Conference Agenda

Sunday 27th August		
	Registrations Open (10:00 -13:00)	
Lunch (13:00 - 14:00)		
Conference Workshop (14:00-17:30)		
14:00	Mr. D. Nkala	Low Carbon Energy Solutions at Sasol
14:20	Mr. N. Lecomte	HDF activity in Southern Africa
14:40	Prof. J. de Kock	Load-shedding – Can SA be saved?
Coffee Break (15:20-15:40)		
15:40	Prof. K. Inazu and Prof. Ken-ichi Aika	SA-Japan Green Ammonia and Hydrogen
16:00	Dr M. Fontain	Necessary technologies for enabling cost-effective and large-scale H_2 and NH_3 production technologies: an introduction to HYDROGENi FME
16:20	Prof. P. Modisha	Just transition to green hydrogen: A case of South Africa
16:40	Mr. H. Makgato	Development of a green hydrogen economy in South Africa: Support from GIZ
Coffee Break (17:00-17:20)		
Cocktail Dinner (19:00-22:00)		
Monday 28th August		
Breakfast (06:30-08:00)		
Session 1 (08:00-10:05) **Session Chair: Bryan Pivovar**		
	Prof. D. Bessarabov	Opening/Welcome from Conference Chair
	Dr. Sunita Satyapal	A recorded welcoming message from Director for the U.S. Department of Energy
	Prof. J. Mphahlele	Message from NWU Deputy Vice Chancellor Research and Innovation
	Dr C. Chiteme	Welcoming address Department of Science and Innovation (DSI)
8:50	Invited Talk: Dr. F. Büchi	On transport limitations in PEWE catalyst layers
9:15	Invited Talk: Dr. D. Peterson	Overview of U.S. Department of Energy Hydrogen Program and Electrolyzer Activities
9:40	Invited Talk: Dr. J. Mougin	Recent Highlights on Solid Oxide Electrolysis (SOE) Technology at Cells, Stacks and Modules Scale
Coffee Break (10:05-10:25)		
Session 2 (10:25-12:00) **Session Chair: Marcelo Carmo**		
10:25	Invited Talk: Dr. H. Ito	Water Transport though Membranes during Anion Exchange Membrane Water Electrolysis
10:50	Invited Talk: Dr. F. Allebrod	Challenges in upscaling PEM Electrolysis Systems
11:15	Invited Talk: Dr. J. Peron	Hierarchically porous iridium-based electrocatalysts: from fundamental studies to application in PEM water electrolyzers
Coffee Break (11:40-12:00)		

Parallel Session 3A (12:00-13:00) **Session Chair: Dr Krzysztof Lewinski**		
12:00	Dr. C. Zalitis	Perspectives on Current and Future Iridium Demand and Iridium Oxide Catalysts for PEM Water Electrolysis
12:20	Dr Z. Dehaney-Steven	Development of OER catalyst testing for PEMWE from a manufacturer's perspective
12:40	Dr. M.Suermann	PEM water electrolysis development needs – from an industry perspective
Parallel Session 3B (12:00-13:00) **Session Chairs: Olga Marina & John Irvine**		
12:00	Dr O. Marina	Investigating Durability of Solid Oxide Electrolysis Cells
12:20	Mr. M. Wilson	A biogas to fuels system integrating solid oxide electrolysis of bio-CO2 and biomethane reforming with Fischer-Tropsch synthesis
12:40	Mr. M. Gross	Characterization of pressurized steam electrolysis in a 10-layer SOC stack with CO2 purging on the oxygen electrode
Lunch (13:00-14:00)		
Parallel Session 4A (14:00-15:40) **Session Chair: Tom Smolinka**		
14:00	Ms. M Rogler	How anodic porous transport layer design enables the use of low Iridium loadings in PEM water electrolysis
14:20	Dr. M. de Groot	The potential of coupling electrolyzer models to rectifiers models
14:40	Mr. J. Horstmann de la Viña	Pushing the limits of screen printing towards low iridium loadings of catalyst layers for PEM electrolysis
15:00	Prof. E. Gyenge	Advances in Bifunctional Oxygen Reduction/Evolution Reaction Electrodes
Parallel Session 4B (14:00-15:40) **Session Chair: Dr Julie Mougin**		
14:00	Dr. S. Barnett	Reversible Operation of Electrolyte-Supported Solid Oxide Cells
14:20	Dr. M. Fontaine	Proton ceramic electrolysers and reversible operation: new insights into their performance and durability in pressurized conditions
14:40	Dr X. Cui	Investigation on AC:DC dynamic operations for solid oxide electrolysis cells
15:00	Mr. F. Rocha	PEM-like alkaline water electrolysis using flow-engineered 3-D electrodes
Coffee Break (15:20-15:40)		
Parallel Session 5A (15:40-16:40) **Session Chair: Magnus Thomassen**		
15:40	Mr. C.C. Weber	Novel microporous layers for PEM electrolysis with low iridium loadings and thin membranes
16:00	Ms. L.V. Buehre	Exploring Two Reference Electrode Setups in PEMWE: Experimental Investigations and Findings
16:20	Dr. S.M. Skaftun	Degradation of Iridium Oxide Anodes During Oxygen Evolution in Sulfuric Acid
Parallel Session 5B (15:40-16:40) **Session Chair: Jens Oluf Jensen**		
15:40	Dr. M. Demnitz	Effect of Fe doped electrolyte on advanced alkaline water electrolysis
16:00	Mr. T.Haegens	Large scale Zirfon production to meet REPowerEU ambitious hydrogen plan - *Presented on behalf of Ms. E. Dom*
16:20	Dr. B. Koyuturk	Effect of Hydroxide Concentration on the Activity of NiFe-based Anodes in Anion Exchange Membrane Water Electrolysis

