

Hydro-Seminar

by Lab. of Floating-Body Dynamics in Waves

The speaker in the 55th Hydro-Seminar is



Dr. Zhi-Ming Yuan

Department of Naval Architecture, Ocean & Marine Engineering
University of Strathclyde, Glasgow, UK

Date: Monday, 11 November, 2019

Time: 10:30 – 12:00

Venue: S1-412 (Lecture room, 4F of S1 building)
Suita Campus, Osaka University

Wave Interference – from Duck Swimming to Ship-Ship Interaction –

Abstract

It has been commonly observed in rivers and lakes that ducklings/goslings follow their mothers in a certain formation. The questions arise: why are they swimming in formation with their mother? To address these questions, a simplified mathematical and numerical model can be established and the wave drag on a duckling when it swam at different positions around a mother duck is calculated. We found that ducklings could preserve their energy by riding waves. A destructive wave interference phenomenon was observed when a duckling surfed the waves generated by a leading mother duck. As a result of wave cancellation, the wave drag of the ducklings can be minimized. This wave cancellation effect can also be adopted by human swimmers to preserve energy.

The Speaker: Dr. Zhi-Ming Yuan

Dr. Zhi-Ming Yuan has been a Lecturer in Strathclyde since 2015. His research activity is mainly focused on multibody hydrodynamics and offshore renewable energy systems. In 2011, Dr. Yuan got the sponsorship from Lloyd's Register to carry out the research on offshore offloading problem under the supervision of Prof. Atilla Incecik in Strathclyde, where he obtained his Ph.D in 2014. He was invited by Prof. Ronald Yeung to visit and carry out joint research in UC Berkeley (03/2017 – 09/2017) under Sir David Anderson Bequest Award. He was appointed as the committee member of International Towing Tank Conference (ITTC) and he is a Member of Royal Institution of Naval Architects (RINA). Dr. Yuan leads Hydrodynamics & Ocean Renewable Energy Laboratory (HOREL) at Strathclyde, which consists of 8 Ph.D students and 1 D.Eng student in IDCORE (Industrial Doctoral Centre for Offshore Renewable Energy). Over the last 5 years, Dr. Yuan has published 40 journal articles and 23 refereed conference proceedings on marine hydrodynamics.



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