



Monday 4th November				
13:00 – 16:45	Industrial visit to Cammell Laird shipyard			
	Tuesday 5 th November			
09:00	Registration & breakfast			
09.45	Introduction from the Chairs, RAdm JJ Bailey, Royal Navy and Capt Rinze Geertsma,			
10:00	Keynote: Vice Admiral Martin Connell CBE, Second Sea Lord			
10:15	Keynote: Rear Admiral Tom Anderson, US Navy			
10:30	Keynote: Rear Admiral Rachel Durbin, <i>Head of Navy Engineering</i> , Royal Australian Navy			
10:45	Keynote: Rear Admiral Steve McCarthy, CNEO UK, Royal Navy			
11:00	Discussion			
11:30	Coffee Break			
Standard 25 minute presentations				Simultaneous Interactive sessions
12:00	Ship design and integration	Auxiliary equipment	EU safe navigation special session	Human machine Integration
Room	Spaces One and Two	Spaces Four and Five	Spaces Eight and Nine	Spaces Six
Chair	Toby Drywood BMT	Lt Scott Chapman Royal Navy	Dr Michele Martelli, University of Genova	Tamsin Dawe Babcock
12:00	T26 global combat ship – More than just a submarine hunter Speakers: Cdr Stephen Taylor, Lt Cdr Mathew Fuge Royal Navy	Improving energy efficiency of HVAC systems on navy ships Speaker: Younus Abbas Babcock International	A structured simulation framework to validate marine collision avoidance algorithms Speaker: Dr Raphael Zaccone University of Genova	Improving the internal battle in a navy ship by adding situation awareness by means of using a 3D geospatial model combined with a linked data model of this ship. Design phase Speaker: Lt CDR (E) Youri Liden. Royal Netherlands Navy
12:25	Widening the net of the future air dominance system Speaker: Alex Pardoe	Supplementing experience-based platform system	Continuous integration for the development of a COLREG-compliant decision support system	Enhancing internal battle operations through the battle damage repair tool

	Steller Systems Ltd	robustness requirements to network theory Speaker: Evelien Scheffers Delft University of Technology	Speakers: Quentin Ageneau, Guillaume Nulac Sirehna	Speakers: Lesley van Zijl, Lt CDR(E) Youri Liden. RH Marine, Royal Netherlands Navy
12:50	Physical resistance components of a hydrofoil as a function of submergence Speaker: Lev Chernyshev University of Canterbury & Emirates Team New Zealand	Designing in reconfigurability and adaptability to deliver lean and mean naval combatants. Speaker: Harry Schweidler Babcock International Group	Comprehensive approaches to enhance maritime wireless networks: A survey Speaker: Dr Jas Powell Global Maritime Services	<u>RESILIENT: Advance a ship’s HM&E resiliency through contextual information models and innovative ML/AI analytics At-The-Edge</u> Speakers: Capt. Johnny Walker & Warren Johnson Rockwell Automation, Thor Solutions
13:15	Session discussions			
13:30	Lunch			
14:30	People	EDDI &Green fuels	Data driven and model based optimisation	Power systems
Room	Spaces One and Two	Spaces Four and Five	Spaces Eight and Nine	Spaces Six
Chair	Capt Sean Feenan Royal Australian Navy	Capt. Neil ‘Scotty’ McCallum Royal Navy	Dr Andrea Coraddu TU Delft	Capt (E) dr. ir. Rinze Geerstma, Netherlands Defence Academy
14:30	A revised operating model for the marine engineering general service to improve the lived experience of surface fleet marine engineers Speaker: Lt James Ellis Royal Navy	Truth behind green alternatives for future ship design Speaker: Jade Sheasby BMT	Enhancing predictive maintenance in the maritime industry with unsupervised learning. Speakers: Alessandro Caviglia, Dr Nicolo Faggioni Fincantieri NexTech & Argo IT	Validation of power system control methodologies using a microgrid testbed employing low and medium voltage (MV) AC and DC sources Speaker: Dr. David Wetz UT Arlington
14:55	Addressing the modern need for electrical skills in the maritime sector. Speaker: John Prousalidis NTU Athens, University of Strathclyde, & Hellenic Electricity Distribution Network Operator	A suggested energy efficiency index for warships Speaker: John Buckingham BMT	A modular and autonomous propulsion system for unmanned marine vehicles Speaker: Dr Angelo Odetti CNR-INM	<u>Investigation on shipboard power quality on Cruise ships under high penetration of power converters.</u> Speaker: Federico Graffione University of Genoa & Carnival Frequency control and stability of a ship electric power system emulator.

