
Kateryna Peinecke, Scientist, Max-Planck Institute for Kohlenforschung, Germany

16:43 CS24.2 - Characterization of the Reversible Hydrogenation Properties of Sodium Alanate Under Various Contaminated Hydrogen Conditions
Alexander Reissner, Research Scientist, University of Applied Sciences Wiener Neustadt, Austria

17:01 CS24.3 - Simulation And Validation Of Tank Systems Using Metal Hydride–Graphite Composites
Kai Herbrig, Technische Universität Dresden, Germany

17:19 CS24.4 - Effect of Mm-addition on Microstructure and Hydrogen Absorption-Desorption Properties of Mg-20Ni-xMm alloys
Dr. Ying Wu, Professor, Advanced Technology & Materials Co., Ltd, China

Business Session Room 13
CS25 - PUBLIC POLICY: PERSPECTIVES & ROADMAPS
Session Chair:
Colin Armstrong, President, HTEC

16:25 CS25.1 - Roadmaps for the Northeast
Joel M. Rinebold, Director of Energy Initiatives, Center for Advanced Technology, USA

16:43 CS25.2 - North Rhine-Westphalia’s Steps to a Hydrogen Based Mobility
Dr. Frank M. Koch, Manager, H2 Mobility, Fuel Cell and Hydrogen Network NRW, Germany

17:01 CS25.3 - Advancing the Hydrogen and Fuel Cell Economic Cluster
Shannon Baxter-Clemmons, Executive Director, SC Hydrogen & Fuel Cell Alliance, USA

17:19 CS25.4 - NEDO’s Fuel Cell and Hydrogen Activities in Japan
Hideaki Hashimoto, NEDO, New Energy Technology Dept., Japan

Business Session Room 12
CS26 - URBAN TRANSIT AND ZERO EMISSION BUSES: CHALLENGES AND OPPORTUNITIES II
Session Chair:
Jess Serfass, President and CEO, Technology Transition Corporation
Robert Del Core, Director Business Development Power Systems Group, Hydrogenics Corporation, Canada

16:43 CS26.2 - Evaluating the Front Runner: Lessons Learned in Operating the World’s Largest Fuel Cell Bus Fleet
Manuel Achadinha, President & CEO, BC Transit, Canada

17:01 Paul Jenné, Transit Bus Project Manager, Van Hool NV, Belgium

17:19 Ove K. Kjølstad, Head of Project, Ruter As, Norway

Business Session

CS27 - STATIONARY POWER/ DISTRIBUTED GENERATION

Session Chair:
Attilio Pigneri, Director, Talent With Energy

16:25 CS27.1 - The Product Development of Solid Oxide Fuel Cell Stacks at Topsoe Fuel Cell
Andreas B. Richter, Business Development Manager, Topsoe Fuel Cell A/S, Denmark

16:43 Zakiul Kabir, Chief Technology Officer, ClearEdge Power, USA

17:01 Terry Howe, Manager Solutions, Ballard Power Systems Inc

TUESDAY JUNE 18

8:30 - 10:00 PLENARY SESSION

Ballroom A

PL3 - FUEL CELL COMMERCIALIZATION

Session Chair:
Ross Bailey, President and CEO, Greenlight Innovation

8:35 Paul Cass, Vice President, Operations, Ballard Power Systems, Canada

8:53 Tony Leo, Vice President Applications Engineering & Advanced Technology Development, FuelCell Energy, Inc., USA

9:11 Robin Shaffer, Vice President of Sales, ClearEdge Power, Inc., USA

9:30 SHFCA + CHFCA MOU SIGNING
10:30 - 11:50  CONCURRENT SESSIONS

Technical Session  
Room 14

CS28 - NOVEL CATALYST MATERIALS

Session Chairs:
Ryan Baker, Technical Officer, Electrochemical Materials, National Research Council Canada
Dr. Andrew. M. Creeth, CTO, ACAL Energy Ltd., United Kingdom

10:35  CS28.1 - Overview of High Activity and High Durability Pt Based and Non-Carbon Supported Oxygen Reduction Reaction Electrocatalysts Developed for PEM Fuel Cell Cathodes
Ryan Baker, Technical Officer, Electrochemical Materials, National Research Council Canada

10:53  CS28.2 - Facile Method for Cross Checking Accuracy of Oxygen Reduction Specific Activity Measurements for Novel Pt Based Electrocatalysts
Dr. J.J. Zhang, Research Officer, Electrochemical Materials, National Research Council Canada

11:11  CS28.3 - Investigation of Non-Precious Metal Bifunctional Oxygen Cathodes for Alkaline Fuel Cells and Batteries
Pooya Hasseini Benhangi, PhD student, University of British Columbia

11:29  CS28.4 - PEM Fuel Cell with Pt-Free Cathode and World-Leading Durability
Dr. Andrew. M. Creeth, CTO, ACAL Energy Ltd., United Kingdom

