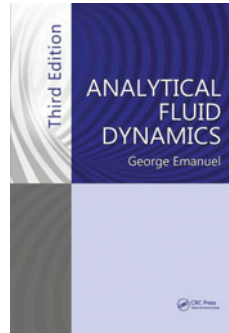


various types of acoustic source. Chapter 2 introduces Kirchoff's formula and goes on to derive compact Green's functions for bodies of various shapes. Chapter 3 deals with radiation of sound from a baffled piston and diffraction by edges and apertures. Sound produced aerodynamically is considered in Chapter 4, starting with Lighthill's theory of aerodynamic sound and then extending it to look at interactions between vortices and surfaces. Finally, Chapter 5 considers propagation of sound in and from ducts and apertures. Example problems are given with each chapter and solutions are provided with some of these to facilitate self-study. A useful bibliography is provided and an index is included.

The book is clearly and concisely written and certainly achieves its objective of being a useful text to accompany an academic course. Practicing engineers and others seeking a more complete reference work would, perhaps, be better advised to seek out a copy of *Acoustics of Fluid-Structure Interactions* (Cambridge University Press, 1998) by the same author.

**Craig J. Mead, CEng, MRAeS**  
**Aero Acoustics**



## Analytical Fluid Dynamics – Third edition

### G. Emanuel

*CRC Press, Taylor & Francis Group, 6000 Broken Sound Parkway NW, Suite 300, Boca Raton, FL, 33487-2742, USA. 2016. Distributed by Taylor & Francis Group, 2 Park Square, Milton Park, Abingdon, OX14 4RN, UK. 632pp. Illustrated. £108. (20% discount available to RAeS members via [www.crcpress.com](http://www.crcpress.com) using AKQ07 promotion code). ISBN 978-1-4987-1569-0.*

This book is a serious introduction to fluid dynamics with rigorous mathematical analysis of fundamental topics. It consists of 29 chapters, which are grouped into five sections. A general introduction to analytical fluid dynamics is given in Sections I, III and IV, while more specific topics, namely advanced gas dynamics and boundary-layer theory are discussed in Sections II and V, respectively.

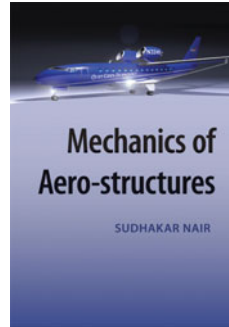
Governing equations are established in Section I, with tensor notation employed and used throughout the book. Also notable are exercise problems at the end of each chapter which often build up on what have been

discussed in the text and also introduce realistic applications. Useful formulae are neatly summarised in 18 sections of appendix. This book will be particularly useful for those interested in compressible flows, as Section II and the latter part of Section V are heavily focused on those. This is a welcome addition to the audience of *The Aeronautical Journal*, as classic textbooks on theoretical fluid dynamics, such as that of G.K. Batchelor, often focus on incompressible flows only.

The author's remarkable achievement is that mathematical methods, especially advanced linear algebra and transformation theories are seamlessly introduced while discussion is focused on physics of fluid problems. Although there are many textbooks available that survey mathematical methods commonly used in science and engineering, fluid mechanics examples used in those books are often out of the context.

Therefore, this book is recommended not only to fluid mechanics scientists and engineers who want to establish firm theoretical foundation but also to applied mathematicians who wish to apply mathematical methods to fluid mechanics problems. Readers would need some proficiency in advanced engineering mathematics; therefore, it will be more suitable for graduate students and professionals.

**Dr Yong Sung Park**  
**School of Science & Engineering,**  
**University of Dundee**



## Mechanics of Aero-Structures

**S. Nair**

*Cambridge University Press, The Edinburgh Building, Cambridge, CB2 8RU, UK. 2015. 182pp. Illustrated. £39.99. ISBN 978-1-107-07577-1.*

This book has been written with the intention of providing a concise text on the mechanics of aircraft structures for third- and fourth-year undergraduate students studying in aerospace and aeronautical engineering. The book is nicely presented and is well illustrated. It includes several worked examples to outline the application of the theoretical analyses procedures developed in the various chapters of the book and provides numerous exercises to be carried out by the student to enhance and facilitate the students' knowledge and understanding of how the structural systems work. The book provides an online resource that gives solutions to the student exercises. This is password protected for lecturers who will use the book to teach aero-structures. The reviewer believes that providing the