



Monday 9 November

1300-1645	Industry visit, Babcock, Rosyth (Fully booked)
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Tuesday 10 November

0615	<i>Becky's run club - 5k run around Arthurs Seat</i>
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830	Registration and coffee
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915	Introduction from the Conference Chairs: Captain (Rtd) Neil McCallum, MIMarEST, Royal Navy, Captain Rinze Geertsma, FIMarEST, Netherlands Defence Academy
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930	Rear-Admiral Brian Metcalf, Deputy Portfolio Acquisition Executive Maritime for Combatants, US Navy
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0945	Rear-Admiral Rachel Durbin, FIMarEST, Head of Naval Engineering. Royal Australian Navy
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1000	Rear-Admiral Steve McCarthy, FIMarEST, CNEO. Royal Navy
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1015	Vice Admiral Sanjay Sadhu, AVSM, NM, Controller of Warship Acquisition and Production, Indian Navy
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1030	Keynote Discussion
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1100	Coffee Break
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1130	Morning Parallel Sessions
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1200	Future capabilities	Power and propulsion system control	Digital support	Interactive Sessions	
				The internal battle and Survivability	Survivability
Room	Pentland	Prestonfield	Holyrood	Salisbury	
Chair	Rob Skada, FIMarEST Director, Fawks Systems Ltd	Prof Mehdi Zadeh, NTNU	Philipp Schmelzer, Naval Architect, NVL, B.V & Co. KG	Prof Yuanchang Liu, UCL	
1200	7NE Autonomous Mine Hunting Capability Data Exploitation: Charting a Course Through the Digital Minefield. Cdr Stephen Taylor FIMarEST.	23SC Multi-Objective Optimisation of Diesel Engine Dynamics for Variable-Speed Naval Generators Lars Mulder. TU Delft	16NE Pirate Maths, Data Lions and Robot Birds: Emergent behaviour and misaligned incentives in the digital transformation of RN Support. Cdre Suzanna Seagrave MIMarEST. Royal Navy	74NE 3D Naval Visualizations for increased Situation Awareness within the Internal Battle for Future Ready Navies. Bart-Peter Smit, and Jasper Wieringa.	9SC Non-Causal Multi-Agent Control for Proactive and Smart Maritime Search and Rescue in Stochastic Wave Environments.

	Royal Navy			CGI Netherlands BV	Yutong Song. University College London
1225	51NE Design and Development of a Large USV Series. Jelle W. Moerdijk Daman Naval.	25SC Dynamic Programming Analysis of Optimal Mode Selection in a Series-Parallel Hybrid Boat: A basis for Rule-based EMS Design. Luca Di Biase. Politecnico di Torino	32NE Designing Future Naval Support: A Requirements-Led Digital Architecture Shaped by IPS, HFI, and Enterprise Data. Steve Wilding. Babcock International Group	89NE Improving the contribution that centre fed hose reels can make to firefighting response on ships and submarines. James Glockling and Richard Alker. BAE Systems Maritime Submarines	24SC Design and automation of an ROV docking system for an XLUUV. Martin Gülland University of Rostock, Institute of Automation
1250	41NE Arctic: the Next Generation of Naval Platform. Robert Taylor and Pilar Morales Babcock	27SC Analytical Derivation of an ECMS Based Energy Management Strategy for Hybrid Powertrains. Francesco Novello Politecnico di Torino	76NE* Development of a Health Risk Assessment Screening Tool for Shipboard Indoor Air Exposure. Dr Nur Sarah Fatihah Tamsi. MZ Services & Consultancy Sdn Bhd and International Islamic University Malaysia	70NE Sick Boat Syndrome (SBoS) among Naval Ship Crews: The Importance of Indoor Air Quality (IAQ) Monitoring and Standard Compliance. Amirul Faiz Kamaruddin. Royal Malaysian Navy	
1315	Session discussion	Session discussion	Session discussion		
1330	Lunch				
	Afternoon Parallel Sessions				
1430	Nuclear	Autonomous and uncrewed vessel control	Climate and emissions	Interactive Sessions - Smart maintenance	Interactive Sessions - Smart maintenance
Room	Pentland	Prestonfield	Holyrood	Salisbury	
Chair	Olly Simmonds, MIMarEST Principal Engineer Manager BAE	Dr Yogang Sing, Assistant Prof in Maritime Technology University of Plymouth	Commodore (Dr) R K Rana, Indian Navy Veteran	Dr Angelo Odetti, Researcher CNR-INM	
1430	4NE Energy System Design for a Nuclear-Powered Refuelling Vessel Supporting Unmanned Maritime Vehicles. Ismar Klomp. TU Delft	13SC Control strategies for multi-vessel formation control; escorting a vessel in fixed, flexible, or changing formations. Bas de Kruif. Marin	71NE Beyond Decarbonisation: An Active Rudder Retrofit Solution for Enhanced Manoeuvrability and Redundancy. Dr Carsten Hermann ANDRITZ HYDRO GmbH	5NE Unlocking Autonomy Through Tribological Condition Monitoring. Matthew Knight. BMT	43SC A Generalizable Unsupervised Health-Monitoring Framework across Heterogeneous Time-Series Data. Nicolò Faggioni, Alessandro Caviglia, Marco Antonelli and Giovanni Orrù. Fincantieri NexTech
1455	31NE	21SC* Traceable Virtual Sea Trials in the Marine Robotics Unity	16SC An integrated analysis on energy, economic and environmental	2NE Strategic autonomy for naval structures: Approach to and	3SC Exhaust-Gas Fault Detection in a Multi-Cylinder Natural Gas