15:20	Autonomy is the answer, but what was the question? Speaker: W02 Peter Spayne Cranfield University / Royal Navy	Optimization of propulsion layout & energy management system for future marine powertrains using co-design Speakers: Dr. Nikolaos Sakellaridis, Gert-Jan Meijn Damen Naval	Automatic maneuvering of vessels with power-optimized thrust allocation. Speaker: Dr Agnes Schubert University of Rostock, Institute of Automation, Germany	Speakers: John Prousalidis, Georgios Tsourakis NTUA, School of Electrical & Computer Engineering,
15:45	Session discussions			
16:00	Coffee Break			
16:30	Regulations & autonomy	Hydrogen Fuels	Energy Storage/DC architecture	Safety assurance and autonomy
Room	Spaces One and Two	Spaces Four & Five	Spaces Eight and Nine	Spaces Six
Chair	Cdr Amy Glover Royal Navy	Oliver Simmonds BAE	Dr David Wetz University of Texas	Capt. David Goldsmith Royal Navy
16:30	Charting the course: Navigating the Royal Navy’s autonomous challenge with synthetic assurance Speaker: Reece Oliver Ministry of Defence	Dual fuel technology: A route to reduce emissions. Speakers: Dr Thomas Beard, Rhod Griffiths BMT	Energy profiling and planning and multi-objective optimization algorithms comparison performance Speaker: Despoina Mitropoulou RH Marine	Autonomy is the answer, but what was the question? Speaker: W02 Peter Spayne. Cranfield University / Royal Navy
16:55	Analysis of the current regulatory landscape for autonomous and remotely operated vessels in development and use by the Australian Defence maritime enterprise Speaker: Dr Rachel Horne Royal Australian Navy	Solid hydrogen carriers as an alternative fuel and impact damper Speaker: Erin van Rheenen Delft University of Technology	Battery energy storage system sizing strategy for naval vessels through multi-objective optimization Speakers: Daniele Belvisi, Luca Maloberti University of Genoa	Is Regulation really the barrier? Exploring the opportunities and challenges in certifying maritime systems with increased automation and autonomy Speaker: Adrian Payne Safeguard Engineering Limited
17:20	Certifying for operate safely – Building trust in Naval USVs Speakers: Chris Baker, William Balfour Ministry of Defence	Application of quantum technology for generation of green solar hydrogen from sea water for naval applications Banaras Hindu University	Selecting the energy storage technology for surface combatants with DC power distribution Speaker: Lars Appelstroem ABB	Test and assurance of radical new ship designs Speaker: Matt Hood Nova Systems
17:45	Session discussions			Ensuring maritime cyber resilience Speaker: R. Srinivas Indian Register of Shipping
18:00	Welcome Reception			
	Wednesday 6 th November			

08:00	Registration and coffee			
09:00	Plenary – Industry collaboration Opening remarks – Conference chairs: RAdm JJ Bailey, Royal Navy and Capt (E) dr.ir. Rinze Geertsma, Netherlands Defence Academy			
09:15	Keynote: Marnix Krikke, Deputy Director, International Military Maritime Cooperation, Netherlands, MoD			
09:35	Keynote: Lino Magnoni, Head of Unmanned Integration Department Fincantieri – Naval Business Unit			
09:55	Keynote: Sarah Kenny, OBE, Chief Executive, BMT			
10:15	Discussion			
10:30	Coffee Break			
11:00	Data exploration Nuclear	Efficiency & electrical DC	Data exploitation	Workshop
Room	Spaces One and Two	Spaces Four and Five	Spaces Eight and Nine	Spaces Seven
Chair	Prof. Alistair Greig UCL	Prof. Mehdi Zadeh NTNU	Commodore (Dr) R K Rana	Toby Drywood BMT
11:00	Dynamic power behaviour of a nuclear power plant integrated in naval vessels Speakers: Gert-Jan Meijn, Tom Wien Damen Naval	Digital twin simulation model of hull-propeller-engine interactions for ship condition monitoring in irregular sea navigation. Speaker: Dr Maria Acanfora University of Naples "Federico II"	Optimizing fuel management for Halifax class frigates: leveraging sensor data for enhanced efficiency L3Harris	Towards modularity and adaptability: Do uncrewed ships hold the key to enhanced versatility? Speakers: Jake Rigby, Will Alexander, Andy Kimber, Dr Eshan Rajabally
11:25	Molten salt reactors: Current technology status and the challenges for maritime applications Speaker: Matthew Dunn Occam Group Ltd	DC secondary distribution grids on future naval ships: a comparison with conventional AC distribution systems and their safety aspects Speakers: Despoina Mitropoulou, Dr Djurre Wikkerink Power Systems & RH Marine	Necessity is the digital mother of invention Speaker: Lt Cdr. Liam Talbot Royal Navy	
11:50	Mobile marine fuel generation based on a micro nuclear reactor Speakers: Dr Rachel Pawling, Neil Kapoor UCL	Validation of power system control methodologies using a microgrid testbed employing low and medium voltage (MV) AC and DC sources Speaker: Dr. David Wetz UT Arlington, Clarkson University, Florida State University & NSWC – Philadelphia	Ensuring maritime cyber resilience. Speaker: R. Srinivas Indian Register of Shipping	
12:15	Session Discussions			