Dinner: Botsalanong Boma (18:00-22:00)		
Tuesday 29th August		
Breakfast (06:30-08:00)		
Session 6 (08:20-10:05) **Session Chair: Dr Rangachary Mukundan**		
8:20	Dr T. Mali	Welcoming address: Sasol
8:50	Invited Talk: Dr. R. Mukundan	Durability of polymer electrolyte membrane water electrolyzers
9:15	Invited Talk: Prof. J. Weidner	Hydrogen Production in a Hybrid-Sulfur Process
9:40	Invited Talk: Dr. K.Sundseth	REFHYNE - From 10 to 100 MW PEM electrolysers *Presented on behalf of Dr. A. Ødegård*
Coffee Break (10:05-11:25)		
Session 7 (10:25-12:00) **Session Chair: Dr Felix Büchi**		
10:25	Invited Talk: Prof. R. O'Hayre	Electrochemistry Meets Big Data: Rapid Acquisition and Analysis of >20,000
10:50	Dr. C. Klose	All-hydrocarbon PEM water electrolyzers: An engineering perspective
11:10	Ms. S.C. Zerressen	Extraction of performance data from dynamic operating profiles of PEM water electrolysis cells
Coffee Break (11:30-11:50)		
Session 8 (12:00-13:00) **Session Chair: Prof Hiroshi Ito**		
11:50	Invited Talk: Dr. A. Park	Performance and Durability of Thin, Reinforced Membranes for PEM Water Electrolyzers
12:15	Mr. T. Krenz	Improved Current Interrupt: An Enhanced Interpretation for PEMWE Cell Characterization
12:35	Dr. P. Trinke	Overview and new Insights on Recombination Layers for PEM Water Electrolysis
Lunch (13:00-14:00)		
Session 9 (14:00-15:40) **Session Chair: Dr Piotr Zelenay**		
14:00	Dr. N. Bogolowski	Influence of Fe/Co/Cr-Modification on Raney-Nickel Activity and Stability as Oxygen Electrode Catalyst in Alkaline Water Electrolysis
14:25	Mr. R. Lira Garcia Barros	Let's operate it flexibly: evaluating H2 crossover in zero-gap alkaline water electrolysis
14:45	Dr. P. Walter	Thrifting of Iridium: A Crucial Task for "Hyperscaling" PEM Electrolysis
15:05	Mr. N. Hensle	A segmented along the channel PEM water electrolysis cell for the operation at high current densities
Coffee Break (15:25-15:45)		
Session 10 (15:45-17:10) **Session Chair: Prof Avner Rothschild**		
15:45	Mr. N. Guruprasad	The Power of Reference Electrodes in AEM Electrolysis
16:05	Mr. D.L. Martinho	A Three-Dimensional, Multiphysics Model of An Alkaline Electrolyzer
16:25	Mr. V. Wilke	Increasing performance and lifetime of anion exchange membrane water electrolysers
Poster Session (17:00-19:30)		