	The Consideration of Working Fluids for Naval Micro Nuclear Reactors. John Buckingham. BMT	Simulator for Manoeuvring Assessment of Unmanned Surface Vehicles. Paria Rezayan. Sheffield Hallam University	performances for an ammonia-fuelled large passenger vessel. Simone Piccardo. University of Genova - Thermochemical Power Group	economic feasibility of the remanufacturing of reclaimed stiffened panels. Massimo Coppola. TNO	Engine Using Gas-Wise Autoencoder Residuals. Youri Linden Delft University of Technology	
1520	58NE Considerations for commercial nuclear reactor types on medium sized ships. Gert-Jan Meijn. Damen Naval	19NE Data-driven decision support for maritime operations. Fenneke Sterlini Marin	35NE Lifecycle Assessment to Minimise Emissions in Ships. Stewart Downie. Babcock International	81NE Towards Net-Zero Shipbuilding: A Mathematical Model for Emissions from Construction and Maintenance Phases. Ahmed Balata. University of Liverpool		
1545	Session discussion	Session discussion	Session discussion			
1600	Coffee Break					
1630	Modern naval power and propulsion	Autonomous navigation	System integration and assessment	Interactive Sessions: methanol on warships	Interactive sessions: Environmental impact reduction	Interactive sessions: Environmental impact reduction
Room	Pentland	Prestonfield	Holyrood	Salisbury		
Chair	Cdre (Rtd) John Voyce OBE FIMarEST, Halo Programme Director, GE Vernova	Dr Michele Martelli, FIMarEST, Associate Professor University of Genova	Capt, Sean Feenan, FIMarEST Exec Director, Fleet Support Royal Australian Navy	John Buckingham, FIMarEST, Chief Mechanical Engineer, BMT.		
1630	37NE* Novel Naval Power Generation: Utilising Modern Technology to Challenge Conventional Concept Design. Josiah Carron, Elliot Brown and Romana Majid. Babcock International Group	50SC* Learning to Approach: Whole-Body Diffusion Policies for Underwater Vehicle-Manipulator Intervention. Sara Aldhaheri. University College London	27NE Very Light Reading: The Next Phase of Ship-LDEW Integration. Hayden Cole and Fred Ogilvie. BAE Systems	17NE Methanol on Warships: Quantifying the Risk of Vapour Cloud Explosions and Toxic Exposure. Marnix Rhijnsburger, Dorien Stroeve, Chris de Ron and Farah Bziker. TNO	93NE Passive Air Lubrication through Salvinia-Inspired Surfaces for Vessel Drag Reduction and Decarbonization: A Review of Coating Mechanisms, Biofouling Interactions, and Operational Performance. Mansi Chawla. National Centre of Excellence in Green Ports and Shipping, The Energy and Resources Institute	94NE The Digitalization of Asset Integrity: Corrosion and Biofouling Control with Intelligent Digital Skin (CIDS). Michael Maguire. Copsy Technologies Inc.

