



香港海事科技學會
THE HONG KONG INSTITUTE OF
MARINE TECHNOLOGY

HKIE THE HONG KONG
INSTITUTION OF ENGINEERS
香港工程師學會

Mechanical, Marine, Naval Architecture & Chemical Division
機械、輪機、造船及化工分部



皇家造船師學會暨輪機工程及海事科技學會
香港聯合分會



The Hong Kong Joint Branch of
The Royal Institution of Naval Architects
and the Institute of Marine Engineering, Science and Technology



** Notice of Joint Technical Seminar**

Seminar: Innovative Development of Marine Engineering and Technology

Date / Time: 6 November 2021 (Saturday) / 9:00am – 12:30pm

Location: Online; or

Conference room, Merchant Navy Officers' Guild, 15/F, Alliance Building, Sheung Wan, Hong Kong

Programme Highlights:

Being part of the Hong Kong Maritime Week 2021 activities, three topics on the innovative development of marine engineering and technology have been co-organised by HKIMT, HKIE MMNC and HKJB of RINA and IMarEST. Thanks to generosity of the Merchant Navy Officers' Guild HK (MNOG), we will be hosting a combined virtual and physical seminar in the conference room of MNOG.

Session 1: “Innovative Research and Development of Marine Engineering at University” by Prof. Ling Zhu

This presentation introduces innovative development of research and talent cultivation in the Naval Architectures and Ocean Engineering Departments at Wuhan University of Technology. The presentation includes a brief introduction on the discipline of Naval Architecture and Ocean Engineering, recent innovative research and teaching activities to serve the industry as well as students' achievements in various innovation competitions. Finally, the new trends on the development of Marine Engineering and Technology are discussed.

Session 2: “Is There A Battery Electric Tug In Your Future?” by Mr. Mike Phillips

With the Intergovernmental Panel on Climate Change's (IPCC) warning that CO₂ levels must quickly drop to 'net zero' to limit global warming to 1.5 degrees Celsius, the transportation sector faces mounting ethical and regulatory obligations to decarbonize. For tugboats, as with other vehicles, advancing battery technologies have opened the door to pure battery electric powering, with shore charging from zero-carbon sources. The first battery electric tugs are a reality, but how can owners know if they are a viable solution for their operations, and what are some of the key considerations and steps in selecting the optimal tug platform and number of batteries?

Session 3: “Introduction of Robot Fish” by Timothy J.K. Ng

SNAPP, the robotic fish, currently holds the Guinness World Record for the fastest 50m swim by a robotic fish in 22.92s or at 2.18 m/s (meters per second), which is faster than most Olympic swimmers including Michael Phelps, who averages a speed of 2.1 m/s. The robotic fish was invented by a student-staff team led by the Department of Mechanical Engineering and sponsored by the Tam Wing Fan Innovation Wing under Faculty of Engineering of the University of Hong Kong (HKU). This presentation will talk about the design, propulsive mechanism and applications of robotic fish and will shed light on the challenges encountered while developing SNAPP.

The biographies of speakers:

Mike Phillips, P.Eng. – Project Manager / Naval Architect, Robert Allan Ltd. - Naval Architects & Marine Engineers

At Robert Allan Ltd since 2008, Mike's primary focus is on project management and team leadership roles on tug, barge, ferry, and other workboat projects, with an emphasis on special applications such as alternative fuels, hybrids, environmentally sensitive projects, and high-performance escort tugs. Mike has also been active consulting industry stakeholders with needs assessments for new terminal projects and fleet expansions.

Ling Zhu, PhD, FRINA, CEng, Professor of Wuhan University of Technology

Prof. Ling Zhu has long been researching on the safety and reliability of ships and marine structures. He obtained his PhD from the University of Glasgow and had worked for 25 years in research and project management in UK universities and Lloyd's Register. In 2013, he joined Wuhan University of Technology as a Professor of Naval Architecture and Ocean Engineering, undertaking research, teaching and management as the Dean of School and Dean of Faculty. Currently he serves as the Deputy Director of Ship Mechanics Committee of CSNAME, a committee member of ISSC and a Fellow of RINA.

Timothy Ng – HKU mechanical engineering graduate

Mr. Timothy Ng is the Lead Researcher in Mechatronics and Robotic Systems (MaRS) Laboratory at HKU and a Principal Advisor for the Advanced Underwater Propulsion Laboratory at Southern University of Science and Technology, China. He co-founded BREED Robotics, a student-led robotics group in HKU and is currently completing an MPhil on the autonomous control of underactuated robots. He spent his early career studying the bio-mechanism of swimming fishes, and subsequently developed the fastest robotic fish in the world. Currently, he is the holder of 3 World Records Titles of the "Fastest 50 m swim by a robotic fish" with the most current swimming speed of 50 m in 22.16 s. The fastest robotic fish dubbed SNAPP has been covered by MIT Technology Review, presented in the PAAMES-AMEC conferences in 2019 and 2020, and was awarded first runner up in the 6th HKU Student Innovation and Entrepreneurship Competition and was the recipient of the Grand Prize Winner of the HKIE Innovation Award in 2021. The research question in mind was on developing a new propulsion method based on the undulatory swimming motion of a fish. Currently he is exploring control and navigations strategies for the robot fishes, and is on the lookout for potential applications of this technology in the marine industry.

Language: The presentation will be delivered in English.

Registration:

For registration, please fill in the MS Form (<https://forms.office.com/r/mWzX6xrrGf>) by 3rd November 2021. For queries, please contact HKJB Honorary Assistant Secretary Ms. Yoyo LS CHAN at chan.ls.yoyo@gmail.com. Upon confirmation of the registration, depending on the choice of physical seminar or online webinar, the online access link and passcode shall be provided by 4th November 2021. Due to Covid-19 restrictions, the number of physical participants is limited. The physical participants who oversubscribe will get an online access link to join the webinar.

Scan the QR code for registration:

