

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

Ship Collision Risk Assessment for Restricted Waterways

by

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Time: 10:30am-11:30am

Venue: M802, Li Ka Shing Tower

The Hong Kong Polytechnic University

(Conducted in English)

Abstract:

Ship collision risk assessment is of significant importance for ships passing through narrow, shallow, and busy waterways. In this talk, a few risk indices are proposed to quantitatively assess the ship collision risks based on the vessel conflicts and causation probabilities. A case study in the Singapore Strait is carried out by using the real-time ship locations and sailing speeds provide by Lloyd's MIU automatic identification system (AIS). The results show that the container carriers have the highest Vessel Collision Frequency while Roll-On Roll-Off (RORO) and passenger ships have the lowest frequency. Tankers cause the highest head-on collision frequency. Westbound traffic in the Strait is more risky than eastbound. Furthermore, the estimated Vessel Collision Frequency during the day is less than that at night. Analysis indicates that the safety level would be significantly improved if all the vessels follow the passage guidelines. The results of this paper could be beneficial for the Maritime and Port Authority of Singapore to further enhance the navigational safety strategies implemented in the Singapore Strait.

Bio:

Dr Xiaobo Qu is currently a Senior Lecturer (Transport Engineering) with the School of Civil and Environmental Engineering, University of Technology Sydney (UTS), Sydney Australia. Prior to his UTS appointment, he was a Senior Lecturer (Transport Engineering) in Griffith School of Engineering, Griffith University, Queensland, Australia. Dr Qu obtained his PhD, Master's degree, Bachelor's degree from the National University of Singapore, Tsinghua University, and Jilin University, respectively.

Dr Qu's research is focused on practically improving transport safety, efficiency, equity, and sustainability through traffic flow and network modelling and optimisation. He has authored or co-authored over 50 journal articles published by leading international peer reviewed transportation journals such as Transportation Research Part A, Part B, Part C, Part E, Accident Analysis and Prevention, ASCE - Journal of Transportation Engineering, and Risk Analysis. He is a recipient of Ministry of Transport (Singapore) Minister's Innovation Award in 2009, President's Graduate Fellowship (Singapore) in 2010-2011, ASCE - Journal of Transportation Engineering Outstanding Reviewer Award in 2013, Griffith University Pro-Vice Chancellor Early Career Research Excellence Award in 2015, Griffith University Pro-Vice Chancellor Research Excellence Award (Group Category) in 2015, EPPM 2015 best paper award, and Australian Government Endeavour Cheung Kong Fellowship in 2016.

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All are welcome!