Technical Session  
Room 16

CS29 - POROUS MEDIA AND BIPOLAR PLATE

Session Chairs:
Dr. Joachim Scholta, Head of Department ECB, ZSW, Germany
Sean MacKinnon, Chief Scientist, PowerDisc, Canada

10:35  CS29.1 - The Influence of Porous Transport Layer Modifications on the Water Management in PEM Fuel Cells
Robert Alink, Researcher, Fraunhofer ISE, Germany

10:53  CS29.2 - Synchrotron Tomography Analysis of Water Transport Paths in Gas Diffusion Media
Dr. Joachim Scholta, Head of Department ECB, ZSW, Germany

11:11  CS29.3 - Corrosion Protection of Metallic Bipolar Plates Using Conductive Carbon Inks - Application into a Flexible-Planar PEM Fuel Cell
Dr. Anthony Kucernak, Imperial College London, United Kingdom

11:29  CS29.4 - Uniform Current Distribution Through eFlow™
Sean MacKinnon, Chief Scientist, PowerDisc, Canada
Technical Session Room 19

CS30 - HYDROGEN PRODUCTION FROM NATURAL GAS AND METHANE

Session Chairs:
Dr. Brant Peppley, Director, Queen’s-RMC Fuel Cell Research Centre, Queen’s University, Canada
Kurt Dahlberg, Chairman, Metacon AB, Sweden

10:35 CS30.1 - Single Step Compact Steam Methane Reforming Process for Hydrogen-CNG (H-CNG) Production from Natural Gas
Alok Sharma, Chief Research Manager, Indian Oil Corporation Ltd., India

10:53 CS30.2 - Hydrogen Generation from Natural Gas Using a Modular Brazed-Plate Reacting Systems
David S.W. Lim, AVP/Director, Kaori Heat Treatment Co. Ltd., Taiwan

11:11 CS30.3 - CarbonSaver - Production of Zero CO2 Hydrogen
Mike Oliver, Vice President, Business Development, Atlantic Hydrogen Inc., Canada

11:29 CS30.4 - Hydrogen Biomethane by Small Scale Catalytic Reactors is the Road to our Survival
Kurt Dahlberg, Chairman, Metacon AB, Sweden

Technical Session Room 18

CS31 - HYDROGEN FROM NEW AND ALTERNATIVE RENEWABLE SOURCES I

Session Chairs:
Dr. Odne S. Burheim, Norwegian University of Science and Technology(NTNU), Norway
Kevin T. Reilly, PhD, University of British Columbia, Canada

10:35 CS31.1 - Reverse Electrodialysis (RED) - A Renewable Energy Source for Hydrogen Productio
Dr. Odne S. Burheim, Norwegian University of Science and Technology(NTNU), Norway

10:53 CS31.2 - Surpassing Stoichiometric Molar Hydrogen Yield by expression of Ralstonia eutropha SH-H2ase in Metabolically Engineered Escherchia coli
Dipankar Ghosh, University of Montreal, Canada

11:11 CS31.3 - Hydrogen Production in a UV-irradiated Fluidized Bed Reactor using Advanced Photocatalysts
Kevin T. Reilly, PhD, University of British Columbia, Canada

11:29 CS31.4 - Plasmonic-Enhancing Efficiency of Water Splitting in Au Sensitized ZnO Nanowires-Array Photoelectrodes
Dr. Ru-Shi Liu, Professor, National Taiwan University, Taiwan
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Business Session  Room 11

CS32 - THE BUSINESS OF COMMERCIALIZING HYDROGEN AND FUEL CELL TECHNOLOGY

Session Chair:
Atilio Pigneri, Director, Talent With Energy

10:35 CS32.1 - Innovative Funding and Financing Approaches for Fuel Cell Buses in Germany
Boris Jermer, Cluster Manager Project Manager, HyCologne, Germany

10:53 CS32.2 - Micro CHP with Fuel Cells – Market Programme in North Rhine-Westphalia
Dr. Frank M. Koch, Manager, H2 Mobility, Fuel Cell and Hydrogen Network NRW, Germany

11:11 CS32.3 - Engineering Services to Accelerate Fuel Cell Development
TJ Lawy, Platform Manager, Engineering Services, Ballard Power Systems, Canada

11:29 CS32.4 - Commercializing Portable Fuel Cell Systems
Renaut Mosdale, CEO, PAXITECH, France

Business Session  Room 13

CS33 - BACKUP POWER: THE NEXT GENERATION

Session Chair:
David Leger, President & CEO, PowerDisc

10:35 CS33.1 - Superstorm Sandy: Fuel Cell Design for Disaster vs. Backup Power
Scott Spink, Director, Business Development, ReliOn, USA

Eric Hilton, Regional Sales Manager, Ballard Power Systems, Canada

11:11 CS33.3 - Fuel Cell Back Up Power – Deployment of Next Generation Platform
Ryan Sookhoo, Director, Business Development Power Systems Group, Hydrogenics Corporation, Canada

Business Session  Room 12

CS34 - WHAT ARE COUNTRIES DOING FINANCIALLY TO ENCOURAGE TAX CREDITS AND INCENTIVES?

