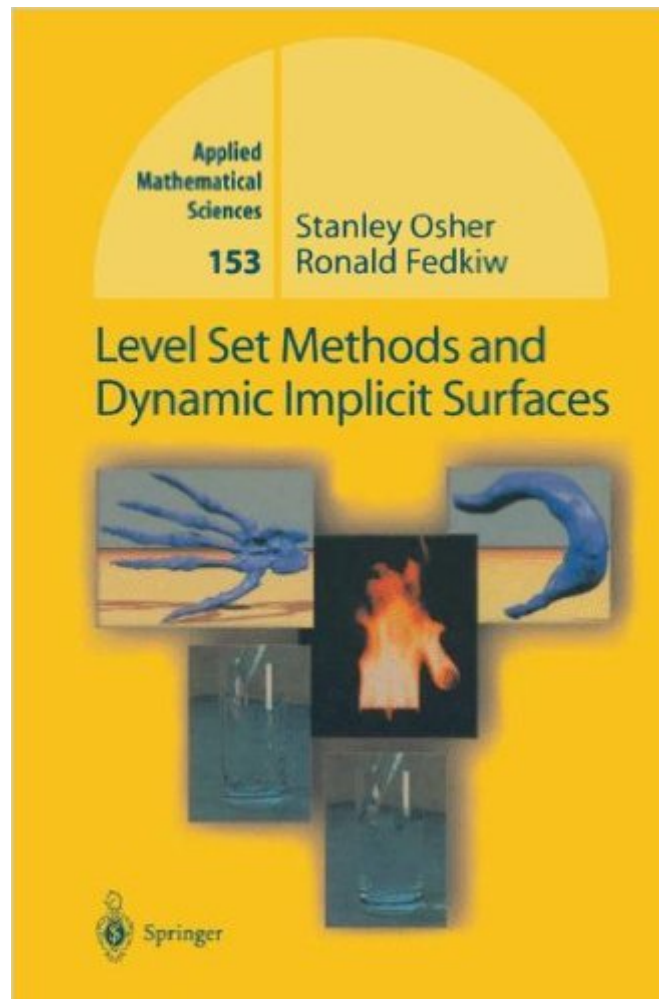


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# Level Set Methods And Dynamic Implicit Surfaces (Applied Mathematical Sciences)



## Synopsis

Very hot area with a wide range of applications; Gives complete numerical analysis and recipes, which will enable readers to quickly apply the techniques to real problems; Includes two new techniques pioneered by Osher and Fedkiw; Osher and Fedkiw are internationally well-known researchers in this area

## Book Information

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## Customer Reviews

If you're new to level set methods and are hoping to learn to implement them computationally, this is the WRONG book for you. This book reads like a 250 page review paper. Most of the material it covers is explained in much better detail in the references it provides. I'm not sure what audience this book is intended for. The only use I can see for this book is to help theorists learn level set methods. It certainly is of no help to those interested in implementing them. This book contains no code or pseudocode examples which would be helpful to a novice, nor does it contain any cutting edge techniques which would be useful to experts. I would give this a 1 star rating, but I must admit that it is clearly written. Also to its credit are the colored figures, which inspire one to want to use level set methods, even if this book is of no help in implementing them.

The book is merely a collection of (way too shortened) papers from the same authors and others. Most of the time there is no coherent link between the different parts. Worst, there are many

examples but very little details for each of them, when I start reading a chapter, I always end up getting the related papers from the internet which are in most cases clearer and more complete, and also there are free. I really respect the achievement made in cg, image processing, and computational physics made by the authors (so I will give it 2 stars), but once you are done looking at the fancy pictures, you won't get much from this book apart from its bibliographic references. I would rather recommend the book "Level set methods and fast marching methods" from J.A. Sethian, the mathematical aspects are better covered and it manages to take things into perspective while still remaining very practical.

The book introduces the levelset method, starting from the very basics: the idea of implicit functions, discretization, schemes for numerically solving PDEs. It also covers advanced issues like reinitialization, particle methods, levelset for modelling objects of codimension two. Finally, an extensive section on applications from computer vision and computational physics gives the reader an idea of the power and elegance of levelset methods. The presentation is very readable and precise enough to allow implementing the algorithms described straight away on the computer. This is a book for beginners and experts, written by a well-known expert in the field (Osher and Sethian wrote one of the most influential papers on levelsets).

I read this book and Sethian's book and found this one to be much easier to read. The presentation follows a logical sequence and looks much less like someone's thesis than Sethian's text. Level sets and many of their various applications are covered in relative detail for a book of this size. However, this is more of a survey book, as others have mentioned, and in my opinion that is a benefit. In addition to covering the fundamentals of level sets, the text covers many modern methods for solving hyperbolic conservation laws. I learned as much, or more, about high-order interpolation, flux-splitting, etc. from this book as from books by Laney and Leveque. For more detail on any of these topics, some of the best references are provided. An excellent text at a good price.

This book is good. It covers level set methods from the very basics through some rather advanced material. Sure it takes some material from published papers (the subject matter is way too recent to be done any other way). You can pick this book up with some knowledge of how to write a simple computer program and within a few weeks be up to speed on numerical methods for solving interesting problems in image processing and other interface tracking problems. It doesn't have all the numerical proofs you might want, but if you're willing to believe they exist then you can get off to

a fast start with this text and with a little creativity you should be able to start submitting your own papers using the tools presented here.

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