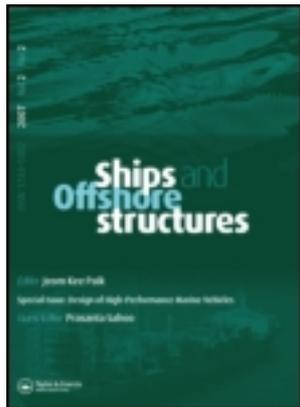


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Taylor & Francis, Jeom Kee Paik and the Editorial Board of Ships and Offshore Structures are delighted to announce that the following paper has been awarded the 2013 Best Paper Award:

Vedran Zanic^a

^a Department of Naval Architecture and Ocean Engineering, Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb, Zagreb, Croatia
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2013 BEST PAPER AWARD

Taylor & Francis, Jeom Kee Paik and the Editorial Board of *Ships and Offshore Structures* are delighted to announce that the following paper has been awarded the 2013 Best Paper Award:

Methods and concepts for the multi-criteria synthesis of ship structures

Vedran Zanic

(This paper was originally published in Vol. 8, No. 3–4, 2013, pp. 225–244)

The basic concepts and methods for multi-criteria synthesis of complex thin-walled ship structures in concept and preliminary design are presented. The principal steps in the definition of the design model, the selected general requirements on the design procedure and balanced and applicable combinations of design models are elaborated. The paper also provides an introduction to the basic theory, mappings, non-dominance concepts (Pareto frontier), spaces and sets used for the mathematical definition of design problems (DPs) together with the unified taxonomy applicable in the handling of complex DPs. System identification from the multi-stakeholder perspectives of owner and society and the formulations and solutions of structural DP are discussed.

Author's message

It is a great honour and inspiration for me to be granted the Best Paper Award for 2013 in the *Journal of Ships and Offshore Structures* for the paper “Methods and concepts for the multi-criteria synthesis of ship structures” published as an editorial paper of the SAOS Special Issue on Analysis and Design of Ship Structures.

I would like to express my gratitude to the colleagues who participated in the evolution of the paper – in the first place to my colleague and friend, Professor Owen F. Hughes (to whom the paper is devoted), with whom I have the privilege of sharing the burden and enjoyment of generating the first principle based methods for the design of efficient and safe ship structures over the last 40 years. All my thanks go also to my renowned colleague, Professor Farrokh Mistree, who participated in the most important parts of the process. I would also like to express special thanks to friends and colleagues at Advanced Marine Technology Center, DRS Technologies, Inc. (www.drs-ds.com) for their excellent developmental work on the MAESTRO software and for our collaboration over many years. Thanks are due to my collaborators, the group of young PhDs, members of the Zagreb University's OCTOPUS group (www.fsb.hr/octopus).

Finally, I am very grateful to Prof. Jeom Kee Paik and the Editorial Board for their continuous efforts in upgrading the quality and international standing of the journal as well as for the selection of the important and advanced topics for the profession, to which this special issue and the paper tried to contribute.

The motivation for this paper was to promote wider application of the (mostly already existing) fast and reliable analytical, possibly reliability-based, methods/modules, and their combinations (balanced and of matching fidelity), in the synthesis of the realistic large-scale problems. The emerging very efficient hardware, used in the modern parallel computing environments, offers opportunities needed

for solving the non-linear, fuzzy, stochastic, multi-criteria design problem (DP) of high dimensionality. To support the easier definition of multiple DPs and associated design models needed in the realistic design procedures, a taxonomy has been developed and presented in the paper. It may speed up the communication of the achievements/plans among researchers/designers/stakeholders.

The second focus driving the paper is an attempt to promote the inclusion of the owner–society relationship into the DP modelling and its manipulation into a solvable form. A view, I have held for many years, is that the responsibility of the designer and owner should not be only to provide economically feasible design, satisfying all prescribed requirements, but also to provide the safest design within their capabilities. It means that safety/reliability/risks measures should be treated as objectives, not only as constraints in the DP definition. Paradoxically those formulations usually lead to simultaneously safer and economically more efficient designs.

The Pareto-supported decision-making (PSD) model development, including owner's and societal gains and losses, is presented, as well as its manipulation in the solvable forms and simplification in the easily applicable form. For structural design the competence of structural sub-system designers is to generate a Pareto frontier of non-dominated structural designs and support the stakeholders in more educated decision-making. Along those lines the OCTOPUS team is developing a very fast reliability based optimisation method to be presented in the next article inspired by this award.

Vedran Zanic

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