Session Chair:
Neil Camarta, President and CEO, Western Hydrogen
10:35 CS34.1 - Results of Incentives for Zero Emission Vehicles in Norway
**Bjorn Simonsen**, Secretary General, Norwegian Hydrogen Forum, Norway

10:53 CS34.2 - Federal and State Support of Fuel Cell and Hydrogen Infrastructure in the U.S.
**Robert Rose**, Executive Director of Breakthrough Technologies Institute, USA

11:11 CS34.3 - Government Supports and Market Trend for Fuel Cells in Korea
**Dr. Jong Shik Chung**, Professor, POSTECH, South Korea

11:29 CS34.4 - Political and financial support for renewable energy and hydrogen technologies development in Latvia
**Aivars Starikovs**, Member of the Board, Latvian Hydrogen Association

12:45 - 14:00 PLENARY SESSION  Sponsored by: ITM Power, Energy Storage: Emerging Game Changer

**Session Chair:**
**Andy Reynolds**, General Manager, Energy, Mining and Environment, NRC

12:50 PL4.1 - Solutions for a Green, Local and Flexible Hydrogen Economy
**Diana de Roamini**, Sales Director, McPhy Energy, Italy

13:05 **Stephen Jones**, Global Business Development Manager, ITM Power, United Kingdom


13:38 PL4.4 - Supply Chain For Gaseous Hydrogen Storages - Key for the Market Entry of Automotive Applications
**Wolfgang Kriegler**, Director of Advanced Development at Magna Steyr Engineering in Graz Austria

14:30 - 15:50 CONCURRENT SESSIONS

Technical Session  Room 10

CS35 - TRANSPORT PHENOMENA IN POROUS MEDIA

**Session Chairs:**
**Dr. Odne S. Burheim**, Norwegian University of Science and Technology (NTNU), Norway

**Samuel C. Yew**, Research Assistant in PEM Fuel Cells, University of
British Columbia, Canada

14:35 CS35.1 - Thermal Conductivity of Sigracet Gas Diffusion Layers and MPL: Part I. Effect of Compression, PTFE, MPL, Cyclic Load and Hysteresis Behavior

Hamidreza Sadeghifar, PhD, Simon Fraser University, Canada

14:53 CS35.2 - Thermal Conductivity of Graphite Bipolar Plate and its Thermal Contact Resistance with Gas Diffusion Layers: Part II. Effect of PTFE, MPL, Compression, Cyclic Load and Hysteresis Behavior

Hamidreza Sadeghifar, PhD, Simon Fraser University, Canada

15:11 CS35.3 - Thermal Conductivity of the Micro Porous Layer (MPL) Used for the PEMFC

Dr. Odne S. Burheim, Norwegian University of Science and Technology (NTNU), Norway

15:29 CS35.4 - Experimental Measurement of Oxygen Diffusivity in Gas Diffusion Layers (GDL) of Fuel Cells

Samuel C. Yew, Research Assistant in PEM Fuel Cells, University of British Columbia, Canada

Technical Session

Room 14

CS36 - HIGH TEMPERATURE PEM FUEL CELLS

Session Chair:

Emory S. De Castro, Vice President, Business Management, BASF Fuel Cell, USA

Dr. Fang-bor Weng, Director of Fuel Center, Yuan Ze University, Taiwan

14:35 CS36.1 - Commercialization of High Temperature PEM: Advances in Celtec® Membrane Electrode Assemblies

Emory S. De Castro, Vice President, Business Management, BASF Fuel Cell, USA

14:53 CS36.2 - Playing on Full HT-PEM Benefits - A Novel, Highly Integrated Micro-CHP-System

Dr. Hans-Peter Schmid, Managing Director, WS Reformer GmbH, Germany

15:11 CS36.3 - Control Strategies for Hydrocarbon-based PEM Fuel Cell Systems

Dr. Atul Bhargav, Assistant Professor, IIT Gandhinagar, India

15:29 CS36.4 - High Temperature PEM MEAs and Fuel Cell Stack Development in Taiwan

Dr. Fang-bor Weng, Director of Fuel Center, Yuan Ze University, Taiwan
Technical Session

Room 11

Technical Session

CS37 - HYDROGEN GENERATION, INFRASTRUCTURE AND STORAGE: HYDROGEN INFRASTRUCTURE AND ECOSYSTEMS I

14:35 CS37.1 - World-Wide Hydrogen Fueling Standard for the First Generation Infrastructure Buildup

Jesse Schneider, Manager, FCEV, H2 and Standards Development, BMW, USA

14:53 CS37.2 - Strategies for Rolling out a Hydrogen Refuelling Infrastructure

Geoff Budd, ITM Power NA Representative, ITM Power, Canada

15:11 CS37.3 - Solutions for a Regional Hydrogen Infrastructure in the Greater Cologne Region, Germany

