

# EAAW

ENGINE AS A WEAPON  
International Symposium **VIII**

## A shared vision

EAAW VIII and MECSS 2019 – two of IMarEST's seminal Learned Society Events are joining forces in 2019. The aim is to discuss the shared challenges for both the naval and commercial arenas on Day One finishing with a Panel Debate on Artificial Intelligence; with Day Two splitting into two parallel sessions focussing on topics specific to each event. The timings for the two day programme will be synchronised to allow delegates to move easily between the sessions of their choice and to enjoy the networking opportunities.

## REGISTER NOW AND SAVE £180

Registrations received before **Monday 3 June 2019** (2-day attendees only)  
Preferential rates for IMarEST Members and students, Marine Partners and Supporting Organisations, Academics and Navy Personnel



**IMarEST LEARNED  
SOCIETY EVENTS**

EAAW VIII Major Sponsor

**babcock**<sup>TM</sup>



**Evolving intelligent platforms  
for the future battlespace**

**Tuesday 2 and Wednesday 3 July 2019**  
America Square Conference Centre, London, UK

*“...inspiring innovation  
across the breadth of  
the maritime domain.”*

# mecss

2019

MARINE ELECTRICAL AND CONTROL SYSTEMS SAFETY CONFERENCE

CPD APPROVED BY

Institute of  
Marine Engineering,  
Science & Technology

IMarEST

## At a glance

- Over 100 expert participants
- Over 20 peer reviewed technical papers
- Panel Debate on Artificial Intelligence
- International attendance
- Continuing Professional Development (CPD) approved by IMarEST
- Excellent networking opportunities
- Speakers' Corner for further debate and discussion
- NEW for 2019 – Both events will be held in parallel with joint sessions on Day One



**Inspiring safer systems at sea**



EAAW VIII and MECSS 2019 are organised by FIGS Events Limited on behalf of IMarEST

To register visit: [www.eaaw.org.uk](http://www.eaaw.org.uk) or [www.mecss.org.uk](http://www.mecss.org.uk)

@ eaaw@figsevents.co.uk / mecss@figsevents.co.uk

+44 (0)20 8304 2373 / +44 (0)1525 876146

## TUESDAY 2 JULY 2019

0830 Registration and coffee

### JOINT OPENING PLENARY SESSION

0915 Welcome and introduction

0930 Keynote address

**Cdr Stephen Markle USN (Ret)**, Program Manager and Director of the Electric Ships Office, US Navy Program Executive Office Ships, USA

1000 Keynote address

**Prof Christopher Hodge OBE FREng**, Chief Electrical Engineer, Defence & Security, BMT, UK

1030 Discussion

1045 Coffee

### AUTONOMY

1115 Socio-technical considerations relating to the maritime autonomous infrastructure

**B Twomey**, University of York, UK

1145 Future test and evaluation for intelligent maritime systems – unlocking the potential of autonomy and artificial intelligence

**H Figueiredo, W Biggs**, QinetiQ, UK

1215 Automation: Assessing the trustworthiness levels of autonomous ships

**C Hawthorn**, Frazer-Nash Consultancy Ltd, UK

1245 Discussion

1300 Lunch

### CYBER SECURITY

1415 Maritime cyber security – misfiction or fact?

**M A Scott**, QinetiQ, UK (presentation only)

1500 Anatomy of a cyber attack – attack and defence in the maritime sector

**Dr R Oates**, Rolls-Royce plc, UK (presentation only)

1545 Discussion

1600 Tea

1630 PANEL DEBATE | ARTIFICIAL INTELLIGENCE

1745 Close of sessions

followed by Reception at Trinity House

 Follow EAAW VIII and MECSS 2019 on Twitter @Naval\_IMarEST / @Systems\_IMarEST



Join the debate on the IMarEST LinkedIn group

## WEDNESDAY 3 JULY 2019

0815 Registration and coffee

### EAAW VIII: Morning Parallel Sessions

#### ENERGY

0900 Testing of a flywheel energy storage system on the PNDC power hardware in the loop platform

**Dr K Jennett, Dr F Coffele, A Downie, A Avras**, Power Networks Demonstration Centre, University of Strathclyde, UK; **A Tate**, Dstl, UK; **S Lewinton**, Ministry of Defence, UK

0930 Assessing battery energy storage for integration with hybrid propulsion and high energy weapons

**L Farrier, Prof R Bucknall**, University College London, UK

1000 Energy as a weapon – architecture reloaded

**N Smith**, GE Power Conversion UK, UK

1030 Discussion

1045 Coffee

#### ARTIFICIAL INTELLIGENCE

1115 Putting artificial intelligence to work: The operator decision aid

**G Sturtevant**, US Navy Department, USA; **J Voth, A Lowe, N Casasanto**, Herren Associates, Inc., USA; **H Kline**, Delta Resources, USA

