

2022 Ocean Dreams INTERNATIONAL SUMMER SCHOOL ON NAVAL ARCHITECTURE, OCEAN
ENGINEERING AND MECHANICS

Shanghai Jiao Tong University
Aug.8th (Monday)- Aug.13th (Saturday)

Program

Tencent Meeting Download Link: <https://voovmeeting.com/download-center.html?from=1001>

Meeting ID: 575-8297-3926 Password: 202208

China Standard Time UT+8:00 (CST), Monday, Aug.8 th	
Chair: Dr. Long Yu	
09:30-09:35	Opening Ceremony
09:35-09:45	Speech from Ms.Wang Graduate School of SJTU
09:45-09:55	Speech from Prof. Yang, Vice dean of NAOCE
09:55-10:05	Group photograph
10:30-14:00	Lunch break
Chair: volunteer	
14:00-15:00	Tour & Ice breaking & Activities

China Standard Time UT+8:00 (CST), Tuesday, Aug.9 th	
Chair: Dr. Aichun Feng	
08:30-08:50	Intro: Deep sea mining
09:00-09:45	Keynote Speaker 1: Prof. Nianzhong Chen Title: VIV of flexible riser transporting high-speed spiral flow in deep-sea mining
09:45-09:55	Q&A
10:00-10:45	Keynote Speaker 2: Professor Yijun Shen Title: Key Mechanical Issues and Technical Challenges of Deep-sea Mining Development System
10:45-10:55	Q&A
11:00-11:45	Keynote Speaker 3: Professor Yu Dai Title: Deep Sea Mining Technology and Equipment: Current Status and Future Prospects
11:45-11:55	Q&A
12:00-14:00	Lunch break
Chair: Dr. Aichun Feng	
14:00-14:45	Keynote Speaker 4: Professor Qin Zhang Title: Environment impact of deep sea mining
14:45-14:55	Q&A
15:00-15:45	Keynote Speaker 5: Prof. Zhiming Yuan Title: Formation Swimming by Multiple Bodies
15:45-15:55	Q&A

China Standard Time UT+8:00 (CST), Wednesday, Aug.10 th	
Chair: Dr. Run Chen	
08:30-08:50	Intro: Shipping decarbonization
09:00-09:45	Keynote Speaker 6: Mr. Daniel Song

	Title: Shipping Decarbonization - A real pusher by EU ETS and FuelEU Maritime
09:45-09:55	Q&A
10:00-10:20	Intro: Polar engineering
11:00-14:00	Lunch break
Chair: Dr. Youjiang Wang	
14:00-14:45	Keynote Speaker 7: Dr. Fang Li Title: Ice load on Polar ships
14:45-14:55	Q&A
15:00-15:45	Keynote Speaker 8: Prof. Spyros Hirdaris Title: A scenario-based risk management for arctic waters
15:45-15:55	Q&A

China Standard Time UT+8:00 (CST), Thursday, Aug.11th

Chair: Dr. Run Chen

10:00-10:45	Keynote Speaker 9: Prof. Keiya Nishida Title: Ignition, Flame Development and Soot Formation Processes of Biodiesel Fuel Spray
10:45-10:55	Q&A
11:00-14:00	Lunch break
Chair: Dr. Run Chen	
14:00-14:45	Keynote Speaker 10: Prof. Dawei Wu Title: Commercial and disruptive technologies for deepsea shipping decarbonization
14:45-14:55	Q&A
15:00-15:45	Keynote Speaker 11: Prof. Tie Li Title: Ammonia as alternative fuel for zero-carbon shipping
15:45-15:55	Q&A
16:00-16:45	Keynote Speaker 12: Prof. Qian Xiong Title: Advantages and application of LNG for marine engines to meet the challenges
16:45-16:55	Q&A

China Standard Time UT+8:00 (CST), Friday, Aug.12th




Chair: Dr. Youjiang Wang

09:00-09:45	Keynote Speaker 13: Dr. Mikko Suominen (Teams link: https://teams.live.com/join/9396074836079 / broadcasting in Voov) Title: Model Scale Testing in Ice
09:45-09:55	Q&A
10:00-10:40	Tour & Activities
11:00-14:00	Lunch break
Chair: Dr. Youjiang Wang	
14:00-14:45	Keynote Speaker 14: Dr. Liangliang Lu Title: Risk management of shipping in ice covered waters
14:45-14:55	Q&A
15:00-15:45	Keynote Speaker 15: Mr. Mingyang Zhang Title: Big data analytics for ship safety management in ice-covered waters: framework, evaluation,

	and applications
15:45-15:55	Q&A
16:00-16:45	Keynote Speaker 16: Dr. Luofeng Huang Title: Modelling of ship interaction with ice floes and its application on the Northern Sea Route
16:45-16:55	Q&A

China Standard Time UT+8:00 (CST), Saturday, Aug.13 th	
Chair: Dr. Long Yu	
09:00-10:00	Closing Ceremony

Tables with identical color share the same topic.