12:30	Lunch			
13:30	Hull Design	Alternative Fuels	Resilient Human Machine interaction	Safety & Autonomy
Room	Spaces One and Two	Spaces Four and Five	Spaces Eight and Nine	Spaces Six
Chair	Michel Janssen Netherlands Defence Materiel Organisation	Lt Cdr Henry Prior Royal Navy	Jeff Cohen Naval Surface Warfare Center	Mel Scot QinetiQ
13:30	Design for adaptation – Ships and the systems of the future Speaker: Paolo Orefice Royal Australian Navy	Charting a greener course: A review of mature technologies for lowering vessel GHG emission Speaker: Tom Klakeel Royal Australian Navy & Australian Maritime College	Enhancing internal battle operations through the battle damage repair tool Speakers: Lt CDR (E) Yuri Liden, Lesley van Zijl, RH Marine Royal Netherlands Navy	Safety critical items in naval systems Speakers: Daniel Gardner & Charles Brooking MOD – DE&S
13:55	The application of physics-based 3D modelling software in ship design and maneuverability trials Speaker: Dr Talal Alhajeri Mekhtaf Design and Engineering	‘Alternative Fuels’ or ‘Koolaid’?: Maintaining focus and perspective when considering options for future naval fuels Speaker: John Polgaze PGM Environment	UK’s Intelligent ship project phase 3 – Focusing on the human in HAT Speaker: Andy Tate Dstl	Rationalising safety cases for naval systems Speaker: James Inge Defence Equipment & Support
14:20	Comparative analysis of AI-Based optimisation techniques for a conceptual frigate hull form design Speakers: Nicola Paterson, Fernando Gamboa BAE Systems	Application of commercial advances to support the naval energy transition Speaker: William Ayliffe BMT	RESILIENT: Advance a ship’s HM&E resiliency through contextual information models and innovative ML/AI analytics At-The-Edge Speakers: Capt. Johnny Walker & Warren Johnson Rockwell Automation, & Thor Solutions	Maritime autonomy and safety at sea Speakers: Dr Eshan Rajabally, Matt Wylie BMT
14:45	Session Discussions			
15:00	Coffee Break			
15:30	Vessel design	Maintenance	Full electrical architecture	Networking & Architecture
Room	Spaces One and Two	Spaces Four and Five	Spaces Eight and Nine	Spaces Six
Chair	Rob Skarda, Stellar Systems	Tamsin Dawe Babcock	Pete Deverill Rolls Royce	Julian Lowe L3Harris
15:30	Should royal navy ships designed for optional crewing only enable humans to survive, or also enable them to thrive? Speaker: Alexandra Ward	A future green navy – sustainable support to the Royal Navy Speakers: Elliot Tucker, Jim Goodship Ministry of Defence	Designing Fit-to-Receive DC power systems for alternate energy sources and future loads Speaker: Jørgen Hagset Stavnesli ABB	Supplementing experience-based platform system reliability requirements to network theory Speaker: Evelien Scheffers

	Royal Navy			Delft University of Technology
15:55	Margins – their use as metrics and Key Performance Indicators when Designing and building warships Speaker: Simon Fleisher Gibbs and Cox Australia	Towards a data-driven naval maintenance organisation: the importance of a social roadmap Speakers: Dr Wieger Tiddens, Lt. Sophie Zeldam Royal Netherlands Navy	Conceptual design and verification of the power, propulsion, and energy system for a future surface combatant Speakers: Moritz Kirjgsman, Udai Shipurkar MARIN	A triple-network-layer method for designing high resilience system architectures Speakers: Dr Giota Paparistodimou, Dr Philip Knight BAE Systems & University of Strathclyde
16:20	Advancing unmanned surface vessel design: a circular economy response to global conflict evolution SubSea Craft	Safety critical items in naval systems Speakers: Daniel Gardner & Charles Brooking MOD – DE&S	From cruise ships to combat – Evaluating power and propulsion technologies for a lean warship Speaker: Edward Penn Rolls-Royce	Designing in reconfigurability and adaptability to deliver lean and mean naval combatants Speaker: Harry Schweidler Babcock International Group
16:45	Session Discussions			
19:00	Event Social, Hilton Hotel, Liverpool 3 Thomas Steers Way, Liverpool L1 8LW City Centre			
	Thursday 7th November			
08:00	Registration and Coffee			
09:00	Autonomous navigation	Power systems	Machine Learning and AI	Autonomous power and propulsion
Room	Spaces One and Two	Spaces Four and Five	Spaces Eight and Nine	Spaces Six
Chair	Dr Angelo Odetti CNR-INM	Oliver Simmonds BAE	Dr Krishna Nagalingam Kongsberg Maritime	Dr Michele Martelli University of Genova
09:00	Development of a low cost unmanned surface vessel for autonomous navigation in shallow water Speaker: Dr. Yogang Singh Sheffield Hallam University	Shocking permanent magnet motors for naval applications Speakers: W02 Peter Hart, Ben Mound GE Power Conversion	Real-time critical marine infrastructure multi-sensor surveillance via a constrained stochastic coverage algorithm Speakers: Nicola Sabatino, Filippo Ponzini University of Genoa	Autonomous machinery control systems for naval unmanned surface vessels Speaker: Michael Roa NAVSEA.

