

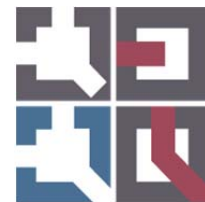


Aristotle University of Thessaloniki

Department of Civil Engineering

Division of Hydraulics and Environmental Engineering

Laboratory of Marine Engineering and Marine Structures



Lecture “Hydrodynamic-Interaction Theory for a Great Number of Bodies in Water Waves & its Application to Cloaking and Wave-Energy Absorption”

Speaker: Professor Masashi Kashiwagi



Department of Naval Architecture & Ocean Engineering, Osaka University, Japan

Date: October 21, 2019

Time: 15:00 – 17:00

Location: Lecture room, Division of Hydraulics & Environmental Engineering, 1st floor, Hydraulics Building

Abstract: A hierarchical wave interaction theory is reviewed as an innovative idea for treating hydrodynamic interactions among a great number of bodies rigorously in the framework of linear potential theory. Validation is shown using the experimental results that were obtained using a structure consisting of 64 truncated vertical circular cylinders arranged in a periodical array of 4 rows and 16 columns. From the observation of measured results and their comparison with computed results, the effects of multiple-body interactions on the wave elevation and local steady forces are noted with respect to the wave frequency and the spatial position inside the structure. As a recent application, a study on the cloaking of a floating body is introduced by surrounding it with a number of smaller cylinders and also on the related wave-energy absorption by the external force of damping installed in the surrounding cylinders.

The speaker: Dr. Masashi Kashiwagi is a Professor in the Department of Naval Architecture & Ocean Engineering at Osaka University, Japan. He holds a Naval Architecture Bachelor, MSc Degree and a PhD from the Department of Naval Architecture & Ocean Engineering at Osaka University. Prior to his current position, he was a Visiting Associate Professor at MIT, USA and Professor at Kyushu University, Japan. He is a worldwide recognized researcher in the field of ocean engineering. His research involves mainly fluid-structure interactions, ship hydrodynamics, and hydroelasticity. He received international awards, such as the “C.H. Kim Award” (2006), the “Weinblum Memorial Lectureship” (2011), the “Jin S, Chung Award” (2016). He is a member of several professional societies, while he has served as Editor-in-Chief of Applied Ocean Research and Associate Editor of other scientific journals. He has published more than 90 papers in refereed journals and about 200 papers in international conference proceedings.

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