	Topic: Deep sea mining
	Topic: Shipping decarbonization
	Topic: Polar engineering

Biography

1. Nianzhong Chen

Career Profile:



Dr. Nianzhong Chen is a Professor (“Peiyang Distinguished Professor”) at School of Civil Engineering, Tianjin University, China. He is an associate editor of Journal of Offshore Mechanics and Arctic Engineering – ASME and an editorial board member of Chinese Journal of Ship Research. Before he joined Tianjin University, he was working as a Senior Lecturer at School of Engineering, Newcastle University, UK. Prior to that, he worked for American Bureau of Shipping (ABS), Houston, TX, USA for seven years where he specialized on industry standard development and advanced R&D projects. His research interest is primarily focused on structural integrity and reliability assessment for marine structures (Merchant ships, FPSO, offshore wind turbine, Semi, TLP, Riser & pipeline, etc), including ultimate strength prediction, fatigue and fracture mechanics analysis, corrosion fatigue, engineering critical assessment (ECA), structural reliability analysis, risk-based inspection (RBI), risk analysis, digital twin (DT), etc. As PI, he was in charge of 25+ projects from US and UK offshore oil & gas companies, including ExxonMobil, BP, GE, DNVGL, etc. In addition, he is currently a committee member of International Ship and Offshore Structures Congress (ISSC), a member of Scientific Committee (Structures, Safety and Reliability) of International Conference on Ocean, Offshore and Arctic Engineering (OMAE) (ASME), a member of international conference organizing committees of COTech and MARTECH, a member of ASME and SNAME. He was a member of technical committee of Ship Structure Committee (SSC) projects of USA, a technical committee member of Joint Industry Projects (JIP) and industry Joint Development Projects (JDP) of USA, a member of international conference organizing committees of MARSTRUCT, IMAM, etc.

2. Yijun Shen

Career Profile:



Prof. Yijun Shen is currently a Chair Professor and Deputy Director in State Key Laboratory of Marine Resource Utilization in South China Sea based in Hainan University. Prof. Shen is the Fellow in the Institute of Marine Engineering, Science & Technology (FIMarEST), UK, and also the Technical Program Committee and the Session Chair/Organizer in Subsea, Pipelines, Risers & Umbilicals in the International Society of Offshore and Polar

Engineers (ISOPE). He has more than 25 years' experience in China & UK in both international leading companies and prestigious universities, and had worked in Wood Group, Wellstream Flexibles, GE Oil & Gas, and ROSEN Group as the Principal Consultant Engineer / Flexible Riser Expert/ R&D Technology Manager, etc., he also worked in Brunel University, Cranfield University and University of Southampton, UK for EPSRC research projects.

3. Dai Yu

Career Profile:



Long-term engaging in deep sea mining technology and equipment research, especially the multidisciplinary design optimization, multi-body coupled dynamics and coordinated motion control of deep sea mining system. Host more than 20 subjects in the field of deep sea mining. Published more than 80 academic papers, including TOP journals such as Ocean Engineering, Engineering Applications of Computational Fluid Mechanics, etc.

4. Qin Zhang

Career Profile:



Since September 2018, Dr.Qin Zhang has been working in college of Engineering, Ocean University of China as Associate Professor. From September 2015 to August 2018, he worked in the Keppel-NUS Corporate Laboratory in the National University of Singapore to study flow in turbomachinery with OpenFOAM. From December 2010 to August 2015, he worked and granted Ph.D degree in the innovative O-tube research facilities at the University of Western Australia, and involved in many industry and research projects related to offshore engineering. Before he went to Australia, he also conducted experiments in traditional test facilities such as wave flume and wave basin in China.

5. Zhiming Yuan

Career Profile:



Dr. Zhiming Yuan has been a Lecturer (2015-2019) and then a Senior Lecturer (2019 -) in the Department of Naval Architecture, Ocean and Marine Engineering at the University of Strathclyde at Glasgow. He received his PhD degree at Strathclyde in 2014 on Marine Hydrodynamics. His research activity mainly focused on the Marine Hydrodynamics and Offshore Renewable Energy, and he has published more than 100 peer-reviewed articles on these areas. Dr Yuan is currently acting as the Scientific Managing Editor for Ocean Engineering, Applied Ocean Research, Coastal Engineering and Marine Structures, Associate Editor of Frontiers in Energy Research and editor board member of several international journals. He is an ITTC committee member and secretary of ITTC Maneuvering Committee. He is currently leading the Hydrodynamics and Ocean Renewable Energy Laboratory (HOREL) at Strathclyde. His research work on wave interference has been selected as Focus on Fluids article by Journal of Fluid Mechanics, and highlighted by Nature (Nature. 565(7741):538), and been widely reported by TheTimes, DailyMail, Today Headline, ScienceNews, 知识分子, etc.