09:25	Towards design of an autonomous navigation framework for unmanned surface vessels using marine robotics unity simulator. Speaker: Dr. Yogang Singh Sheffield Hallam University	Enhancing U.S. naval power through energy supportability and demand reduction. Speakers: Emily Pence, Henry Jones US Navy	Energy-efficient speed planning considering dynamic environmental conditions for inland vessels Speaker: Ir. Simeon Slagter Delft University of Technology	A modular and autonomous propulsion system for unmanned marine vehicles Speaker: Dr Angelo Odetti CNR-INM
09:50	Neuro adaptive integral sliding mode control based on composite learning for path following of underactuated underwater vehicle : Blucy. University of Bologna	Hybrid turbocharging for alternatively fueled internal combustion engines in naval applications. Speaker: Ir Jasper Vollbrandt TU Delft	Improving the internal battle in a navy ship by adding situation awareness by means of using a 3D geospatial model combined with a linked data model of this ship. Design phase. Speakers: Robert Voute, Lt CDR (E) Youri Linden, Lesley van Zijl Delft University of Technology, Royal Netherlands Navy, RH Marine	State-of-the-art full-scale simulator for ship hybrid power system in a shuttle tanker Speaker: Pramod Ghimire Kongsberg Digital Automatic maneuvering of vessels with power-optimized thrust allocation Speaker: Dr. Agnes Schubert University of Rostock, Institute of Automation, Germany
10:15	Session Discussions			
10:30	Coffee Break			
11:00	Emissions Part 1	Safety and autonomy	Electrical Power Systems	NNCC Workshop 1100-1500
Room	Spaces One and Two	Spaces Four & Five	Spaces Eight & Nine	Spaces Seven
Chair	Lt Cdr Rob Manson Royal Navy	RAdm Klass Visser TU Delft	Prof. Mehdi Zadeh NTNU	Capt (E) dr. ir. Rinze Geerstma, Netherlands Defence Academy
11:00	Experimental and modelling studies on HVO-methanol mixtures separation for superyachts applications. Speaker: Ir. Ernesto La Colla Feadship & Delft University of Technology	Test and assurance of radical new ship designs. Speaker: Matt Hood Nova Systems	Power management system load power regulation for zonal secondary DC-grids survivability: A load priority-based approach Speaker: Bart Wingelaar Royal IHC	Northern Naval Capabilities Cooperation Workshop – Invitation only
11:25	Naval sector and decarbonisation using industry 4.0. Speaker: Commodore (Dr) R K Rana, Indian Navy Veteran	Rationalising safety cases for naval systems. Speaker: James Inge Defence Equipment & Support	Investigation on shipboard power quality on Cruise ships under high penetration of power converters Speaker: Federico Graffione University of Genoa & Carnival	

11:50	Through life carbon emissions and mitigation opportunities. Speakers Dr. Thomas Beard, Rowan Wilkinson BMT	Maritime autonomy and safety at sea. Speakers: Dr. Eshan Rajabally, Matt Wylie BMT	Frequency control and stability of a ship electric power system emulator Speakers: John Prousalidis, Dr Georgios Tsourakis NTUA, School of Electrical & Computer Engineering,	
12:15	Session discussions			
12:30	Lunch			
13:15	A Lean, Mean, Atomic Queen? - The ultimate mission module Nicholas Smith, Executive: Global Systems Product and Technology Leader, GE Power Conversion			
13:40	Autonomous machinery control systems for naval unmanned surface vessels. Michael Roa, Naval Sea Systems Command (NAVSEA), US Navy			
14:05	Discussion			
14:20	Closing Keynote: VAdm Paul Marshall, DE&S Royal Navy			
14:40	Presentation of the Sir Donald Gosling Award Presentation of the Patrons award			
14:50	Close of Conference			