

Preface

The subject of multiphase flows encompasses a vast field, a host of different technological contexts, a wide spectrum of different scales, a broad range of engineering disciplines and a multitude of different analytical approaches. Not surprisingly, the number of books dealing with the subject is voluminous. For the student or researcher in the field of multiphase flow this broad spectrum presents a problem for the experimental or analytical methodologies that might be appropriate for his/her interests can be widely scattered and difficult to find. The aim of the present text is to try to bring much of this fundamental understanding together into one book and to present a unifying approach to the fundamental ideas of multiphase flows. Consequently the book summarizes those fundamental concepts with relevance to a broad spectrum of multiphase flows. It does not pretend to present a comprehensive review of the details of any one multiphase flow or technological context though reference to books providing such reviews is included where appropriate. This book is targeted at graduate students and researchers at the cutting edge of investigations into the fundamental nature of multiphase flows; it is intended as a reference book for the basic methods used in the treatment of multiphase flows.

I am deeply grateful to all my many friends and fellow researchers in the field of multiphase flows whose ideas fill these pages. I am particularly indebted to my close colleagues, Allan Acosta, Ted Wu, Rolf Sabersky, Melany Hunt, Tim Colonius and the late Milton Plesset, all of whom made my professional life a real pleasure. This book grew out of many years of teaching and research at the California Institute of Technology. It was my privilege to have worked on multiphase flow problems with a group of marvelously talented students including Hojin Ahn, Robert Bernier, Abhijit Bhattacharyya, David Braisted, Charles Campbell, Steven Ceccio, Luca d'Agostino, Fabrizio d'Auria, Mark Duttweiler, Ronald Franz, Douglas Hart, Steve Hostler,

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A substantial fraction of the introductory material in this book is taken from my earlier book entitled “Cavitation and Bubble Dynamics” by Christopher Earls Brennen, ©1995 by Oxford University Press, Inc. It is reproduced here by permission of Oxford University Press, Inc.

The original hardback edition of this book was dedicated to my mother, Muriel M. Brennen, whose love and encouragement inspired me throughout my life. The paperback edition is dedicated to another very special woman, my wife Barbara, who gave me new life and love beyond measure.

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