

The Hydrogen & Fuel Cell Researcher Conference

Monday 15th - Wednesday 17th December

Department of Chemical Engineering
University of Birmingham

Agenda

Day One: Monday 15th December, Room 124, Chemical Engineering

Time	Presentation and Speaker	Chair
14:00-14:15	Welcome and Introduction, Prof Nigel Brandon, Imperial	
14:15-14:45	Plenary: Prof Bill David, Hydrogen and ammonia :Genie and bottle, STFC/ Oxford	Prof Nigel Brandon, Imperial
14:45-15:15	Plenary: The development of electrolyser-based hydrogen systems for refuelling fuel cell vehicles and for injecting hydrogen into gas networks Prof Marcus Newborough, ITM	
15:15-15:35	Wind Hydrogen Systems in Scotland, Rufus Ford, Reading	
15:35-15:55	Linking energy system and infrastructure models to explore the transition to a hydrogen-fuelled economy in the UK, Nagore Sabio, UCL	
15:55-16:15	Break	
16:15-16:35	Evaluation of hydrogen storage in MIL-101 via computational and experimental methods, Dr Valeska Ting, Bath	Prof Ian Metcalfe, Newcastle
16:35-17:05	Plenary: Development and demonstration of alkaline fuel cell technology: An overview of EU-funded projects led by AFC Energy plc, Dr Hugh Sutherland , AFC	
17:05-18:30	Early Career Panel Discussion: Dr Ainara Aguadero (Lecturer, Imperial College) Academic Dr Ed Brightman (NPL) Dr Hugh Sutherland (AFC) Dr Dimitris Sarantaridis , Corporate Partnerships Imperial David Hogg, Bright Green Hydrogen Dr Sukhdev Gill, Business Engagement Manager, University of Birmingham	
18:30 onwards	UCELL demonstration, posters, networking drinks	

Day Two : Tuesday 16th December (Morning)

Time	Presentation and Speaker	
09:00-09:30	Plenary: Putting Fuel Cells to work. Dr Ben Todd, Arcola Energy (Room 124)	Chair: Prof John Irvine, St Andrews
09:30-10:00	Plenary: CFD based modelling approaches for hydrogen safety issues, Prof Jennifer Wen, Warwick (Room 124)	
	Breakout Session 1 (Room G35)	Breakout Session 2 (Room 124)
	Chair: Prof Jennifer Wen, Warwick	Chair: Dr Jung-Sik Kim, Loughborough
10:00-10:20	Modelling thermal response of polymer composite hydrogen cylinders subjected to external fire, Dr Zaki Saldi, Warwick	Development of Novel Anode Material for Intermediate Temperature SOFC (IT-SOFC), Dr Amit Sinha, St Andrews
10:20-10:40	Effect of heat release rate on fire resistance of bare hydrogen tank in bonfire test, Sergei Kashkarov, Ulster	Performance of GDC-Electrodeposited Ni Anodes for Solid Oxide Fuel Cells, Zadariana Jamil, Imperial
10:40-11:00	Design attributes of a variable aperture pressure relief device for hydrogen storage, David Yates, Ulster	Simulation and Prediction of 3-D microstructural Evolution of Ni Cermet Anode, Dr Xin Wang, Imperial
11:00-11:30	Break	
	Breakout Session 1 (Room G35)	Breakout Session 2 (Room 124)
	Chair: Dr Denis Kramer, Southampton	Chair: Dr Denis Cumming, Sheffield
11:30-11:50	Pore Network Modelling of PEM Fuel Cell Materials with OpenPNM, Tom Tranter, Leeds	SOFC temperature sensing during anode reductions and cell operations, Manoj Ranaweera, Loughborough
11:50-12:10	Thermal imaging used for combined temperature and water droplet mapping in the channels of an open cathode fuel cell, Oluwamayowa Obeisun, UCL	Fibrous Composite as Cathode for Intermediate Temperature Solid Oxide Fuel Cells, Yingjun Liu, Cambridge
12:10-12:30	Assessing the suitability of MNC active sites as catalysts for the oxygen reduction reaction, Andrew Dixon, Leeds	Towards the Design-led Optimization of Solid Oxide Fuel Cell Electrodes, Dr Masashi Kishimoto, Imperial
12:30-12:50	Modelling of the Gas Diffusion Layer for use in an Intermediate Temperature Polymer Electrolyte Fuel Cell (IT-PEFC): A Multiphysics Approach, Amrit Chandan, Birmingham	Incorporation of metals into porous scaffolds to fabricate electrodes for solid oxide fuel cells and electrolyzers, Dr Enrique Ruiz-Trejo, Imperial,
12:50-13:10	Multiscale Experimental Analysis, Robust Optimisation and Explicit Model Predictive Control of Fuel Cell Systems, Amit Manthanwar, Imperial	Development of the Oxide Ion Conductor $\text{Na}_{0.5}\text{Bi}_{0.5}\text{TiO}_3$ (NBT) for Solid Oxide Cells, Christopher Tumilson, Queen's University Belfast
13:30- 14:00	Lunch	
14:00-15:00	Poster Session	

