Book Review – Hydrodynamics of High-Performance Marine Vessels

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This book is a comprehensive two-volume book devoted to the analysis of common types of high-speed marine vessels. These vessels may also be generally referred to as advanced marine craft. Types of craft addressed include monohulls, catamarans, trimarans and other multihull vessels, air-cushion vehicles, surface-effect ships and planing craft.

The hydrodynamic aspects dealt with are the steady-state resistance, wave generation, sinkage and trim, unsteady effects and motions in waves. Separate chapters are devoted to viscous resistance, transom sterns and the behavior of skirts for air-cushion vehicles and seals for surface-effect ships. Effects of the finite depth of the water and the possible lateral restriction on the width of the waterway feature prominently in the book. In each case, the presentation includes a full analytical development of the theory accompanied by a comparison of the theoretical predictions with extensive experimental data.

There is a total of 888 full-color letter-size pages in the two volumes. The text is accompanied by 433 photographs of ships and ship models, 1155 graphs, 1295 equations and 1249 references.

The work represents the author's research, consulting and professional experience in both universities and research centers spanning a period of over fifty years. The book is targeted at university-level students and specialized industry engineers in the field of naval architecture and associated areas.

Coverage of the book includes Chap.1 Introduction, Chap.2 Hydrodynamic Theory, Chap.3 Viscous Resistance, Chap.4 Transom Sterns, Chap.5 Monohulls, Chap.6 Catamarans, Chap.7 Trimarans and Other Multihulls, Chap.8 Air-Cushion Vehicles, Chap.9 Skirts and Seals, Chap.10 Surface-Effect Ships, Chap.11 Planing Craft, Chap.12 Wave Generation, Chap.13 Sinkage and Trim, Chap.14 Unsteady Effects on Resistance and Wave Generation, Chap.15 Motions of Displacement Vessels in Waves, Chap.16 Motions of Nondisplacement Vessels in Waves, Chap.17 Afterword, Chap.18 Appendix, Chap.19 Bibliography, and Chap.20 Index.

Author Biography

Lawrence Doctors graduated from The University of Sydney with a first-class honors bachelor's degree in Mechanical Engineering in 1965 and a Master of Engineering Science degree in 1967. He then studied Naval Architecture and Marine Engineering at the University of Michigan (UM) and received a doctorate in 1970. Since 1971, he has taught at The University of New South Wales (UNSW). He was Coordinator of the Naval Architecture Program for the Bachelor of Engineering degree at UNSW from 1985 to 2004.

During his career, most of Professor Doctors' research efforts have been devoted to numerical ship hydrodynamics, where his interests are centered on the study of advanced marine

vehicles. These include monohulls, catamarans, multihulls, air-cushion vehicles, surface-effect ships, planing boats, wing-in-ground-effect craft and hydrofoil boats.

He has published over two hundred and twenty research papers and reports on these subjects. He reviews for more than twenty engineering journals and has been on the scientific or organizing committee for around forty international symposiums devoted to the theme of high-speed marine craft. The Featured Papers Committee of the Society of Naval Architects and Marine Engineers has on three occasions selected one of his publications as a Significant Paper.

He has spent periods of research and sabbatical leave at the David W. Taylor Naval Ship Research and Development Center, Tel Aviv University, the UM, the Australian Maritime College, and the University of Strathclyde. His research has been sponsored principally by the Australian Research Council and the US Office of Naval Research.

Purchasing

This book is now available to the public from Amazon.com. The book is published in two volumes, because of page-printing limitations. The two links are:

Volume 1: http://www.amazon.com/dp/1512244716
Volume 2: http://www.amazon.com/dp/1514839431