1145 Integrating autonomy – maintain, deploy, execute and recover

**E Parkin, J Chilcott**, L3 Technologies, UK

1215 Securing interoperable and integrated command and control of unmanned systems – validating the UK MAPLE architecture

**Dr P Smith**, Dstl, UK; **W Biggs**, QinetiQ, UK

1245 Discussion

1300 Lunch

### EAAW VIII: Afternoon Parallel Sessions

#### DESIGN/VISUALISATION

1345 Refining the power station design of the all-electric warship

**W Edge, I Whitelegg**, Rolls-Royce plc, UK

1415 Virtual integration: Managing complex warship design through model based engineering

**W J Tudor, N Harrison**, BAE Systems Maritime - Naval Ships, UK

1445 Weapon system virtualization and continuous delivery for US Navy combat systems

**T Voth**, Herren Associates, Inc., USA

1515 Discussion

1530 Tea

## MECSS 2019: Morning Parallel Sessions

### GREEN SHIP AGENDA

- 0900** **Alternative fuels and power systems for support vessels**  
**Cdr (E) dr ir R D Geertsma RNLN, Ministerie van Defensie, The Netherlands; M Krijgsman, MARIN, The Netherlands**
- 0930** **Modelling fleet performance over complex operating scenarios**  
**I Davison, Atkins, UK**
- 1000** **Facing safety challenges towards smart ships and ports**  
**Prof J Prousalidis, National Technical University of Athens, Greece; D Spathis, V Papaspiliotopoulos, V Georgiou, Protasis SA, Greece; T Kourmpelis, Lloyd's Register, Greece; Dr F Kanellos, Technical University of Chania, Greece**

### MODELLING

- 1115** **It is right in front of you? Missing the obvious in information displays: Implications for design development practice**  
**Dr M J Cook, Dr S Bury, S Douglas, BAE Systems Submarines, UK**
- 1145** **Integrated use of 3D modelling tools and virtual reality to facilitate design**  
**D Leahy, C Vance, MBDA, UK**
- 1215** **A systemic approach to certification of complex control systems**  
**C Hawthorn, Frazer-Nash Consultancy Ltd, UK**

## MECSS 2019: Afternoon Parallel Sessions

### POWER SYSTEMS INTEGRATION

- 1345** **The adaptable energy platform**  
**A J Blokland, I P Barendregt, C J C M Posthumus, Defence Materiel Organisation, The Netherlands**
- 1415** **Power and responsibility – Integrating a new technology battery into an existing power network**  
**R G Blakey, Ministry of Defence, UK**
- 1445** **Voltage safety: High or low?**  
**Dr R W Meggs, O J Simmonds, BMT Defence & Security UK Ltd, UK**

### Venues

EAAW VIII and MECSS 2019 will be held at America Square Conference Centre, 1 America Square, 17 Crosswall, London EC3N 2LB, UK.

The Evening Reception will take place in the Courtroom of Trinity House overlooking the historic Tower of London on the evening of Tuesday 2 July 2019 and offers a special opportunity for all participants to visit this magnificent building. The safety of shipping and the well-being of seafarers have been the prime concerns of Trinity House since being incorporated by Henry VIII on 20 May 1514. The building houses a remarkable collection of maritime artefacts that bear testament to the prominent role played by Trinity House in the nation's maritime history.



### Who attends EAAW and MECSS?

This joint event will attract a broad representation from across the commercial and naval arenas: Navies, commercial and military ship operators, designers and shipbuilders, senior international electrical power and technical engineers from the marine electrical control supply chain, classification societies, machinery, automation and equipment manufacturers, universities and other commercial and defence related organisations.

Visit [www.eaaw.org.uk](http://www.eaaw.org.uk) or [www.mecss.org.uk](http://www.mecss.org.uk) for full details

### JOINT CLOSING PLENARY SESSION

Chair: **Cdr Ian Hassall RN, Ministry of Defence, UK and EAAW VIII Chairman**

- 1550** **Type 45: Power to command**  
**Capt J Voyce RN, R Wixey, Ministry of Defence, UK**
- 1620** **T23 Frigate Power Generation and Machinery Controls Update (PGMU) – Let the trials commence**  
**T Peacock, Babcock International Group/Naval Design Partnering, UK**
- 1650** **Discussion**
- 1700** **Closing Summary**  
**Capt Matt Bolton RN, Ministry of Defence, UK and Kevin Daffey, Rolls-Royce plc & MECSS 2019 Chairman**
- 1715** **Close**

**Delegates are welcome to attend papers in either parallel session**

**EAAW VIII/MECSS 2019: Tuesday 2 and Wednesday 3 July 2019**

**America Square Conference Centre, 1 America Square, 17 Crosswall, London EC3N 2LB**

## 4 easy ways to register

+44 (0)20 8304 2373  
+44 (0)1525 876146

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www.mecss.org.uk

FIGS Events Limited,  
Suite 19771, 20-22 Wenlock Road,  
London N1 7GU, UK

### Delegate details

Please print clearly or attach business card – your details may appear incorrectly listed if this part of the form is unclear.