Boris Jermer, Cluster Manager Project Manager, HyCologne, Germany

15:29 CS37.4 - Electrolysers: Energy Storage and Integration of Renewables

Dr. Dan N. Carter, Manager, Fuel Cell Today, United Kingdom

Technical Session

Room 9

Technical Session

CS38 - HYDROGEN PRODUCTION FROM DIESEL AND OTHER CONVENTIONAL LIQUID HYDROCARBON FUELS

Session Chairs:

Dr. Brant Peppley, Director, Queen’s-RMC Fuel Cell Research Centre, Queen’s University, Canada

Dr. Andreas Bodén, Director Engineering, PowerCell Sweden AB, Sweden

14:35 CS38.1 - Compact Hydrogen Generation System

Dr. Saurabh A. Vilekar, Research Engineer, Precision Combustion, Inc., USA

14:53 CS38.2 - Pre-Reforming of Liquid Hydrocarbons as Fuel Processing Technology for High Temperature Fuel Cells

Nils Kleinohl, Engineer, OWI Oel-Waerme-Institut GmbH, Germany

15:11 CS38.3 - Diesel Reforming for LT-PEM Fuel Cell based Auxiliary Power Unit

Dr. Andreas Bodén, Director Engineering, PowerCell Sweden AB, Sweden
15:29 CS38.4 - Coupled Operation of a Diesel Steam Reformer and a PEFC

*Philip Engelhardt*, Engineer, OWI Oel-Waerme-Institut GmbH, Germany

**Technical Session**

**Room 12**

**CS39 - EMERGING CONCEPTS FOR HYDROGEN AND FUEL CELLS I**

**Session Chairs:**

*Amin Aziznia*, PhD, University of British Columbia, Canada  
*Dr. Khalid Fatih*, Research Officer, Electrochemical Materials, National Research Council Canada

14:35 CS39.1 - Nanofluidic Fuel Cell  
*Dr. Erik Kjeang*, Simon Fraser University, Canada

14:53 CS39.2 - A Swiss-Roll Mixed-Reactant Fuel Cell  
*Amin Aziznia*, PhD, University of British Columbia, Canada

15:11 CS39.3 - Advantages of Novel Hybrid Redox/Fuel Cell Technology  
*Mohammad S. Dara*, PhD, University of British Columbia, Canada

15:29 CS39.4 - Advancements in Redox Fuel Cell Technology  
*Dr. Khalid Fatih*, Research Officer, Electrochemical Materials, National Research Council Canada

**Business Session**

**Room 13**

**CS40 - THE BUSINESS OF HYDROGEN DEMAND**

**Session Chair:**  
*Prof. Bruno Pollet*, Director and Professor, HySA Systems

14:35 CS40.1 - New Paradigm For Supplying Hydrogen Fuel  
*David Haberman*, President, IF, LLC, USA

14:53 CS40.2 - Geoff Budd, ITM Power NA Representative, ITM Power, Canada

15:11 CS40.3 - The Drive to a Low-CO2 Hydrogen  
*David Wagner*, President & CEO, Atlantic Hydrogen Inc., Canada

15:29 CS40.4 – By-Product Hydrogen Opportunities and Challenges Relative to the Hydrogen Energy Markets  
*Colin C. Armstrong*, President, HTEC Hydrogen Technology & Energy Corporation, Canada
16:00 - 17:20 CONCURRENT SESSIONS

Technical Session Room 9
CS41 - ELECTROCHEMICAL CHARACTERIZATION OF UNIT CELL

Session Chairs:
**Dr. Dietmar Gerteisen**, Head of Team, Fraunhofer ISE, Germany
**Dr. Marc Secanell**, Assistant Professor, University of Alberta, Canada

16:05 CS41.1 - Experimental Study of GDL Mass Transport Characteristics using Electrochemical Impedance Spectroscopy (EIS)

**Ryan K. Phillips**, Undergraduate Research Assistant, University of British Columbia Okanagan, Canada

16:23 CS41.2 - Local EIS Studies in PEM Fuel Cells - Distinguishing Between Mass Transport Limitations in the GDL and Convective Oxygen Effects in the Flow Field

**Dr. Dietmar Gerteisen**, Head of Team, Fraunhofer ISE, Germany

16:41 CS41.3 - Measured Reversible Single Electrode Heat Effects of a PEMFC

**Dr. Odne S. Burheim**, Norwegian University of Science and Technology (NTNU), Norway

16:59 CS41.4 - Development of a Single-Phase Non-Isothermal MEA Model for Multi-Step Oxygen Reduction Reaction Kinetics

**Dr. Marc Secanell**, Assistant Professor, University of Alberta, Canada

Technical Session Room 19
CS42 - PEM FUEL CELLS: DEGRADATION AND FAILURE MODE ANALYSIS: I

Session Chair:
**Dr. Farhana S. Saleh**, Postdoctoral Fellow, University of Ontario Institute of Technology Canada
**Dr. Mebs Virji**, Associate Specialist, Hawaii Natural Energy Institute, USA

