



## Message from our President

Dr Andy Pearson

which included audience members from England, Wales, Norway, the United States and even New Zealand. A further benefit is that a video of the presentation and the Q&A which follows is available to all members, even those who were unable to join the meeting on the night. Look out for more dates in the series and I look forward to seeing you there.

The process of changing the Institution's name is in progress following the overwhelming vote in favour at the AGM in August. An application has been approved by the Office of the Scottish Charities Registrar (OSCR) and we expect this process to be complete sometime in November. The new name and logo (remarkably like the old one) will start to appear once the company name transfer has been approved by Companies' House. This timing should coincide with the launch of our updated website. Please visit the site and let us know your thoughts. We would also be grateful if you told friends and

colleagues about it. Also please note the appeal for photographs below.

Rob Harley, chair of the Membership Committee, Treasurer Stuart Cameron and I have started a detailed review of our membership structure and procedures. I don't want to give you the false impression that I have swept into office on a wave of reforming zeal; - this is a process which Council began a couple of years ago, recognising that we were struggling to attract and retain student and graduate members and that we needed to streamline our processes. Along the way the Council members realised that many of our members have a strong desire to support the engineering industry, including work in schools, colleges and universities to encourage young people to follow a career as an engineer. We discussed a white paper on membership at the Council meeting this month and I will write again with further details of the proposed changes, which I hope will be beneficial to everyone associated with the Institution.

This is my first message as President of the Institution and I am pleased to report that there is a lot of activity despite the restrictions under which we have had to operate for the past six months or so. With no end in sight to the prohibition on face-to-face lectures we have prepared a series of informative and interesting speakers with a broad range of topics which will be presented monthly in online webinars. We already saw an advantage of this approach at the Presidential Address last month

## Engineering photographs!

We would like to feature work-related photographs from members as a feature of the new website, particularly pictures that showcase the engineering aspect of your work and especially those that have a Scottish slant to them. We would hope to be able to feature a different picture each month and accreditation would be given to the company and the member submitting the picture. In addition we would provide a £10 Amazon voucher for each picture selected on

the first occasion that it appeared on the website. It would then be entered into a pool and might be featured again at a later date, with the same credit given, but no voucher for subsequent appearances. Please pass this request on to your company's PR department and ask them what they can provide. Hopefully a winning entry will prove to be good publicity all round

# President's Initiative: A Call for Papers

In the last bulletin David Westmore wrote "may I invite engineers (Students, Academics, Consultants, Industrial etc) to submit papers of interest for publishing on our website or journal. Papers can be of any length from one A4 page. Topics could include a novel aspect, developments to solve a problem, a large project, research, etc.

These may be ideal for those who wish to contribute without being subject to public lectures or webinars." I'm pleased to say that we have already received two papers which will be available on our new website when it is launched. More contributions will be very welcome.

## James Watt Dinner!

It is with a certain sadness that we approached early October with no James Watt Dinner to look forward to!

Each year, the profits from the dinner are transferred to the Education Fund which supports much of the work we do including encouraging young engineers, publishing papers in our Transactions and supporting the Scottish Engineering Hall of Fame.

We have been very touched that a number of members have already sent in donations which would have matched the money that they would have spent on tickets - thank you! If you would like to support the Education Fund in this way please send a cheque or make a bank transfer or a paypal payment with the reference "JWD2020".

## Congratulations!

Dr Susan Scurlock MBE is the winner of 2020's Rooke Award for her inspirational promotion of engineering through her not-for-profit organisation, Primary Engineer.

Susan started Primary Engineer in response to the government's call to encourage more young people into the engineering profession in 2005. She identified that engineering engagement should begin as early as possible, and that meant in primary schools. The programme began small with just 13 schools in the north of England.

Today the programme has a national presence with an annual reach of over 1,700 schools, 90,000 pupils, 5000 teachers and 2000 engineers. The programmes reach as many girls as boys with a 50/50 gender split demonstrating a range of engineering from design to manufacturing and data to climate change. The programmes are supported by a range of industries, universities and councils



# AFRC - further developments

IESIS members enjoyed a great visit to the AFRC last year, we were very pleased to hear about the latest developments. The National Manufacturing Institute Scotland, has announced that it has signed a lease with property investment firm Canmoor for a unit at Westway Park in Renfrew, part of the Advanced Manufacturing Innovation District Scotland. The facility will be primarily used for the Group's £11.8 million research and development programme with the world's largest aerospace company, Boeing.

The space, which is around the size of a football pitch, will be refurbished to accommodate the personnel and equipment needed for the Boeing programme. It will also house other state-of-the-art advanced engineering equipment to be used in projects with other manufacturing businesses including a purpose built area dedicated to advancing the use of additive manufacturing in Scotland.

The Boeing programme, run by the University of Strathclyde's Advanced Forming Research Centre (AFRC), part of the National Manufacturing Institute Scotland and the only High Value Manufacturing Catapult centre in Scotland, will see the company establish an R&D team at the Westway facility working with AFRC's leading forming and forging technologists. Boeing has hired a team to work on the programme and it is expected that the personnel will be on site later this year.

