

# Speaker Profiles

## Keynote Speakers

### Jonathan Hall

Jonathan is Chief Engineer for Research and Advanced Engineering at MAHLE Powertrain, where he is responsible for leading a team of highly skilled engineers who are engaged in developing technologies to enhance electrified mobility, as well as advanced combustion systems for renewable and zero carbon fuels.

Jonathan studied Mechanical Engineering at Coventry University. He has worked within powertrain consultancy for over 20 years having joined MAHLE Powertrain on the graduate scheme. He has considerable experience gained from many challenging powertrain projects to develop cutting-edge technology for customers across the globe. His experience spans fuels cells, electric propulsion systems and internal combustion engines.



### Ed Newman

Ed is Chief Engineer at Clean Air Power, leading fuel injector development for zero and low-carbon fuels, including hydrogen and ammonia. His expertise covers internal combustion engines, fuel cells, and gas turbines.

Previously, Ed worked on diesel injection systems at Delphi (Phinia) and Denso and formed part of the engine development team at JCB. He has developed systems for demanding environments, collaborating with customers such as John Deere, Volvo, DAF and Penta. Ed also led Delphi's development of the Westport HPDI 2.0 gas injectors, further demonstrating his extensive experience in advanced fuel injection for a wide range of applications.



### Dr. Richard Osborne

Richard graduated from Oxford University with a degree in Engineering Science in 1999. He joined Ricardo in the same year and has worked on engine combustion systems since then. He gained his PhD from the University of Brighton in 2010.

Richard now holds the position of Global Technical Expert – Sustainable Engines at Ricardo and has experience in a wide range of engine technologies. He has published over 30 technical and journal papers, and his 2017 paper on Miller Cycle engines won the IMechE's Dugald Clerk prize. He currently chairs the IMechE's Powertrain Systems and Fuels Group (PSFG) board.



### Dr Mike Rendall

Mike is the Chief Technology Officer - Hydrogen & Fuel Processing at AFC Energy where he leads the development of hydrogen generation technologies from carrier fuels such as methanol and ammonia.

Prior to working for AFC Energy, Mike was the Head of Energy Storage for Dyson where he was industrialising and commercialising novel solid-state batteries. Previously, as CTO of Diverse Energy, Mike demonstrated the world-first novel ammonia-fuelled off-grid fuel cell systems for cellular telephone base stations in the developing world.

Mike holds a PhD in Physical Chemistry & Electrochemistry from the University of Southampton.



## MariNH<sub>3</sub> Research Programme Presenters

### Dr Anthony Giles

Tony is a Research Fellow at Cardiff University. He has a research background in combustion, automotive, energy modelling, sprays and fluid dynamics.

His current research is in the field of laser and thermal fluid diagnostics at Cardiff University's Gas Turbine Research Centre.



### Gagan Gopakumar Suja (PhD)

Gagan is a PhD Student in the Powertrain Research Group at the University of Nottingham, supervised by Professor Al Cairns and co-supervised by Dr Antonino La Rocca.

His research interests include dual-fuel engine studies with ammonia, hydrogen and diesel. He is focussed on Theme 2 of the MariNH<sub>3</sub> research programme – Combustion Mode Fundamental Studies.



### Dr Nikhil Khedkar

Nikhil is a Research Fellow in Mechanical Engineering at the University of Birmingham.

He has experience in low temperature combustion (LTC) strategies in compression ignition (CI) engines. His main area of expertise is in the optimisation of dual fuel engines, with a focus on emissions and performance.

His current research focuses on solid catalyst-based exhaust after-treatment systems for dual-fuel engines that employ ammonia as a carbon-free alternative fuel.



### Dr Laura Norris

Laura is an economic geographer with expertise in sustainability transitions, technology acceptance, and the role of innovation in regional economic development and resilience.

Working as part of the Cardiff University team, she is undertaking an analysis of legislation and the wider innovation system to identify key areas to mobilise green ammonia acceptance on MariNH<sub>3</sub>.



### Dr Saad Salman

Saad is a Research Fellow with the Advanced Materials Research Group at the University of Nottingham.

He has expertise in the fields of hydrogen generation/storage, heterogeneous catalysis, battery electrodes and solid-state electrolytes. His current research is centred on developing functional materials and unlocking their structure-property relationships through advanced characterisations in the hydrogen space.

On the MariNH<sub>3</sub> programme he is investigating novel ammoniates and catalytic splitting of ammonia into green hydrogen.



### Dr Vikas Sharma

Vikas joined the Advanced Engineering Centre (AEC) at University of Brighton in January 2023 as a Research Fellow, after two years at Aston University as Research Associate.

His work covers sustainable low-carbon fuel, clean energy, waste to energy, BioMix fuel from waste, advanced low temperature combustion (LTC) and biomass pyrolysis fuels.

He is currently working on hydrogen and ammonia spray analysis, combustion and emissions characteristics at the AEC.



### Dr Dawei Wu

Dawei is an Associate Professor in Mechanical Engineering and an EPSRC Fellow at the University of Birmingham.

His research strength lies in zero carbon fuels (properties/spray/combustion) and zero emitting propulsion technologies for heavy transport. His research grant portfolio includes acting as the Principal Investigator to develop a novel ammonia/hydrogen dual-fuelled ship propulsion system; as a Co-Investigator in multiple ongoing EPSRC, EU MSCA and industrial projects for fundamental physics of fuel spray and combustion; and disruptive propulsion technology development for HGVs, rail and marine applications.

Dawei is a 'Fuel' section topic editor of Energies, a Fuels and Lubricants Committee Member of SAE, and is involved in the EPSRC Network for Hydrogen-fuelled Transportation. He is the work package lead on the MariNH<sub>3</sub> programme grant for Propulsion System Scalability Analysis.



### Yan Zhang (PhD)

Yan is completing a PhD in Mechanical Engineering at University of Birmingham, focusing on hybrid powertrain systems using ammonia engine and fuel cells.

She has a research background in automobiles, powertrains, internal combustion engines and batteries, with a particular focus on the matching, simulation, optimisation, and control of powertrain systems. She specialises in employing machine learning theories to address related problems.



## Chairs

### Nick Owen

Nick is an experienced engineer and consultant in the transport and mobile power sectors. At Ricardo, he became responsible for technology strategy and research, leading programmes on advanced engines and electrification. In 2012 he joined E4tech, establishing them in low carbon vehicle consulting, before becoming CTO at Dearman in 2014, developing a zero emission, liquid nitrogen engine for mobile refrigeration.



In 2018 he joined Dolphin N2 as Technical Director, responsible for developing the Recuperated Split Cycle Engine. He now serves a range of innovators in clean propulsion through his own company, Woodford Owen Consulting, and sits on the MariNH<sub>3</sub> Steering Group.

### Steve Sapsford

Steve joined the automotive consultancy, Ricardo, in 1986 and worked in technical roles focusing on analysis and simulation of internal combustion engines.

In 2007, he became the Global Product Group Director for all gasoline engine business. In 2014 he became the Business Strategy Director for the Technical Consulting business with a special interest in sustainability and life-cycle analysis.



Steve left Ricardo in September 2018 to set up his own consultancy, SCE, with a focus on future propulsions systems and the role for sustainable fuels in complementing electrification.

He is an Industrial Advisor for Transport at the University of Nottingham and a member of the Industrial Advisory Board (School of Engineering) at the University of Cardiff. He was the chair of the Powertrain Systems and Fuels Group at the IMechE until June 2022 and recently co-chaired a UK Government Group regarding the application of H<sub>2</sub>ICE for off-road machinery. Steve chairs the MariNH<sub>3</sub> Steering Group.