6. Daniel Song

Career Profile:



Mr. Daniel Song had worked in MAN-ES, and been responsible for technical support for 2-stroke low-speed dual-fuel engines. He joined Bureau Veritas in 2020 and is currently serving as the expertise center sustainability manager in the Shanghai office. He mainly takes charge of the market and technical support of new technologies related to sustainable shipping development, marine energy conservation, and emission reduction regulations and technologies.

7. Li Fang

Career Profile:



Currently works as a postdoctoral researcher at Aalto University. He received his education in the field of marine technology from Dalian University of Technology, Norwegian University of Science and Technology, and Aalto University. His research is dedicated to the safe and efficient design of polar ships. Dr. Li Fang has extensive experience in theoretical modelling, experimental study, as well as field test. He has published 15 journal articles and served as journal guest editor, conference session chair and journal paper reviewer for the scientific community.

8. Spyros Hirdaris

Career Profile:



Prof. Spyros Hirdaris is an associate professor at Aalto University. His research focuses on coupled and multidisciplinary problems. He completed his PhD in 2002 at the University of Southampton, UK where he is also Honorary Research Fellow since 2008. Before joining Aalto university, he worked for 14 years for Lloyd's Register Classification Society internationally (UK, Poland, South Korea). He combines knowledge from advanced ship & safety science, marine hydrodynamics & structures for the prediction of sea loads, safety and performance of ships and offshore structures operating in extreme conditions. On the enabling research front he works on de-risking emerging technologies (e.g. big data analytics, nuclear technology, autonomy etc.) for use in the design and operations of safe and sustainable ships. He is European Engineer, Chartered Engineer, Fellow of the Royal Institution of Naval Architects (UK), Member of the Society of Naval Architects and Marine Engineers (USA) and the Institution of Mechanical Engineers (UK).

9. Keiya Nishida

Career Profile:



Dr. Keiya Nishida is a Professor (Special Appointment) in the Department of Mechanical Engineering, Graduate School of Advanced Science and Engineering, University of Hiroshima, Japan. He is the head of Research Center for Next-Generation Energy Projects in UH. He received his B.S. in Mechanical Engineering in 1978, M.S. in Engineering of Transportation Phenomena in 1980, and Ph.D. in 1989, all from University of Hiroshima. From 1980 to 1982, he served as a R&D engineer in the internal combustion engine department of Kubota Ltd, Osaka, Japan. He joined University of Hiroshima as a Research Associate in 1982. He became a Professor in 2011. He got the awards of SAE Horning Memorial Award in 1994, JSME best paper award in 1995, Best Paper Award of 17th Small Engine Technology Conference in 2011, and Lloyd's Register Manson Prize from Japan Institute of Marine Engineering in 2012, etc.

10. Dawei Wu

Career Profile:



Dr Dawei Wu is an EPSRC Fellow and an Associate Professor in Mechanical Engineering, at the University of Birmingham. His research strength lies in zero carbon propulsion and power systems (using H₂, NH₃, e-fuels). His research grant portfolio include: acting as the PI to develop a novel ammonia/hydrogen dual-fuelled propulsion technology (EP/S00193X/2), as a Co-I/ WP leader in the 'MariNH₃' program grant: 'Decarbonized Clean Marine: Green Ammonia Thermal Propulsion' (EP/W016656/1); as a Co-I in multiple ongoing EPSRC, industrial and EU projects, including 'Hydrogen fuelled engine for HGVs' (EP/R041970/2, TS/P010431/1), 'A network for hydrogen-fuelled transportation' (EP/S032134/1), and 'Renewable thermally driven cooling technologies' (MSCA-RISE). Recently, he has been working with UK Network Rail to develop ammonia fuelled locomotive engines. He will also host a Marie Curie Fellow to work on 'Liquid Ammonia Direct Injection (LADI): fundamental physics and modelling' supported by the EU MSCA scheme. He is a 'Fuel' section topic editor of Energies and a Fuels and Lubricants Committee Member of SAE. He has published 2 book chapters and 50+ peer reviewed papers. Email: d.wu.1@bham.ac.uk.