16:05 CS42.1 - Ageing, Thermal Conductivity, Water Management and PTFE Conten

**Dr. Odne S. Burheim**, Norwegian University of Science and Technology (NTNU), Norway

16:23 CS42.2 - Evaluating the Durability of Carbon-Supported Fuel Cell Using EIS

**Dr. Farhana S. Saleh**, Postdoctoral Fellow, University of Ontario Institute of Technology Canada

16:41 CS42.3 - Ex Situ Fatigue and Fracture Analysis of PFSA Membranes in Polymer Electrolyte Fuel Cells

**Alireza Sadeghi Alavijeh**, Simon Fraser University, Canada
CS42.4 - PEMFC System Operational Strategies Impact on Stack Performance
Dr. Mebs Virji, Associate Specialist, Hawaii Natural Energy Institute, USA

Technical Session
Room 11
CS43 - HYDROGEN GENERATION, INFRASTRUCTURE AND STORAGE: HYDROGEN INFRASTRUCTURE AND ECOSYSTEMS II

16:05 CS43.1 - Alternatives to Electricity for Transmission, Firming Storage, and Supply Integration for Diverse, Stranded, Renewable Energy Resources
Bill Leighty, Director, The Leighty Foundation, USA

16:23 CS43.2 - Large Stranded Renewable Energy: Alternatives to Electricity for Transmission and Low-cost Firming Storage as Pipelined Hydrogen and Ammonia Carbon-free Fuels
Bill Leighty, Director, The Leighty Foundation, USA

16:41 CS43.3 - Renewable and Low Carbon Hydrogen for California - Modeling the Long-Term Evolution of Hydrogen Infrastructure
Dr. Christopher Yang, UC Davis, USA

Technical Session
Room 14
CS44 - ALTERNATIVE CONCEPTS FOR HYDROGEN PRODUCTION AND PURIFICATION

Session Chairs:
Lyman J. Frost, Chief Technology Officer, Western Hydrogen Limited, Canada
Dr. Marcus Tegel, Fraunhofer IFAM, Germany

16:05 CS44.1 - Hydrogen Production from Refinery Wastes Using Molten Salt Catalyzed Gasification
Lyman J. Frost, Chief Technology Officer, Western Hydrogen Limited, Canada

16:23 CS44.2 - Ceramic Membrane for Separation of Hydrogen from Synthesis Gas
Lyman J. Frost, Chief Technology Officer, Western Hydrogen Limited, Canada

16:41 CS44.3 - Alkaline Aqueous Reforming of Cellulose to Produce High Purity Hydrogen without CO2
Amala Jose, Institut de recherche sur l’hydrogène, Canada

16:59 CS44.4 - Efficient On-Site Hydrogen Generation By Hydrolysis Of Activated Magnesium Hydride
Dr. Marcus Tegel, Fraunhofer IFAM, Germany
TUESDAY, JUNE 18

Technical Session  
Room 10

CS45 - EMERGING CONCEPTS FOR HYDROGEN AND FUEL CELLS II

Session Chairs:
Winton Li, University of British Columbia, Canada
Dr. Brant Peppley, Director, Queen’s-RMC Fuel Cell Research Centre, Queen’s University, Canada

16:05 CS45.1 - Neutral Hydrogen Peroxide and Power Generation in a Solid Polymer Electrolyte Membrane Cell for Drinking Water Purification
Winton Li, University of British Columbia, Canada

16:23 CS45.2 - Evaluation of a Mini-PEM Fuel Cell System for Mobile Robot Applications
Lindsay McInnes, Queen’s University, Canada

Bill Leighty, Director, The Leighty Foundation, USA

Business Session  
Room 12

CS46 - INTERNATIONAL INITIATIVES: CHINA, JAPAN, KOREA, AND INDIA

Session Chair:
John Tak, Former President & CEO, CHFCA

16:05 CS46.1 - Hydrogen Initiatives at Indian Oil
Dr. Ravinder Kumar Malhotra, Director (R&D), Indian Oil Corporation Limited, India

16:23 CS46.2 - FCV / Infrastructure Demonstration Program in Japan
Tetsufumi Ikeda, General Manager, HySUT, Japan

16:41 Dr. Mao Zongqiang, Professor, Tsinghua University; Chairman, China Association for Hydrogen Energy(CAHE); Vice President, International Association for Hydrogen Energy(IAHE)

16:59 Dr. Byung Ki Ahn, Director, Fuel Cell Group, Hyundai Motor Group, South Korea
CS47 - HYDROGEN, RENEWABLES AND SMART GRIDS: ON AND OFF-GRID SOLUTIONS

Session Chairs:
John Lidderdale, Chairman, Scottish Hydrogen and Fuel Cell Association (SHFCA), United Kingdom
Alakh Prasad, President & CEO, Quadrogen Power Systems, Canada

16:05 CS47.1 - Using Low CO2 Hydrogen to Compliment Renewables and Smart Grids
Mike Oliver, Vice President, Business Development, Atlantic Hydrogen Inc., Canada

16:23 CS47.2 - Innovative Use of Hydrogen for Power Grid Balancing with Renewables in Scotland
John Lidderdale, Chairman, Scottish Hydrogen and Fuel Cell Association (SHFCA), United Kingdom