1655	41SC Transform Shipboard Power and Propulsion Plant operational data at-the-edge to gain smart, optimized, and sustainable performance. Warren Johnson and Johnny Walker. Rockwell Automation	8SC* An Explainable Symbolic COLREG Classifier for Autonomous Ships. Nicola Sabatino. University of Genoa	52NE Next-generation technology integration in naval vessel platforms through Product Line Engineering. Job Perdon, Micha Stam, Koen Droste and Austin Kana. Delft University of Technology	73NE Benefits of two-stage turbocharging in static and dynamic operation for conventional diesel fueled and high-pressure direct injection methanol fueled medium speed generator sets. Jasper Kole. Dutch Ministry of Defence - COMMIT	57SC Long-term environmental and economic assessment of cruise ships under Maritime regulations Simone Piccardo. University of Genova - Thermochemical Power Group	54NE Revisiting cathodic protection due to extensive electrification – The Aegis project. John Prousalidis . National Technical University of Athens
1720	79NE* Sustainable power plant for modern defence assets. Panagiotis Karvounis. University of Strathclyde	59SC High-Resolution Flash Lidar for Short-Range Underwater 3D Perception. Eleonoor Bosch CSEM	46NE The Importance of Radar Cross Section Prediction to the Survivability of Modern Surface Combatants in the Future Operating Environment. Kirrie Wallace, Malcolm Robb and Jill Savva. BAE Systems			99NE Improving hull corrosion protection and reducing related threat signatures for naval platforms. Paul Rawlins ESCO Maritime Solutions
1745	Session discussion	Session discussion	Session discussion			
1800	Welcome reception					

	Wednesday 11 November				
800	Registration and coffee				
900	Plenary – Industry collaboration Opening remarks – Conference chairs				
915	Sir Simon Lister KCB, OBE, Managing Director, Naval Ships, BAE Systems REng,				
930	Roberto Chiti, Product Manager Automation & Control, Fincantieri NexTech				
945	Claudia Hessen, Manager Regulatory & Integrity Energy & Control, Kongsberg				
1000	Discussion				
1030	Coffee Break				
1100	Two-minute silence observed for Armistice Day				
1100	Cyber Security	Resilient Naval Ship Design	Operations and resilience	Interactive Sessions: Energy Optimisation	Interactive Sessions: Power systems hardware the loop
Room	Pentland	Prestonfield	Holyrood	Salisbury	
Chair	Capt, David Goldsmith, DI CA Mar DH, MOD	Capt Derek Powles, FIMarEST Littoral Lift Programme Director, Royal Navy	Lt Scott Chapman, MIMarEST, Engineering Support Officer Royal Navy	Capt, Rinze Geertsma, FIMarEST, Associate Professor. Netherlands Defence Academy	
1100	54SC A Preliminary Study of Cyber Attacks on Maritime LiDAR Situational Awareness. Giacomo Longo. Universita degli Studi di Genova	10NE Assessing the Functional Vulnerability of Naval Combatants in early Ship Design. Tom Philipson Hamburg University of Technology	75NE Admiralty Salvage at a Crossroads - Evolving Maritime Recovery for Next-Generation Naval Platforms. Jake Guest, MIMarEST. DE&S - Salvage & Marine Operations	7SC Time-Indexed Mixed-Integer Optimisation of Electric Harbour- Fleet Assignment, Routing and Shore-Power Charging. Sankarshan Durgaprasad. Delft University of Technology	20SC Developing a suite of Hull, Mechanical, and Electrical (HM&E) Control Systems. Vincent Piesetzkie, Graig Jolley and Peter Grech NAVSEA Philadelphia
1125	9NE* The Combat Network as the Weapon. Morgan Colbeck. Royal Navy	33NE An early concept-stage resilience network tool for identification of vulnerable connectivity in distributed engineering systems. Giota Paparistodimou, Philip Knight and Malcolm Robb. BAE	57NE* Enhancing Operational Availability of Surfaced Submarines in Waves using a Reinforcement Learning Controller. Mathieu Courdier. MARIN	46SC A Short-Term, AI-based Electric Load Forecaster for a High Responsive Shipboard Energy Management. Massimo Figari. Italian Navy	51SC Modelling Extra-Propulsive Loads in Shipboard Power Systems. Federico Graffione. University of Genoa