Dinner: Valley of Waves (20:00-23:00)			
Wednesday 30th August			
Industrial Tour: Royal Bafokeng Mine (07:00-14:00)		**Game Drive: Pilanesberg National Park (08:00-11:00)**	
7:00	Arrival at Styldrift	6:30	Breakfast
	Details to be confirmed	8:00	Game drive
		13:00	Lunch
Coffee Break (15:20-15:40)			
15:40-17:05 Session 11: Session Chair: Dr Frank Allebrod			
15:40	Ms. K.J. Ferner	Analysis of morphological and transport properties of IrO_2 anode catalyst layers for PEM electrolysis using high-resolution imaging	
16:05	Mr. J.P. Woelke	Investigating the Potential of a Machine Learning-based Approach for Degradation Modelling in Proton Exchange Membrane (PEM) Water Electrolysis	
16:25	Mr. P. Quarz	Advances in processing of catalyst coated membranes (CCM) for PEM electrolysis	
Gala Dinner: Kings Ballroom (20:00-23:00)			
Thursday 31st August			
Breakfast (06:30-08:00)			
Session 12 (08:20-10:05) Session Chair: Dr Andrew Park			
8:20	Welcome	Welcoming address: Shell – Dr Jeff Martin	
8:50	Invited Talk: Prof. A. Rothschild	Decoupled Water Splitting: Reshaping Water Electrolysis	
9:15	Invited Talk: Prof. S. Thiele	Where do you go to my lovely? – on future solid polymer electrolyte water electrolysis	
9:40	Invited Talk: Dr. H. Xu	AEM water electrolysis: learning and evolution from alkaline water electrolysis	
Coffee Break (10:05-10:25)			
Session 13 (10:25-12:00) Session Chair: Prof Ryan O'Hayre			
10:25	Dr J.F. Drillet	Main Catalyst Degradation Mechanisms in AEL, PEMEL and HTEL Electrolyzers	
10:50	Dr. T. Rauscher	Efficient alkaline electrolysis with porous 3D electrodes - Influence of the electrode structure on the cell efficiency	
11:10	Prof. J.O. Jensen	Development of alkaline membranes at DTU Energy	
Coffee Break (11:30-11:50)			
Session 14 (12:00-13:00) Session Chair: Jens Oluf Jensen			
11:50	Invited Talk: Dr. P. Zelenay	Platinum Group Metal-free Electrocatalysts for Oxygen Evolution Reaction in Alkaline Media by Combined Experimental and Modeling Approach	
12:15	Mr. C. Chatzichristodoulou	Integration of Reference Electrodes in Zero-Gap Alkaline Electrolysis Cells for the Deconvolution of Reaction Overpotentials and Ionic Transport Losses Across the Anode, Cathode, and Separator	
12:35	Prof T. Turek	"Pilot-scale testing of a novel alkaline water electrolysis stack "	
Lunch (13:00-14:00)			

Session 15 (14:00-15:40) **Session Chair: Prof Jennifer Peron**		
14:00	Dr. T. Wagner	Contact Resistance (Rc) measurement methods for PEM Water Electrolyser Bipolar plates
14:25	Mr. Z. Zhang	Towards next-generation catalyst coated membranes for polymer electrolyte water electrolyzers
14:45	Dr. K. Witte-Bodnar	Mapping of conductance and electric defects at PEM MEAs using lock-in thermography and microstructural analysis of degradation effects *– presented on behalf of Dr. V. Naumann*
15:05	Ms. Z.S.H.S Rajan	Metal-Organic Chemical Deposition as a Tool for Establishing a Fundamental Understanding Towards the Electrocatalysis of Oxide-Supported Ir-Based Materials for the Oxygen Evolution Reaction
Coffee Break (15:25-15:45)		
Session 16 (15:45-17:10) **Session Chair: Prof John Weidner**		
15:45	Mr F. Pascher	Transfer of Wind Data to Electrolyzer Test Stand
16:10	Ms. M. Milosevic	On the quantification of Ir dissolution in proton exchange membrane water electrolyzers
16:30	Prof D. Bessarabov	Water Electrolysis Research and Development by HySA Infrastructure CoC
16:50	Closing Remarks	
Cocktail Event (18:00-23:00)		
Friday 1st September		
Breakfast (06:30-08:00)		
	Check out of Sun City (08:00-11:00)	