Development at the Advanced Manufacturing Innovation District Scotland (AMIDS) will include new bridges, roads, cycling and pedestrian routes are all under construction and expected to be finished in May 2021 full details can be found on the 'news' pages of Renfrew Council website <http://www.renfrewshire.gov.uk>

## Programme for 2020 -2021



### Presidential Address

#### **Scotland's role in the development of heat pumps: 1850 – 2050**

**Dr Andy Pearson**, Managing Director, Star Refrigeration Ltd

**Tuesday 29th September 2019, online 18.30pm**

This paper follows the development of the heat pump and considers the role played by Scotland in that process. This included, in 1852, the publication by Professor William Thomson of a paper on the heating and cooling of buildings by currents of air – the first recorded description of a heat pump in academic literature. Several other significant milestones in the development of heat pumps in Scotland followed and some of these are identified and explained in this paper. The paper finishes with a look forward to the prospects and expectations for heat pump technology in the next thirty years. The challenges ahead are not only technical, requiring a multi-disciplinary approach, but are also commercial and predominantly political.

### The Rankine Bicentenary Lecture

#### **Unconventional Geothermal Technologies and Opportunities**

**Prof Gioia Falcone**, Rankine Chair, Professor of Engineering Science, University of Glasgow

**Tuesday 13th October 2020, online 18.30pm**

Geothermal energy is a constant and independent form of renewable energy and plays a key role towards the decarbonization of the energy sector. While most of the conventional hydrothermal resources have already been discovered and exploited across continents, the greatest potential for the future geothermal energy production and thermal energy storage lies in unconventional settings. This talk will review and discuss unconventional geothermal settings and engineering solutions, ranging from mine water to supercritical resources, from open-loop to closed-loop systems

### **Scottish Environmental Protection Agency: COP26 / Crucial Issues for Planet Earth**

**Mr Terry A'hearn**, Chief Executive Officer SEPA

**Tuesday 17th November 2020, online 18.30pm**

SEPA has set an ambitious strategy called One Planet Prosperity to govern how it will regulate in the future. In addition to its traditional role of taking tough action to hold polluters to account, SEPA is setting out to work in a radically different way – aiming to partner to support major innovation across the private, public and third sectors. Terry A'hearn will talk about this new approach and organisations and professionals can harness it.



### **Joint meeting with RINA**

#### **From Nano to Macro, 1 mm to 10,984 m, Vast and Essential for Life on Earth**

**Prof Colin Moffat**, Chief Scientific Advisor Marine Scottish Government

**Tuesday 8th December 2020, online 18.30pm**

Prof Colin Moffat will discuss the criticality of the ocean to life on Earth. Significant, and immediate, interventions are required if tipping points are to be avoided. Management actions are being taken, be they marine protected areas or changes in fishing practices. However, the plan must go further based on various international agreements, including the UN Sustainable Development Goals and the UN Decade of Ocean Science for Sustainable Development (2021 – 2030). Colin will discuss what actions could be taken to reverse the current decline.

### **Joint meeting with IMarEST**

#### **Dealing with plastic waste sustainably**

**Prof Ian Arbon**, Senior Partner, Engineered Solutions Ltd

**Tuesday 12th January 2021, online 18.30pm**

Over the past few years, the issue of 'plastic waste' has become a dominating concern in the UK. During the Covid-19 crisis some of the small improvements that had been made in the past few years have actually been reversed! This lecture starts from the standpoint that there is no clear definition of the term 'plastic' and that there are no 'silver bullet' solutions to the problem; however, our traditional (but unsustainable) solution of sending our plastic waste to the Far East, while claiming to have recycled it in the UK, is no longer an option available to us. The problem needs a reasoned, engineered and/or ethical response. This lecture explores what can we now do that is both sustainable and responsible.

### **UN Sustainable Development Goal No 6, Clean Water and Sanitation**

**Prof Bill Sloan**, Professor of Environmental Engineering, University of Glasgow

**Tuesday 9th February 2021, online 18.30pm**

Substantial progress has been made towards sustainable development goal 6: delivering clean water and sanitation to all. However, there is still a long way to go; 784 million people do not have access to clean water and 2.5 billion live without improved sanitation. The inertia in delivering water and sanitation solutions is compounded by 31% of rural communities having no access to electricity. Filling the gap in provision with Western-style energy and resource-intensive infrastructure, even if it were technically possible, would be extremely costly for developing economies and would increase global carbon emissions by 2%. This presentation will discuss the barriers to progress and new approaches to water treatment and sanitation emerging from the developing world that give cause for optimism.

### **Nanotechnology**

**Prof Doug Paul**, Professor of Semiconductor Devices, University of Glasgow

**Tuesday 9th March 2021, online 18.30pm**

Nanotechnology is now a technology used in many items that are around the home and used in everyday life. This talk will present some of the present areas of nanotechnology and in particular quantum technologies that are being researched to help improve communications and the internet, to improve the resilience of navigation and through magnetic imaging of the brain aid the understanding and treatment of dementia. The potential impacts to society will be discussed along with the timescales for the technologies to become available. The talk will also highlight many of the companies working in Scotland and the UK that are delivering nanotechnology products to users around the globe.

### **Why Civil Society Needs Engineers - especially Naval Architects, Marine & Ocean Engineers!**

**Mr Peter Noble**, President and Principal Advisor, Noble Associates Inc.

**Tuesday 20th April 2021, online 18.30pm**

As can be deduced from the title of his presentation Peter has a passion for promoting a better understanding of how engineering and technology are fundamental to developing and supporting civil society. In the developed world we live generally, safe, comfortable and rewarding lives due to the availability of technology, while in the developing world engineering has dramatically improved the overall progress of humanity, and is improving both life expectancy and quality of life.

### **AGM – details to be confirmed**

Please visit [www.iesis.org](http://www.iesis.org) for further information and registration details

CPD certificates will be available on application