



Computational Fluid Dynamics for Engineers

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Computational fluid dynamics (CFD) has become an indispensable tool for many engineers. This book gives an introduction to CFD simulations of turbulence, mixing, reaction, combustion and multiphase flows. The emphasis on understanding the physics of these flows helps the engineer to select appropriate models with which to obtain reliable simulations. Besides presenting the equations involved, the basics and limitations of the models are explained and discussed. The book, combined with tutorials, project and Power-Point lecture notes (all available for download), forms a complete course. The reader is given hands-on experience of drawing, meshing and simulation. The tutorials cover flow and reactions inside a porous catalyst, combustion in turbulent non-premixed flow and multiphase simulation of evaporating sprays. The project deals with the design of an industrial-scale selective catalytic reduction process and allows the reader to explore various design improvements and apply best practice guidelines in the CFD simulations.

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CAMBRIDGE
UNIVERSITY PRESS

CAMBRIDGE UNIVERSITY PRESS

Cambridge, New York, Melbourne, Madrid, Cape Town,
Singapore, São Paulo, Delhi, Tokyo, Mexico City

Cambridge University Press

The Edinburgh Building, Cambridge CB2 8RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org

Information on this title: www.cambridge.org/9781107018952

© B. Andersson, R. Andersson, L. Håkansson, M. Mortensen, R. Sudiyo, B. van Wachem, L. Hellström 2012

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First published 2012

Printed in the United Kingdom at the University Press, Cambridge

A catalogue record for this publication is available from the British Library

Library of Congress Cataloguing in Publication data

Computational fluid dynamics for engineers / Bengt Andersson . . . [et al.].

p. cm.

Includes bibliographical references and index.

ISBN 978-1-107-01895-2 (hardback)

1. Fluid dynamics. 2. Engineering mathematics. I. Andersson, Bengt, 1947 June 15–
TA357.C58776 2011

532'.05 – dc23 2011037992

ISBN 978-1-107-01895-2 Hardback

Additional resources for this publication at

www.cambridge.org/9781107018952

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