Surname/family name \_\_\_\_\_  
Title (Prof, Mr, Dipl Ing, Cdr) \_\_\_\_\_  
Initials \_\_\_\_\_ First Name \_\_\_\_\_  
Name for badge \_\_\_\_\_  
Job title \_\_\_\_\_  
Organisation/company \_\_\_\_\_  
Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Postcode \_\_\_\_\_  
Country \_\_\_\_\_  
Tel \_\_\_\_\_  
Mobile \_\_\_\_\_  
Email \_\_\_\_\_  
IMarEST member  Yes  No  
Membership no: \_\_\_\_\_

### Registration fees including 20% standard UK VAT

#### TWO DAY ATTENDANCE

1. IMarEST Member ..... **£1,080**  
 2. IMarEST Marine Partner\* ..... **£1,320**  
 3. Non-member ..... **£1,560**

#### ONE DAY ATTENDANCE

Please circle which day(s) you will be attending:

**Tuesday**      **Wednesday**

4. IMarEST Member ..... **£600**  
 5. IMarEST Marine Partner\* ..... **£720**  
 6. Non-member ..... **£840**

#### AUTHORS

Please circle which additional day you will be attending:

**Tuesday**      **Wednesday**

7. IMarEST Member ..... **£480**  
 8. IMarEST Marine Partner\* ..... **£600**  
 9. Non-member ..... **£720**

\* The IMarEST Marine Partner rate includes: IMarEST Marine Partners, Sponsoring organisation employees, Supporting organisations' members, Academics and Navy personnel

### Registration fees continued including 20% standard UK VAT

#### GRADUATE TRAINEE/APPRENTICE

Limited number of places available; application to be supported by the employee's Head of Department

10. Graduate/Apprentice ..... **£480**

#### CONCESSIONS

Includes retired and student members of IMarEST

11. Retired/Student Members ..... **£180**

**EARLY BIRD DISCOUNT** (registrations received before Monday 3 June 2019; fees 1-3 subtract £180)

#### TOTAL PAYABLE £

### Payment

Upon receipt of your completed registration form, you will be sent an electronic invoice which will enable you to click a 'Pay now' button which links directly to an online SagePay system allowing you to pay by either debit or credit card, alternatively, the BACS information is detailed if this method is preferred. A cheque in Sterling may also be sent to the address given above made payable to 'FIGS Events Limited'.

### Cancellations

Cancellation of a registered place must be received in writing no later than Friday 7 June 2019; a charge of £100 plus VAT will be made for cancellations received before this date. It is regretted that no refunds will be issued after this date but substitute delegates are welcome.

### Registration

To register, please access the online registration portal at [www.mecss.org.uk/register](http://www.mecss.org.uk/register); [www.eaaw.org.uk/register](http://www.eaaw.org.uk/register) or complete and return this form together with your cheque. The completion of the registration form constitutes a confirmed booking. The Conference fees cover participation in the technical sessions, administration, hard copy colour proceedings, access to electronic proceedings and refreshments including lunch and the Evening Reception. You will receive a confirmation email together with further information following receipt of your registration form.

### Group discounts

Group bookings of 5 or more delegates will receive a discount of 10% and applies to full 2-day delegates only. Please contact FIGS Events for the appropriate discount code: [eaaw@figsevents.co.uk](mailto:eaaw@figsevents.co.uk); [mecss@figsevents.co.uk](mailto:mecss@figsevents.co.uk).

### Accommodation and travel

All delegates are responsible for making their own travel and accommodation arrangements; please visit the website for travel and hotel accommodation links.

### Data Protection

By completing the form on page 4, I understand and consent to the details provided being processed by FIGS Events Ltd/IMarEST for the purposes of promoting and delivering the Learned Society events and improving my experience with FIGS Events Ltd/IMarEST and its events and services. By submitting your registration, you acknowledge your agreement to these terms. You can opt out by ticking the box at the bottom of the registration form. If you have any questions, or you wish to amend your preferences, please contact [enquiries@figsevents.co.uk](mailto:enquiries@figsevents.co.uk) in the first instance.

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