Poster Program

Alkaline Anion Exchange Membrane (AEM)	
Mr L. Heinius	Synthesis and characterization of NiMo/C as a HER catalyst for PGM-free AEM water electrolysis
Dr A. Pushkarev	*Electrochemical impedance spectroscopy study of an anion exchange membrane water electrolyzer*
Dr D. Strasser	*Thermally processible anion exchange membranes for AEMWE at scale*

Alkaline Water Electrolysis (AWE)	
Dr F. Gellrich	Development Strategies for Diaphragms in Alkaline Water Electrolysis
Mr F. Grewe	Improved cold-start behavior for alkaline electrolysis through electrolyte concentration heat storage
Ms M. Heath	Enhanced OER activity of sputtered Ni thin films due to iron in the electrolyte
Dr H. Lakhotiya	Development of alkaline electrolyzers for green hydrogen at Stiesdal A/S
Dr N. Li	The effects of water quality of different sources on the performance of electrolysis
Mr R. Lira Garcia Barros	Elucidating the resistance of free bubbles in zero-gap alkaline water electrolysis
Dr DJ.D. Matienzo	Dynamic hydrogen bubble templated synthesis of NixPy-based electrocatalysts for alkaline oxygen evolution reaction
Dr C. Ouma	Computational Approaches to Alkaline Anion Exchange Membranes and Electrolysis
Prof E. Pereira	Improving Alkaline Water Electrolysis Efficiency Using an Asymmetrical Electrode Cell Design
Ms T.P.A. Phan	Mechanical alloying of Ni-based catalysts for alkaline water electrolysis
Dr M. Potgieter	Magnetron sputtering of NiFe electrocatalysts for enhanced OER activity in alkaline media
Mr M. Rykær Kraglund	Machine learning guided optimization of nano-structured Ni electrodes for alkaline water electrolysis
Dr. E. Tal-Gutelmacher	Prospects for Alkaline Exchange Membrane (AEM) Electrolysis
Mr. N. Wauthy	Effects of water quality on alkaline water electrolysis performance.

Other Topics	
Mr J. Blake	Less is More: Variable Catalyst Loading for Improved CO2 Electroreduction
Dr S.P. du Preez	Electrolytic Hydrogen as a Partial Replacement of Carbonaceous Reductants during Ferrous Ore Smelting
Dr M. Faustini	High Entropy Alloys Based Macro- and Mesoporous Catalysts
Dr P. Hadikhani	Efficient Design of Flow-Based Water Electrolyzers for Hydrogen Production through Numerical Modeling and Experimental Testing
Mr D.J.M. Haerter	A Flexible Simulation Tool for Water Electrolysis on system level
Dr A. Kozhukhova	Addressing Safety for Electrolytic Hydrogen Production Using Catalytic Hydrogen Recombination Technology
Mr A. Rex	An Open-Source Modeling Tool for Alkaline (AEL), Proton Exchange Membrane (PEMEL), and Solid Oxide (SOEL) Water Electrolysis Systems

Ms W. Schrader	Multi-objective adjoint optimization tool for electro-chemical systems applied to membrane-less electrolyzer
Mr S. Simon Araya	Sustainable water sources for Electrolysis in PtX
Dr A. Venugopal	Proton-conducting ceramic electrolyzers for high efficiency green hydrogen production
Ms X. Yan	Fleet-based performance model and degradation estimation
Miss W. Zhao	Using treated wastewater as a source of water electrolysis
Prof R. Kiebach	Mechanical Properties of tubular Proton-Conducting Ceramic Cells and Effect of Ageing and Operating Conditions

Proton Exchange Membrane (PEM)