16:41 CS47.3 - Quad-generation from Waste Derived Biogas
Alakh Prasad, President & CEO, Quadrogen Power Systems, Canada

16:59 CS47.4 - Renewable Energy Integration; Hydrogen use in Large-Scale, Smart Grid Energy Grids
David J. Teichroeb, Business Development, Alternative & Emerging Technology, Enbridge Inc., Canada

CS48 - SOFC AND DIRECT METHANOL FUEL CELLS

Session Chair:
Jeff Serfass, President and CEO, California Hydrogen

16:05 Dr. Peter Podesser, CEO, SFC Energy AG, Germany

16:23 Dr. Nigel Sammes, Director, POSTECH Institute of New and Renewable Energy, South Korea

16:41 Dr. Viola Birss, Canada Research Chair in Electrochemistry of Materials, University of Calgary
WEDNESDAY, JUNE 19

Business Session
CS49 - MARKET TRENDS AND FINANCING

Session Chair:
Harb Bains, Senior Manager, Business Services & Olympic Legacy, Government of British Columbia

16:05 CS49.1 - Looking Back and Looking Forward. 2012 in Numbers in 2022 in Scenarios
Dr. Kerry-Ann Adamson, Research Director, Pike Research, United Kingdom

16:23 Keith Gillard, General Partner, Pangaea Ventures, Canada

16:41 John Butt, General Partner, Conduit Ventures Limited, United Kingdom

WEDNESDAY, JUNE 19

8:30 - 10:00 PLENARY SESSION

PL5 - END USER FORUM

Session Chair:
Catherine Dunwoody, Executive Director, California Fuel Cell Partnership

8:35 PL5.1 - Driving Productivity in Material Handling Using Fuel Cells
Gary Schubak, Ballard Power Systems, Canada

8:53 Andy Marsh, President & CEO, Plug Power Inc., USA

9:11 PL5.3 - FedEx Hydrogen Fuel Experience
Dennis Beal, Vice President, Global Vehicles, FedEx Express, USA

9:29 PL5.4 - Fuel Cell: Challenges for the Electrification of the Long Range Mobility
Dr. Christoph Maume, Group Research Fuel Cell, Volkswagen, Germany

10:30 - 11:50 CONCURRENT SESSIONS

Technical Session
CS50 - MICROSTRUCTURAL CHARACTERIZATION AND MODELING OF CATALYST LAYER

Session Chairs:
Simon Thiele, University of Freiburg, Germany
Hui Li, Research Council Officer, National Research Council Canada

10:35 CS50.1 - Multi-Scale Tomography to Understand Mass Transport Limitations in the Cathode Catalyst Layer of a PEMFC
Simon Thiele, University of Freiburg, Germany
CS50.2 - A 3D Water Model in a Tomographic Reconstruction of a PEMFC Cathode Catalyst Layer
Simon Thiele, University of Freiburg, Germany

CS50.3 - Characterizing Electrolessly Deposited Nanoparticle Platinum Templated by Nafion
Isaac Martens, University of British Columbia, Canada

CS50.4 - Mechanisms of Chloride Contamination in a Polymer Electrolyte Membrane
Hui Li, Research Council Officer, National Research Council Canada

Technical Session

CS51 - PEM FUEL CELLS: DEGRADATION AND FAILURE MODE ANALYSIS: II

Session Chairs:
Dr. Silvia A. Wessel, Program manager, R&D, Ballard Power Systems, Canada
Geoff Budd, ITM Power NA Representative, ITM Power, Canada

10:35 CS51.1 - The Impact of Materials Properties and Cathode Catalyst Structure/Composition on MEA Performance and Durability
Dr. Silvia A. Wessel, Program manager, R&D, Ballard Power Systems, Canada

10:53 CS51.2 - Kinetic Model of Chemical Degradation in Perfluorinated Sulfonic Acid Ionomer Membranes
Dr. Mahdi Ghelichi, PhD, Simon Fraser University, Canada

11:11 CS51.3 - Decay Of Mechanical Properties of Catalyst Coated Membranes Subjected to Accelerated Durability Testing
Alireza Sadeghi, Simon Fraser University, Canada

11:29 CS51.4 - High Power Density Fuel Cells for Automotive Applications
Geoff Budd, ITM Power NA Representative, ITM Power, Canada

Technical Session

CS52 - FUEL CELL ELECTROCHEMISTRY

Session Chairs:
Dr. Magnus Thomassen, Senior Scientist, SINTEF, Norway
David Harvey, Research Engineer, Ballard Power Systems, Canada

10:35 CS52.1 - Highly Active and Stable Carbon-Metal Oxide Supported Pt-Pd Nanocatalysts for Oxygen Reduction at Proton Exchange Membrane Fuel Cell Cathodes
Dr. Vladimir Neburchilov, Research Officer, National Research Council Canada
WEDNESDAY, JUNE 19

