



## Message from our President

David Westmore



During 2019 we sponsored Glasgow University's female Engineering Society for their visit to Rwanda and I am delighted to say that it was a great success and we will include a report in our next bulletin. I am pleased to include a report from Primary Engineer, we are thrilled by their continued success. IESIS Council have agreed to continue to support their work.

We reported in the last issue that we were moving offices and I am glad to say that this was completed without incident and that Laura is now enjoying her new surroundings. In July we reported on the results of the workshop which reviewed the Institution and its activities, we will take that forward with our new Council.

In April 2019 we enjoyed a lecture from the Engineering Director for the Bloodhound Project, Mark Chapman, in their quest to achieve a land speed record of 1000mph. They are due to start high speed testing in October on the dry lake-bed track at Hakskeenpan in South Africa – we wish them luck!

And finally, the Institution is very much your institution and we would welcome any suggestions on programme, activities, or offers of support – just email Laura with any thoughts etc. In the meantime, I look forward to seeing many of you at this year's James Watt dinner (don't forget to book!)

*David M. Westmore*

Dear friends. I hope you all had a good summer and are now rested and eager for the start of our new session for 2019/2020. We have an exciting and diverse range of topics for this year and I am pleased to list these in this bulletin. Hopefully you will find some, if not all, the lectures of interest and I look forward to seeing you there.

Throughout the UK, various events have taken place to commemorate the bicentenary of the death of James Watt and the 250th Anniversary of his patent for his 'big idea'. We will be making our own small contribution at this year's James Watt Dinner along with this year's inductees into the Scottish Engineering Hall of Fame.

### **James Watt Dinner 2019 and the Scottish Engineering Hall of Fame – Friday 4th October 2019 at the Radisson Blu, Glasgow**

Corporate Tables available or individuals with or without friends, partners, colleagues. Members and non-members welcome. Enjoy a great evening including the announcement of this year's inductees into the Scottish Engineering Hall of Fame and good entertainment.

Please visit our website for further details on events, lecture programmes, history, etc

### **Profeng Lecture**

Pupils at St Paul's High School in Glasgow will hear all about the ultrasonic cancer detection pill from the inventor, Professor Sandy Cochran on 10th September. This lecture has been organised by David Watson as part of our Profeng programme.

### **IESIS supported talk at the Orkney Science Festival**

At the Orkney Science Festival on 10 September 2019, former IESIS President Iain MacLeod will give the Grimond Lecture titled: The power to change the world. He will describe how James Watt, who died 200 years ago, used the values of the Enlightenment to harness energy, leading to dramatic changes worldwide. Can those same Enlightenment values help us tackle major energy risks and provide a way ahead to a new and beneficial era of energy use?



## **Substance with style: the importance of engineering design**

The MacMillan Lecture

**Naeem Hussain**

Global Bridge Design Leader, Ove Arup and Partners

At this joint meeting with IStructE, Naeem Hussain will give an illustrated lecture on the design of aesthetically pleasing bridges that respect engineering principles and are cost-effective. He will talk about the ethos of design and its role in project success. He will also discuss what may be done to improve competence in engineering design. Naeem is a world leading bridge designer with a lifetime of experience in the design of bridges and transport facilities. He is Arup's Global Bridge Leader. He was the concept designer and design leader for the Queensferry Bridge. This three tower cable-stayed bridge is the first in the world to use crossed cables at this scale. He was inducted to the Scottish Engineering Hall of Fame in 2018.

**Thursday 3rd October 2019**

Joint meeting with IStructE

18.00 for 18.15, Room K325, John Anderson Building, 107 Rottenrow East, Glasgow G4 0NG

## **Micro-to-Macro: space technologies at extremes of length-scale**

**Prof. Colin McInnes**

James Watt Chair, Professor of Engineering Science, University of Glasgow

This lecture will explore a range of emerging space technologies which could enable new services including; swarms of 'smart dust' devices to monitor the space environment for 'space weather' events which could disrupt the digital economy; large reflectors fabricated in-orbit to reflect sunlight onto terrestrial solar power farms to boost their output at dusk when output is low but demand is high; near Earth asteroids as a resource to reduce the scale of future space ventures by using material already at the top of the Earth's deep gravity well. Colin's research interest include the broad application of mathematical modelling to a range of problems in Engineering Science.

**Tuesday 12th November 2019**

18.00 for 18.30, Room 301, McCance Building, Richmond Street, Glasgow, G1 1XQ

## **50th Anniversary of QE2: Standing the test of time?**

**Dr Stephen Payne**

Designer, Queen Mary 2

Stephen Payne, will present an illustrated lecture describing how the QE2 succeeded and confounded her critics to become the longest serving Cunard ship of all time. In the mid 1960's Cunard faced the most challenging period since it began operations in 1840. The passenger fleet, including the venerable Queens, Mary and Elizabeth, was losing vast sums of money and the Company was struggling to complete the new transatlantic express liner, Queen Elizabeth 2, against dwindling reserves and the imminent bankruptcy of the shipyard, Queen Elizabeth 2 would either save or break Cunard. Stephen will finish off his talk by explaining how some of the lessons learned are still relevant today. This is a welcome return for Stephen who has been one of our most popular speakers on maritime topics in recent years.