11. Tie Li

Career Profile:



Dr. Tie Li is now a professor and head of Institute of Power Plants and Automation of Shanghai Jiao Tong University (SJTU). He received his Ph.D from Kinki University Japan on 2004 and the worked as an assistant professor in Hokkaido University. He joined SJTU as a full professor on 2012. His research interests include energy efficiency and exhaust emissions controls of combustion engines, optical diagnostics for spray combustion, exhaust heat recovery, energy management of hybrid power system, digital twins, etc. He has published more than 100 journal papers with an h-index of 26. He is a recipient of several academic awards, including JSAE Medal Award (2009), SAE Ralph R. Teetor Award (2013), Shanghai Pujiang Talent Award (2013), 2016 Annual Best Paper Award of CSICE, ILASS-Asia Best Paper Award (2019), Elsevier Highly Cited Scholar (2014-2021), etc. He is a member of ITTC Specialist on ESM, ICLASS 2021 Academic Committee, JMSE Editorial Board.

12. Qian Xiong

Career Profile:



Dr. Qian Xiong has been a professor in the School of Power and Energy Engineering at Harbin Engineering University since 2018. He is the overseas high-level talents in Youth Program. He received his Ph.D in Hokkaido University in 2014, M.S in power machinery and engineering in 2010, and B.S in Hefei University of Technology in 2008. He has worked as a doctoral researcher and assistant professor from 2015 to 2018 at Chiba University, Japan. He served as the technical principal in 4 national projects of the Ministry of the Environment in Japan. Part of his achievements has been applied to Mitsubishi Heavy Industries, Ltd and received a high-quality paper award. He undertook or participated in 6 key projects for the National Natural Science Foundation of China and published more than 30 high-quality academic papers. He has 9 Chinese invention patents and has submitted two proposals on ship black carbon emissions to IMO.

13. Mikko Suominen

Career Profile:



Dr. Mikko Suominen has an extensive experience from full-scale measurements. His research has focused on local ice-induced load on the ship hull and encountered ice conditions since 2008. Suominen has also gained sound knowledge from model-scale experiments through testing in Aalto Ice Tank and working as an acting Ice Tank manager and as a project leader for HSVA (Hamburg Ship Model Basin). He has been giving a course related to model scale testing in ice in Aalto university since 2016, except 2018-19. Currently, Suominen has 52 peer-reviewed scientific publications, and his h-index is 11 in Scopus.

14. Liangliang Lu

Career Profile:



Dr. Liangliang Lu is a post-doctoral researcher at both Aalto University and University of Helsinki. He got his doctor degree from Marine and Arctic Technology at Aalto University and obtained double master degrees from both Aalto and NTNU. He also has two years of experience working as naval architect in CSSC-SWS in Shanghai and half year as ice engineer in TOTAL in Paris. His main research areas are maritime risk analysis in ice conditions, including ice loading, transit modelling in e.g. dynamic ice, traffic and accident analysis, oil spills and response modelling, etc. Previous involved projects include strategic and operational risk management for wintertime maritime transportation system, Antarctic Weddell Sea Expedition 2019, simulators for improving cross-board oil spill response in extreme conditions, and center of excellence for scenario-based risk management in polar waters.

15. Mingyang Zhang

Career Profile:



Mr. Mingyang Zhang is a doctoral candidate at Aalto University, Finland. He will defend his D.Sc. sometimes in late 2022. His background is in Intelligent Transportation Engineering (Marine Technology). He has published 10 journal articles (including Ocean Engineering, reliability engineering & system safety, Safety Science, Transportation Research Part A: Policy and Practice, etc.) and 10 conference papers. Moreover, He has been a reviewer of more than 10 international journals and 5 conferences. His primary focus is big data analytics of ship behaviors in real operational conditions using emerging technologies. A minor interest is the implementation of collaborative

ship control/ ship motions using big data analytics and machine learning in maritime transportation modeling. He is currently engaged in H2020-FLARE and cooperating with stakeholders from industry, academia, and policymakers of the maritime industry.

16. Luofeng Huang

Career Profile:



Dr Luofeng Huang is Lecturer in Mechanical Engineering at Cranfield University (UK), Principal Investigator for projects, and Supervisor for PhD candidates. He acts as Academic Lead for Cranfield Structural Integrity Lab and Cranfield Ocean Systems Lab. He is a renowned expert in Computational Fluid Dynamics (CFD), Fluid-Structure Interactions (FSI) and Discrete Particle/Element Modelling. Dr Huang completed PhD and Postdoc in Ocean Engineering at University College London (UCL). He has outstanding contributions in the field of Arctic Engineering; in the last three years, he has

been the Leading Author of more than 10 papers on this topic, which has been featured in the H2020 SEDNA project that received a fund of 6 million Euros. Dr Huang is the only person who has won the UCL Research-Led Initiative Award three times in a row (2018, 2019 and 2020). He is Chair of the UCL OpenFOAM Workshop. In China, Dr Huang is a long-term Adjunct Professor for Jiangsu University. He is also an International Advisor for Harbin Engineering University, Shanghai Jiao Tong University, and the Dalian University of Technology.