



Osaka University

Graduate School of Engineering
Department of Naval Architecture & Ocean Engineering

Hydro-Seminar

by Lab. of Floating-Body Dynamics in Waves

The speaker in the 24th Hydro-Seminar is

Dr. Šime Malenica

**Deputy Director of the Research Department of
Bureau Veritas, France**



Date: Tuesday, 18 September, 2012

Time: 15:15 – 16:45

Venue: Library Hall of Science and Engineering Library

Suita Campus, Osaka University

http://suita.library.osaka-u.ac.jp/intro_access.html

Hydro-Structure Interactions for Offshore and Naval Applications

Abstract

For classical ships, not exceeding certain size, the usual design practice passes through the direct application of the prescribed rules and procedures issued by different Classification Societies. In the case of extreme structural response, these procedures do not involve fully direct hydro-structure calculations and the final design load cases are given in the form of the equivalent simplified load cases. On the side of the structural strength, other safety coefficients are introduced and the final calibration of the rule approach is done using the extensive feedback from experience which ensures the excellent safety record of the existing ships. Due to these calibration procedures it is not possible, in principle, to use the rule procedures for a novel designs which do not enter in the initial assumptions of the considered design (ship type, size...) and operations. As far as the fatigue life is concerned the rule approach uses the similar equivalent load case approach which allows for very rough verification of the fatigue life.

Within the so called direct calculation approach for the assessment of the ship structural reliability, the basic idea is very simple: the structural response of the ship should be directly calculated during whole her life using the fully coupled hydro-structural models and the identification of the extreme events and fatigue life will be determined directly. Since the fully consistent non-linear hydro-structure calculations are not practically possible within the reasonable combination of CPU time and accuracy, one must consider some approximate solutions using the different levels of approximation at different steps of the overall methodology. One of the main purposes of the presentation is to discuss the actual state of the art of the different models.

The Speaker: **Dr. Šime Malenica**

Šime Malenica has Naval Architecture degree (1990) from University of Zagreb and PhD degree in Hydrodynamics (1994) from Paris VI University. After his PhD graduation he joined Bureau Veritas where he is still employed. He has been head of the hydro structure section team in the Research Department for a long time and in 2008 he became the Deputy Director of the Research Department. His main fields of research concerns the different aspects of hydro-structure interactions (linear, non-linear, frequency & time domains, quasi static and hydroelastic, local and global...) and he is leading several national and international research projects on those topics. His research activities include both theoretical and practical aspects of ship and off-shore hydrodynamics and he published more than 80 papers both in scientific journals and at the specialized conferences. He is also external lecturer at the Faculty of Mechanical Engineering and Naval Architecture in Zagreb (Croatia), and at Ecole Centrale de Nantes (France).



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