Nonlinear waves are of significant scientific interest across many diverse contexts, ranging from mathematics and physics to engineering, biosciences, chemistry, and finance. The study of nonlinear waves is relevant to Bose–Einstein condensates, the interaction of electromagnetic waves with matter, optical fibers and waveguides, acoustics, water waves, atmospheric and planetary scales, and even galaxy formation.

The aim of this book is to provide a self-contained introduction to the continuously developing field of nonlinear waves that offers the background, the basic ideas, and mathematical, as well as computational methods, while also presenting an overview of associated physical applications.

Originated from the authors' own research activity in the field for almost three decades and shaped over many years of teaching on relevant courses, the primary purpose of this book is to serve as a textbook. However, the selection and exposition of the material will be useful to anyone who is curious to explore the fascinating world of nonlinear waves.

Additional source code can be found on the book's companion website: *www.oup.co.uk/companion/Kevrekidis*

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from one to many degrees of freedom, from discrete to continuum

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