1150	6NE* Electronic Warfare: The Invisible Enemy of Maritime Autonomy. Peter Macaulay. <i>Royal Navy</i>	82NE Battle Barges and Mega Modules – possible applications for multi-part vessels. Dr Rachel Pawling. <i>UCL</i>	4SC* Enhancing maritime Search And Rescue operations through LiDAR and thermal imaging fusion. Filippo Ponzini. <i>University of Genoa</i>	17SC Physics-based Multidomain Energy Model for a Cruise Vessel: Development, Validation & Operational Application. Dr Giovanni Vaccarini. <i>Fincantieri Spa</i>	29SC Closed-loop back-to-back testing for replacing obsolete naval gas-turbine control systems. George Tucker <i>Rolls Royce Plc</i>
1215	Session discussion	Session discussion	Session discussion		
1230	Lunch				
Afternoon Parallel Sessions					
1330	Increasing autonomy and reduced crews	Digital Twins	Resilient naval ship design	Special Interactive Sessions: Decision support system towards autonomous navigation: the project MOST	
Room	Pentland	Prestonfield	Holyrood	Salisbury	
Chair	Capt Jules Lowe, MIMarEST Royal Navy (Rtd)	Kirsty Mills, Chief Project Engineer, Rolls Royce	Jeff Cohen, Chief Engineer. US Navy	Dr Michele Martelli, FIMarEST. Associate Professor. University of Genova	
1330	11NE Temporal Assurance in Autonomous Systems: The Problem of Justifying Decision-Making Under Uncertainty in Open-Environments. Liam Talbot. MIMarEST <i>Price Waterhouse Coopers</i>	12SC Digital Twins for Naval Gearboxes. Nikolas Albrecht <i>RENK GmbH</i>	19SC* Time-domain simulation tool for propulsion performance assessment of a nuclear-powered naval vessel. Eleonora Zanaboni <i>University of Genoa</i>	6SC Improving Maritime Situational Awareness: A Spectral Filtering Method for Weak Target Detection. Giovanni Ludeno. <i>Institute of Electromagnetic Sensing of the Environment, National Research Council of Italy</i>	45SC A Framework for the development of a decision support system for ship underwater radiated noise. Fabio Colotto <i>University of Genoa</i>
1355	15NE Use of a Commercial Crew for Sea Trials. John Newell, FIMarEST <i>Babcock International</i>	14NE From Siloed Systems to Connected Decisions: Systems Elements Analysis in Early-Stage Naval Ship Design. Zacharias Oikonomou <i>TU Delft</i>	31SC Real Time Simulation Validation of a Decentralized Economic Dispatch for Marine Power Systems. Brendan McCoy <i>Naval Surface Warfare Center</i>	11SC A Real-Time GNC Architecture for Marine Autonomous Surface Ships. Raphael Zaccone and Dr Michele Martelli <i>Università degli Studi di Genova</i>	
1420	18NE Aligning Naval Electrical Systems and Minimum Crewing: Challenges, Implications, and Design Principles for Future Platforms. Bill Moseley. <i>BMT</i>	96NE Digital Twins: Foundation of connected naval autonomous operations. Ivan Pena <i>Navantia</i>	24SC Design and automation of an ROV docking system for an XLUUV. Martin Gülland <i>University of Rostock, Institute of Automation</i>	28SC Quantitative Evaluation of Marine Vehicle Cooperative Control in Harbour-Like Experiments. Dr Angelo Odetti <i>CNR-INM</i>	
1445	Session discussion	Session discussion	Session discussion		

