



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 21st Hydro-Seminar is

Professor Alexander Korobkin

School of Mathematics, University of East Anglia, Norwich, England
Lavrentyev Institute of Hydrodynamics, Novosibirsk, Russia

Date: Wednesday, 14 December, 2011

Time: 16:20 – 17:20

**Venue: Lecture Room 311, S-1 building
Suita Campus, Osaka University**

Mathematics of Slamming

Abstract

The role of mathematics in the study of ship slamming is discussed. It is shown that analytical studies and analysis of numerical algorithms are helpful in better understanding of slamming events and in its modeling. A new model of slamming, so-called MLM, is presented and the predictions by this model are compared to those by experiments, fully nonlinear computations and by the Generalized Wagner Model. Semi-analytical models of physical effects, such as air cushion, aeration of the fluid, its compressibility, separation of the liquid free surface from the surface of the entering body, and elasticity of the entering surface, are presented and the importance of these effects in terms of slamming predictions is discussed. A message of this Weinblum Memorial Lecture is “To solve a practical problem, we need to use any means - experiments, computations and theoretical studies - to arrive at the right solution, one of the important characteristics of which is its simplicity”.

The Speaker: Professor Alexander Korobkin

Korobkin Alexander A. received his B.S. degree in Mechanics and Mathematics from Novosibirsk State University, Russia. In 1985 he received his Ph.D degree from Lavrentyev Institute of Hydrodynamics with a specialization in fluid mechanics. Upon completion of his Ph.D dissertation, he was appointed junior research fellow at Lavrentyev Institute of Hydrodynamics and in 1988 he also joined the Faculty of Mechanics and Mathematics of the Novosibirsk State University and was promoted to Professor in 1997. In 2004 he was promoted to the position of Research Deputy Director. In 2007 he was appointed as Professor in Applied Mathematics and joined an active group of applied mathematicians in the School of Mathematics, University of East Anglia, UK. His current research interests include: unsteady problems of fluid-structure interaction, problems of hydroelasticity with large deformations, bubbly liquid flows, cavitation, asymptotic and numerical methods, ice-structure interaction, emergency landing of aircraft on water, and separation of water surface from moving on the free surface body.



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