Mr M. Bonanno	Test station development for the characterization of PEM water electrolysis at elevated temperature operation
Ms. L.V. Buehre	Lifting the Lids on Reference Electrodes in PEMWE: Previous Approaches and Current Application
Ms. L.V. Buehre	Towards Understanding the Influence of the Ionomer in PEMWE Anodes Consisting of Various Ir-Based OER Catalysts
Mr E. Cruz Ortiz	Hydrogen crossover measurements of proton exchange membranes for water electrolysis with in-operando conditions
Ms. M.M. Heath	Ruthenium-based pyrochlores as anode materials in PEM water electrolyzers
Mr T. Herrmannsdörfer	Techno-economic analysis for waste heat utilization of a power-to-gas plant based on PEM electrolysis
Mr M. Hoeglinger	Electrolysis Stacks: Methods and Tools for Experimental Characterization
Ms T. Khoza	High-pressure PEM Water Electrolysis Stack and System Characterization
Ms T. Khoza	Development of Highly Active and Durable Low Loading PEMWE Catalyst Layers
Ms M. Kozlova	Supported iridium-based electrocatalysts for PEM water electrolyzers
Dr G. Kruger	Interleaved buck converter for PEM water electrolyzer using integrated MOSFET with current sensing compensation
Dr A. Malakhov	CFD modelling of an accidental hydrogen release in desktop PEM electrolyser enclosure
Mr C.A. Martinson	Development and localisation of portable lab-scale Proton Exchange Membrane (PEM) based hydrogen generators within South Africa
Dr B. Mogwase	Benchmarking catalysts for water electrolysis technology for hydrogen production
Mr D. Mueller	Coupled multiscale simulation of two-phase flow in porous transport layer with oxygen evolution reaction for PEM electrolyzers
Dr W. Münchgesang	Development, testing and comparison of mid-term test routines for partial load and direct dynamic operation of PEM stacks
Ms P. Narayana Prasad	Enhanced system design to reduce the SO2 crossover to the cathode at SO2 Depolarized Electrolyser (SDE)
Dr K.O. Obodo	Multi-Scale Computational Modelling Techniques of Electrocatalysts for Oxygen Evolution Reaction
Dr I. Pushkareva	Performance and durability of anode gas diffusion electrodes in PEM water electrolyzer

Dr Y. Raka	Transient model of Wind powered PEMWE system
Mr H. Sayed-Ahmed	Dynamic operation of PEM electrolyzers for cheaper green hydrogen - a critical review
Mr D.W. Shin	Introducing Iridium Nanosheet Catalysts on Titanium Oxide for Oxygen Evolution Reaction in PEMWE
Dr K. Witte-Bodnar	Reliability and qualification of gasket materials for PEM electrolysis
Ms N. Zimmerer	About the structural optimization of catalyst layers for PEM electrolysis
Srijita Nundy	PEMWE COMPONENTS COATINGS & CATALYSTS : Developing Durable and High-performance coatings & catalysts

Solid Oxide Electrolysis (SOE)

Dr S. Barnett	Effects of Solid Oxide Electrolysis Operation on Ni-YSZ Electrochemical and Microstructural Evolution
Dr Y. Jiang	Doped ceria with exsolved Fe0 nanoparticles as Sr-free cathode for CO2 electrolysis in SOECs at reduced temperatures
Mr D. Kniep	Fuel-side degradation of interconnect candidate ferritic-martensitic steels and Ni-based alloys for SOEC/SOFC
Ms G.C. Moss	A Modified Hydrothermal Method for the Preparation of Nano-sized, Rutile-type IrO2 Crystallites with Exceptional Activity and Stability Towards the Oxygen Evolution Reaction
Dr C. Ribeiro	Optimizing the Partial Electrooxidation of Methane Using Supported C/γ-MnO2 in Different Electrochemical Setups
Mr. C. Schnegelberger	e-XPlore: A High-Pressure Solid Oxide Cell Electrolyser in a Sea Container for offshore Power-to-X Applications
Dr S. Sengodan	In-situ Growth of Palladium Nanoparticles on A-site Layered Double Perovskite PrBaMn2O5+δ
Mr J. Van der Merwe	SOEC as enabler of highly efficient hydrogen production
Mr. M. Wilson	Solid Oxide Electrolysis for In Situ Resource Utilization six years after delivering MOXIE flight hardware.
Mr M. Bornman	Current switching device development to characterise and monitor a proton exchange membrane water electrolyser
Mr S. Mamathuntsha	Dynamic measurements of clamping pressure distribution in a PEM water electrolysis cell and its validation by EIS
Miriam C. Guni	High efficiency green hydrogen production through electron spin polarization.