1500	Coffee Break				
1530	Mission modularity	Technology development and safety	The internal Battle	Interactive Sessions: Decision support and autonomy	Interactive Sessions Autonomy and cyber security
Room	Pentland	Prestonfield	Holyrood	Salisbury	
Chair	Capt Neil McCallum, MIMarEST, Royal Navy (Rtd)	Dr Rose Norman, Reader in Marine Electrical Systems. Newcastle University	John Buckingham, FIMarEST, Chief Mechanical Engineer. BMT	Prof Alistair Greig, FIMarEST. UCL	
1530	48NE Evaluation and validation of the added value of modularity for specialized ships during concept exploration: A critical systematic review. Micha Stam. Delft University of Technology	45NE* Let's Not Tie Ourselves in Knots: Adapting Safety Case Regimes for Spiral Development Programmes. Alexander Barker and Jessica Morris. Safeguard Engineering Ltd	12NE* Structural Damage Detection in Ships Using a TCN Autoencoder and Motion Response Anomaly Scoring. Ieza Souza Ramos. NHL Stenden	8NE Modern Technology and the Redistribution of Human Autonomy. Dr Peter Spayne. Cranfield University	54SC A Preliminary Study of Cyber Attacks on Maritime LiDAR Situational Awareness. Giacomo Longo. Universita degli Studi di Genova
1555	28NE Thinking inside the box. Deployable capability for the future navy. Steven Howick and Jessica Scott. BAE Systems	53NE Towards the Certification of Naval Systems Employing Artificial Intelligence. Thomas Howe and Stephen Perry. BMT	68NE Optimising Agent-Based Fault Diagnosis for Naval Machinery Breakdown Drills: Closing the Cognitive Gap in Decision Support Architecture. Youri Linden Dutch Navy	2SC Port Vessel Traffic Control for Multi-Type Ships: A Proposed Methodology for Decision Support System Considering Marine Conditions. Silvia Donnarumma. University of Genoa	58SC Securing Shared Accounts in Naval Operational Technology: IAM and Zero Trust Implementation Aligned with ISA/IEC 62443, NIST SP 800-82, and the EU Cyber Resilience Act. Patric Dove. Siemens Government Technologies
1620	13NE* Beyond the Blueprint: Mission Modularity's Impact on Modern Naval Design, Assurance, and Operations. Kaya Nightingale. Lloyd's Register EMEA	80NE* When Looking to Win the Race of Technological Advantage, Do Royal Navy Leaders Need to Change? Alexandra Ward. Royal Navy	84NE Supporting Naval Damage Control Cognition with AI. Igor Lapin. L3 Harris	38NE Allocation of Function (AoF) for Human Autonomy Teaming (HAT). Luca Gallo and Eshan Rajabally. BMT	
1645	Session discussion	Session discussion	Session discussion		
1900	Industry Dinner Edinburgh Suite Sheraton Grand, Hotel & Spa, Edinburgh				
Thursday 12 November					
800	Registration and coffee				