10:53  CS52.2 - Electrochemical Energy Storage and Conversion: PEM Fuel Cell Catalysis at National Research Council of Canada
Dr. J.J. Zhang, Research Officer, Electrochemical Materials, National Research Council Canada

11:11  CS52.3 - Electrocatalytic Activity and Stability of Antimony Doped Tin Oxide Supported Platinum Catalyst for PEM Fuel Cells
Dr. Magnus Thomassen, Senior Scientist, SINTEF, Norway

11:29  CS52.4 - Simulation of the ORR Multi-Pathway and Catalyst Dissolution for a PEMFC: The Effect of Surface Coverage and AST cycling
David Harvey, Research Engineer, Ballard Power Systems, Canada

Technical Session
Room 13

CS53 - HYDRIDE STORAGE SOME NEW APPROACHES

Session Chair: Horst Schmidt, Business Development & Technology Transfer, University of Windsor, Canada

10:35  CS53.1 - Advanced Hydrogen Storage – Combining Hydrolysis and Thermolysis to Achieve >15%wt Energy Density and Controllable Hydrogen Generation
Mack Knobble, Vice President of Engineering, USA

10:53  CS53.2 - Safe and Economic Hydrogen Storage using Ionic Liquid Borohydrides
Dr. Nicole Mayer, Research & Development, Proionic GmbH, Austria

11:11  CS53.3 - New Low Valent Metal Hydrazide Gel that is able to store Hydrogen as a solid by way of Kubas Interaction providing room temperature storage of over 77 kg/m3 at pressures less than 350 bar which exceeds the ultimate storage targets set by the US DoE
Horst Schmidt, Business Development & Technology Transfer, University of Windsor, Canada

11:29  CS53.4 - In Situ Characterization of Magnesium Hydride Thermal Properties
Jennifer Dadson, Purdue University, USA
CS54 - BRANDING HYDROGEN AND FUEL CELLS: ARE WE DOING ENOUGH?

Session Chair: Greig Walsh, Director of Sales & Marketing, Greenlight Innovation

10:35 CS54.1 - A brand is not what you say it is … it is what others say about you. How is the hydrogen and fuel cell sector’s brand faring in this rapidly growing and changing world? What can you do to make your brand stand out?

Debby Harris, President, Rivers Edge Consulting, Canada

10:53 Dag Hinrichs, Vice President, Business Development, PowerDisc, Canada

11:11 Ted Page, Principal, Creative Director, Captains of Industry, USA

11:29 Eric Denhoff, President & CEO, Canadian Hydrogen and Fuel Cell Association (CHFCA), Canada

CS55 - DEFENSE APPLICATIONS FOR HYDROGEN AND FUEL CELLS

Session Chair: Chris Sacré, President, Sacré-Davey Engineering

10:35 CS55.1 - Enabling Energy Security

Ryan Sookhoo, Director, Business Development Power Systems Group, Hydrogenics Corporation, Canada

10:53 Dr. Kerry-Ann Adamson, Research Director, Pike Research, UK

11:11 CS55.3 - The German Navy’s Submarine Advanced Fuel Cell Propulsion System – An Example for Military Application of Hydrogen and Fuel Cell Technology

Lt. Colonel Kay Kuhlen, Defence Attaché, German Embassy Ottawa, Canada

11:29 Dr. Ed Andrukaitis, Defence Scientist, Defence R&D Canada, Canada

11:47 Jason Hanlin, Director of Technology Development, The Center for Transportation and the Environment (CTE), USA
Business Session

CS56 - BUSINESS OPPORTUNITIES FOR SUPPLY CHAIN COMPANIES

Session Chair:
Eric Baril, Program Lead, Automotive and Surface Transportation, NRC

10:35 CS56.1 - Industrializing Fuel Cell Stack Technology: A Critical Need for Developing the Supply Chain
Klaus A. Berger, Vice President, Mercedes-Benz, Canada

10:53 CS56.2 - Establishing a Commercial Scale Fuel Cell Supply Chain in Canada - Opportunities, Challenges & Related Initiatives
Eric Barker, Senior Sector Analyst, Emerging Technologies, Industry Canada, Canada

11:11 CS56.3 - Hydrogen and Fuel Cells in South Africa – Supply Chain, Manufacturing and Commercial Opportunities
Prof. Bruno G. Pollet, DST HySA Systems Competence Centre Director, University of the Western Cape, South Africa

11:29 Joel Rinebold, Director of Energy Initiatives, CT Center for Advanced Technology, (CCAT), USA

12:45 - 14:00 PLENARY SESSION

PL6 - HYDROGEN + FUEL CELLS: WHAT DO THE NEXT FIVE YEARS BRING?