Day Two : Tuesday 16th December (pm)

Time	Presentation and Speaker	
	Breakout session 1 (Room G35)	Breakout session 2 (Room 124)
	Chair: Dr Valeska Ting (Bath)	Chair: Dr Edward Brightman (NPL)
15:00-15:20	Novel protium-deuterium isotope trapping and breakthrough separation using a chabazite (Cs) molecular trapdoor material, Andrew Physick, Bath	An Integrated Approach to Enhancing Biohydrogen Production. Dr Jaime Massanet-Nicolau, South Wales
15:20-15:40	Modular Solid State Solutions for Portable H ₂ Applications, Dr James Hanlon, Glasgow	Steam reforming of glycerol for the co-production of carbon nanotubes and hydrogen using metal/stainless steel mesh catalyst, Dr Chunfei Wu, Leeds
15:40-16:00	Characterisation of Nanoporous Carbons for the Development of Hydrogen Storage Materials, Jemma Rowlandson, Bath	Molecular dynamics simulation on H ₂ purification by a nitrogen-doped nanoporous graphene membrane, Haitang Luo, UCL
16:00-16:20	Reversible Hydrogen Storage Potential of a Ball-Milled Graphite/LiBH ₄ Composite, Joshua Vines, Birmingham	Microfluidic fuel cells, Dr Xin Juan, Herriot Watt
16:20-16:40	Effect of halide additives on the hydrogen desorption of lithium amide, Rosalind Davies, Birmingham	Performance modelling of fuel cell systems through Petri nets, Claudia Fecarotti, Nottingham
16:40-17:00	Solid state hydrogen storage using LiH and B(OH) ₃ , Tina Su, Glasgow	Investigation of using polarization curve for fault diagnosis of practical fuel cell system Dr Lei Mao, Loughborough
17:00-17:20	Isotopic studies on the ammonia decomposition reaction mediated by sodium amide, Dr Thomas Wood, STFC	Benchmarking the fuel cell compression process for the Horizon Closed Cathode Fuel Cell Stack using Fuji Prescale pressure sensitive films, Mussawar Ahmad, Warwick
17:20-17:50	Plenary: Prof Ian Metcalfe, University of Newcastle, Enhanced hydrogen production via chemical looping using non-stoichiometric materials' (Room 124) (Chair: Dr Tim Mays, Bath)	
17:50	Close	
19:00	Dinner, Edgbaston Cricket Stadium	

Day Three : Wednesday 17th December

Time	Presentation and Speaker (Room 124)	Chair
09:00-09:30	Plenary: Prof Andrea Russell, Transition metal oxide electrocatalysts for ORR and OER Southampton	Prof Anthony Kucernak, Imperial
09:30-09:50	New palladium phosphide catalysts for PEFCs based on a simple conversion process, Dr Keiran Fahey, Imperial	
09:50-10:10	Reduced Graphene oxide supported Fe-Pt nanoparticles for oxygen reduction and methanol oxidation reactions electrocatalysts, Ramaiyan Kannan, Birmingham	
10:10-10:30	Evaluation of PTFE loading in GDLs used as direct catalyst support for in-situ grown Pt-nanowire arrays in PEFC applications, Yaxiang Lu, Birmingham	
10:30-10:50	In-Situ Infrared Spectroscopic Analysis of Solid Oxide Electrolysis Cells, Dr Dennis Cumming, Sheffield	
10:50-11:10	Numerical Experiments on Investigation of Hydrogen Jet Fire Regimes in an enclosure with two vents Volodymyr Shentsov, Ulster	
11:10-11:30	Break	
11:30-11:50	Plasma nitriding induced growth of Pt-nanowire arrays as high performance electrocatalysts for fuel cells, Dr Shangfeng Du, Birmingham	Dr Richard Dawson, Lancaster
11:50-12:10	Passivating Coating For Novel PCB Planar Plates In Flexi-Planar PEM Fuel Cells, Dr Jacek Lapinski Imperial	
12:10-12:30	Experimental investigation of the through-plane gas permeability of the gas diffusion media used in proton exchange membrane fuel cells: effects of carbon black loadings in microporous layer and sintering, Olutomisin Orogbemi, Leeds	
12:30-12:50	Socioeconomics of mCHP, Owain Jones, UCL	
12:50-13:10	Actual versus ideal performance of a SOFC mCHP unit operating in a domestic building, Theo Elmer, Nottingham,	
Close		