

*The Hong Kong Polytechnic University  
Department of Logistics and Maritime Studies  
Research Seminar*

**Development of Decision Making Techniques for  
Analysing the Designation of the Northern Sea Route (NSR)**

by

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**Date: 16 May 2017 (Tuesday)  
Time: 10:30am-11:30am  
Venue: R902, Shirley Chan Building  
The Hong Kong Polytechnic University**

**(Conducted in English)**

**Abstract:**

The Northern Sea Route (NSR) is located along the Russian Arctic Coast with parts of it being free of ice for two months per year. However, due to global warming, the Arctic ice is declining and the NSR in the future may be free from ice throughout of the year. It is vital for shipping companies to consider using the NSR as their alternative route because it offers shorter distance between the Far East and Europe. The navigation distance from a Northwest-European port to the Far East via the NSR is approximately 40% shorter compared to the Suez Canal route. Furthermore, a business perspective shows that the economy of China is moving Asia's economic centre of gravity from the Southeast to the North. It would seem sensible to transfer part of the shipment from the Suez route to the NSR.

The Arctic Ocean has without doubt been greatly affected by climate change. Future predications show an even more drastic reduction of the ice cap which will open new areas for the exploration of natural resources and maritime transportation. Previous studies have defined the NSR as a series of different routes and the given sailing course is dependent on the ice conditions. The NSR is not a clearly defined linear route; it is the whole sea area north of Russia. Due to the highly variable and difficult ice conditions along most of the NSR, the optimal route choice for vessels navigating through the NSR will vary. Hence, there are many route options that can be used in the NSR alone. This study analyses the current routes of the NSR in terms of economic feasibilities and its physical conditions incorporating with a number of factors that influence the NSR by using the decision making tools. This includes 1) identifying the factors that influence the opening of the NSR; 2) ranking the factors; 3) investigating a number of routes along the NSR; 4) selecting the most effective service route; 5) conducting a comparative case study between the NSR and the Suez Canal route; and 6) analysing the implications of the NSR to the maritime industry.

**Bio:**

Prof. Jin Wang is Associate Dean (Research and Scholarship) of Faculty of Engineering and Technology at Liverpool John Moores University (LJMU), UK. He is also Director of Liverpool Logistics, Offshore and Marine (LOOM) Research Institute at LJMU. Following just less than 5 years' research as a Research Associate at Newcastle University, UK, he joined LJMU as a lecturer in 1995, and was promoted as Reader in Marine Engineering and Professor of Marine Technology in 1999 and 2002, respectively. He has successfully completed supervision of more than 50 doctoral/postdoctoral researchers. His research areas are in risk-based design and operation of large maritime engineering systems such as ships, offshore installations, port terminals and maritime logistics chains. Prof. Wang's publications include 2 research monographs and more than 120 SCI cited journal papers (h-index 28, more than 2,200 citations in Web of Science). He has won several research awards including two Denny Medals from the Institute of Marine Engineering, Science and Technology (IMarEST). He has led seven UK research council funded projects as PI and two EU funded projects (REFERENCE and RESET) as the coordinator. He has also led more than 20 other externally funded research projects including three EU funded studies (as PI at LJMU) (SAFERELNET, WEASTFLOWS and PRIGEOC). He has been a member of IMO's formal safety assessment experts group since 2008 and the chairman of the marine transportation safety committee of European Safety and Reliability Society since 2010. Prof. Wang was a sub-panel member (sub-panel 12: Aeronautical, Mechanical, Chemical and Manufacturing Engineering) in the Research Excellence Framework 2014 for assessing the quality of research in the UK's higher education institutions.

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**All are welcome!**