Session Chair:
Gerry Salembier, Assistant Deputy Minister, B.C. Region, WD

Dr. Ravinder Kumar Malhotra, Director (R&D), Indian Oil Corporation Limited, India

PL6.2 - Positioning Companies for Growing Fuel Cell Markets
Dr. David Hart, Director, E4TECH, Switzerland

Dr. Dan N. Carter, Manager, Fuel Cell Today, United Kingdom

PL6.4 - Vision on How Hydrogen will Support the Economic Future of Aberdeen
Gordon McIntosh, Director of Enterprise Planning and Infrastructure, Aberdeen City Council, United Kingdom
POSTERS

P.01 - Nano-structured Pt-Nafion Interfaces Produced by Electroless Deposition: Toward Improvement of the PEMFC Cathode Performance
Magrieta J. Leeuwner, University of British Columbia, Canada

P.04 - Signal-Based Approach for the Diagnosis of Fuel Cell State of Health
Ursula Antoni, EIFER, Germany

P.05 - Effect of Pore Structure on the Mechanical, Electrical and Electrochemical Properties of NiO-YSZ Anode Support for SOFCs
Dr. Seung-Bok Lee, Principal Researcher, KIER, South Korea

P.08 - High Temperature Stability of Carbon-Carbonate Mixture for Direct Carbon Fuel Cell
Dr. Jun Young Hwang, Principle Researcher, KITECH, South Korea

P.11 - Novel LSM/GDC Composite Materials Used as Cathode Support for Direct Carbon Fuel Cells
Dr. Seung-Bok Lee, Principal Researcher, KIER, South Korea

P.15 - Research of Technologies about Biogas Purification
Dr. Ying Shu Liu, Professor, University of Science and Technology, China

P.16 - The Study on the Performance of Water Gas Shift Reaction with Fluidized Bed/Pd-Based Membrane Hybrid Type Reactor for the Simulated Reaction/Separation Process
Dr. Jung Min Sohn, Professor, Chonbuk National University, South Korea

P.17 - Fabrication and Characterization of Highly-Ordered Doped Titania Nanotubes for Solar Hydrogen Generation
Dr. Shahram Karimi, Professor, Lambton College, Canada

P.18 - Enhancing Biohydrogen Production with Magnetite Nanoparticles
Trevor W. Seelert, MSc Candidate, McGill University, Canada

P.19 - Electrolysters: Energy Storage and Integration of Renewables
Dr. Dan N. Carter, Manager, Fuel Cell Today, United Kingdom

P.21 - Thermal Behavior and Hydrogen Production from Methanol Autothermal Reforming in a Microwave Irradiation Environment
Dr. Wei-Hsin Chen, Professor, National University of Tainan, Taiwan

P.22 - The Development of a Metal Plate Test Reactor for Studying Reaction Kinetics on Catalytically Coated Heat Transfer Components
Dr. Brant Peppley, Director, Queen's-RMC Fuel Cell Research Centre, Queen's University, Canada
P.23 - Computational Analysis of the Reacting Flow in the Catalyst Coating of a Microstructured Reformer Using a Multiscale Modeling Approach
Dr. Brant Peppley, Director, Queen's-RMC Fuel Cell Research Centre, Queen's University, Canada

P.24 - Experimental Study of Tetradecane Reforming in a Catalytic Plate Reactor and Characterization of the Coated Noble Metal Catalyst
Mayur Mundhwa, PhD, Queen's-RMC Fuel Cell Research Centre, Canada

P.25 - Diesel Reformer Design: From a Kinetic Perspective
Dr. Brant Peppley, Director, Queen's-RMC Fuel Cell Research Centre, Queen's University, Canada

P.26 - pH effect on 1wt% Pt/-Al2O3 Catalyst Prepared by Deposition-Precipitation Method For Preferential CO Oxidation
Dr. Kee Young Koo, Senior Researcher, Korea Institute of Energy Research (KIER), South Korea

P.27 - Up-Down Movement Wave Power Generation and the Combination of Hydrogen Technology
Akiyoshi T. Ueda, Electrical Engineer, Energy Engineering, Japan

P.28 - A Proposal to the Railway of Europe and Russia
Akiyoshi T. Ueda, Electrical Engineer, Energy Engineering, Japan

P.29 - Thermo-Catalytic Hydrogen Release from Carrier Liquids
Stefan Petters, guo - Business Development Consult, Austria

P.34 - Integrated Scenario Planning and Various MCDM Approaches for Assessing Energy Technologies: In Case of Low Oil Price Changes and Present Nuclear Power Plant
Dr. Seongkon Lee, Senior Researcher, Korea Institute of Energy Research (KIER), South Korea

P.35 - EU - Project IMPACT - Improved Lifetime of Automotive Application Fuel Cells with Ultra-Low Pt-Loading
Dr. Mathias Schulze, German Aerospace Center, Germany

Dr. Seongkon Lee, Senior Researcher, Korea Institute of Energy Research (KIER), South Korea

P.38 - Full-size Humanoid Robot (TEO) Enhanced by a Proton Exchange Membrane Fuel Cell System
Gloria Adame Garcia, System Engineer, Abengoa Hidrógeno, Spain

P.39 - Crystalline, Electronic and Band Structure Characterization of Practical A and B Site Substituted LaAlO3 perovskite: An Experimental and Theoretical Study
Mohamed Khalfallah, Research Manager, SONATRACH, Algeria