900	Introduction from the Chairs				
915	Capt Mo Magzoub, FIMarEST, Head of Force Development. Royal Navy				
930	Dr Bas Buchner, Program Director of Maritime Uncrewed. Royal Netherlands Navy				
945	Discussion				
1000	Coffee Break				
1030	Autonomous ships and systems	Diesel engine maintenance	Power and propulsion	Interactive Sessions: Ship design and build	
Room	Pentland	Prestonfield	Holyrood	Salisbury	
Chair	Lt Cdr Guy Dimmock, MIMarEST, Marine Engineer Officer Royal Australian Navy	Commodore (Dr) R K Rana, Indian Navy Veteran	Pete Deverill	Prof Yuanchang Liu, UCL	
1030	95NE Synthesis of an Architecture for the Integration of Controllable Autonomous Behaviour in Naval Ship Design. Moritz Luckey. Helmut Schmidt University	26NE* Reducing Maintenance Burden and building resilience for naval engineering systems. Tamsyn Hills and James Fawcett. BMT	34SC* Techno-Economic Framework for Hybrid-Electric Propulsion Retrofitting in Harbor Tugboat Fleets: A Pathway for Sustainable Port Operations in Developing Maritime Infrastructure. Iddi Sungura. Tanzania Ports Authority	26SC Design and Development of an Advanced Robotic Fish. Dr Angelo Odetti CNR-INM	24NE Beyond the Business Case: Structured Evaluation of Digital Transformation Projects in a Naval Shipyard. Jeroen Pruyn Delft University of Technology
1055	22NE Conceptual Architecture and operational design considerations for a large unmanned surface vessel in anti-submarine warfare escort roles. Wytse Hogeveen. Ministry of Defence (NL),	43NE Memory-safe physics-based modelling of marine diesel engines using Rust. Mieszko Kaminski University of Strathclyde	60SC Fuel cells operating on methanol as power supply for naval ships. Carsten Cremers. Fraunhofer Institute for Chemical Technology (ICT)	29NE Progressing the understanding of Engineering Maturity for left shifting risk in complex programmes. Matthew Cook, Martin Douglass. BAE Systems	47NE Integrating Risk-Based Design into Model-Based Systems Engineering for Naval Ship Design. Niek Verhoeven. Delft University of Technology
1120	67NE* Designing the Future Fleet: An Immersive Mixed-Methods Approach to Evaluating Operational Management Concepts. Nikki Okkels Marin	62NE Exploring the Added Value of In-cylinder Pressure for Anomaly-Based Fault Detection in Marine Diesel Engines. Youri Linden. Delft University of Technology	85NE Autonomous Vessels – Don't forget to bring the brainpower. Thoughts on how to feed the 'crew' on an unmanned warship. Nick Smith GE Vernova		
1145	Discussion	Discussion	Discussion		

**BMT/RN Workshop One
Hybrid Navy: What Could
Stop Us Getting There?**

1200	Lunch			BMT/RN Workshop Two Hybrid Navy: What Could Stop Us Getting There?
1300	Autonomous ships and systems	DC power systems	Human machine interface	
Room	Pentland	Prestonfield	Holyrood	
Chair	Lt Cdr Rob Manson, MIMarEST, SURFLOT Carriers and Destroyers Deputy Chief Engineer. Royal Navy	Dr David Wetz, Professor. UT Arlington	Toby Drywood, FIMarEST, Business Development Manager for Ships Support. BMT	
1300	23NE Naval Engineering Collaboration to deliver Capability in a world of ever-growing Competition. Simon McCowan. FIMarEST Royal Australian Navy	55NE Investigation of harmonic distortion in electric propulsion ships with On-shore Power Supply and high integration of power electronic converters. Panos Kotsampopoulos National Technical University of Athens	36SC From Theory to Practice: Implementing CRM Principles in Safety-Critical Systems (2011-2026) Daniel Kelly and Robert Sgroi Naval Surface Warfare Center, Philadelphia Division	
1325	66NE The Challenge of Crewing Future Surface Combatants Malcolm Robb, Ewan MacIntyre, Matthew Ashley and Simon Saunders. BAE Systems Maritime	100NE Hybrid Shipboard Thermal Pulse Management: Passive Thermal Energy Storage Burst Cooling with Chiller Recharge. Isaac Mahderekal and Rasik Patel Honeywell Aerospace and NAVSEA	5SC Human-in-the-Loop AI for Safe and Intelligent Ship Control Systems Dr Sajid Hussain FIMarEST. Bangladesh Marine Academy	
1350	How Fast Can a Warship Absorb New Capability? Jan Hedeman Managing Director SSI.	83NE Added value of supercapacitors in the dynamics of a variable speed genset in a maritime DC architecture; an experimental study. Menno Merts Marin	47SC The Critical Role of the Graphical User Interface in Modern Shipboard Control Systems. Chetan Vajapey KAI Solutions Inc	
1415	Discussion	Discussion	Discussion	
1435	Closing Plenary Session			
1440	Closing Keynote: Sarah Kenny OBE, CEO, BMT			
1500	Presentation of the Sir Donald Gosling Award Presentation of the Patron Awards			
1515	Closing remarks			
1530	Close of conference			