**Wednesday 27th November 2019**

Joint meeting with RINA

Glasgow City Chambers, 82 George Square, Glasgow G2 1DU

## **How can we build economically viable grid-scale energy storage?**

**Prof. Win Rampen**

Chair of Energy Storage at the University of Edinburgh

This talk will explore the problems and possible solutions of energy storage. There is a severe mismatch between de-carbonised generation - most of which cannot be scheduled - and instantaneous demand on the electricity grid. Win's vision is to replace conventional power stations with a network of storage facilities, which can aggregate and be used to smooth non-firm renewable energy while also providing distributed back-up generation. Win launched SynchroStor in 2018 to develop and commercialise grid-scale pumped heat energy storage. He is a co-founder of Artemis Intelligent Power Ltd, an engineering R&D company that spun out of the University of Edinburgh in 1994.

**Tuesday 14th January 2020**

Joint meeting with IMarEST

18.00 for 18.30, Room 301, McCance Building, 16 Richmond Street, Glasgow, G1 1XQ

# Lecture Programme and Venues for 2019-2020

## Engineering on the buses - technical developments in the bus industry

**Jamie Wilson**

**Tuesday 11th February 2020**

Head of Concepts & Advanced Engineering Alexander Dennis Limited

Jamie Wilson will describe the challenges and innovations that have faced bus builder Alexander Dennis Ltd in recent years in seeking to support the road to zero emissions. Alexander Dennis is Britain's biggest bus builder and the world's largest manufacturer of double decker buses. The bus industry punches well above its weight in terms of product and technology development, while facing the introduction of Low Emission Zones, the demand for 'greener' buses and a host of other features demanded by customers. Despite the challenging backdrop of a decline in passenger journeys, Alexander Dennis has grown every year from around £90M in 2004 to an expected £1b turnover in 2022.

18.00- 18.30 Room 301, McCance Building, 16 Richmond Street, Glasgow, G1 1XQ

## Get your hands off my digital assets! Cyber security in 2020

**Dr Natalie Coull**

**Tuesday 10th March 2020**

Head of Division of Cyber Security in the School of Design and Informatics, Abertay University

This lecture will explore how the public and businesses can protect themselves and their assets in a digital world. It will look at threats, defensive actions and what we are likely to face in the future!

Dr Natalie Coull has research interests in secure coding, digital watermarks and computer memory-based security concerns. She is interested in exploring the role of computer games in cybersecurity training, in collaboration with a leading strategic consultancy company in security and public safety. Natalie is actively engaged in outreach, including promoting female participation in cybersecurity and supporting initiatives to address the skills gap on cybersecurity.

18.00 for 18.30, Room 301, McCance Building, Richmond Street, Glasgow, G1 1XQ

## What's coming down the tracks for Scottish railways? Engineering a transformation of the network

**Alex Hynes**

**Tuesday 21st April 2020**

Managing Director, ScotRail Alliance

Joint meeting with IMechE

This talk will examine the engineering challenges of modernising a largely Victorian railway, taking account of sustainability and environmental concerns. How can engineering help to improve the experience for passengers? What are the future aspirations for the service and what part will engineering play?

Alex Hynes has 20 years of rail industry experience. He took on his current role as managing director of the ScotRail Alliance in 2017, a role which has been described as one of the most pressurised, high profile jobs in the railway industry.

18.00 for 18.30, Room 301, McCance Building, Richmond Street, Glasgow, G1 1XQ

**AGM 17.45 -18.00**

## Celebrating the life and legacy of William MacQuorn Rankine

**Various speakers**

**Monday 27th July 2020**

In celebration of the genius of William John MacQuorn Rankine and to mark his 200th birthday we have a sparkling programme of interesting, short lectures which will describe life in Glasgow in the 1850s and Rankine's impact on engineering science, education, thermodynamics, civil engineering, metallurgy and shipbuilding. Professor Rankine was the first president of IESIS. This is a public event which will be an introduction to the Rankine 2020 International Conference [www.ior.org.uk/events/rankine2020](http://www.ior.org.uk/events/rankine2020) and will be held in the beautiful Bute Hall at the University of Glasgow on the morning of Monday 27th July 2020. It will be free but registration is required – registration will open on 1st April 2020 [www.iesis.org](http://www.iesis.org)

Monday Morning, The Bute Hall, Gilbert Scott Building, University of Glasgow, Glasgow G12 8QQ

CPD certificates will be available on the evenings



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