

J. Warnatz · U. Maas · R. W. Dibble

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Combustion

Physical and Chemical Fundamentals,
Modeling and Simulation, Experiments,
Pollutant Formation

Second Edition

With 185 Figures and 17 Tables



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Preface

This book has evolved from a lecture series (of *J. Wa.*) on combustion at Stuttgart University. The lectures were intended to provide first-year graduate students (and advanced undergraduates) with a basic background in combustion. Such a course was needed since students of combustion arrive with a wide variety of backgrounds, including physics, physical chemistry, mechanical engineering, computer science and mathematics, aerodynamics, and atmospheric science. After a few years of improving printed matter distributed to the students, the lecture notes have been organized into a book, first in German, and later translated and augmented in an English version. In the present second English edition, Chapters 2, 6, 15, and 18 have been considerably revised; all other chapters experienced improvement with respect to some misprints, their style, and face-lifting of formulae and figures.

We intend that the book provides a common basis from which research begins. Thus, the treatment of the many topics is compact with much citation to the research literature. Beyond this, the book expects that combustion engineers and researchers will increasingly rely on mathematical modeling and numerical simulation for guidance toward greater understanding, in general, and, specifically, toward producing combustion devices with ever higher efficiencies and with lower pollutant emissions. Laminar flame computer codes and data to run them are available on the internet at <http://reaflow.iwr.uni-heidelberg.de/software/>.

Because this book is a research launching point, we expect it to be updated in a timely fashion. We invite the readers to browse at our internet address at U. C. Berkeley (<http://www.me.berkeley.edu/cal/book/>) for additional comments and constructive critical comments that may be part of the next edition.

Like the students mentioned above, the authors themselves come from diverse backgrounds and owe much thanks to too many people to cite. However, we do have one place in common: We express thanks to our colleagues at the Combustion Research Facility at Sandia National Laboratories in Livermore, California; the CRF has been for us a fertile crossroads and offered continuous hospitality (to *J. Wa.*) for finishing this book.

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