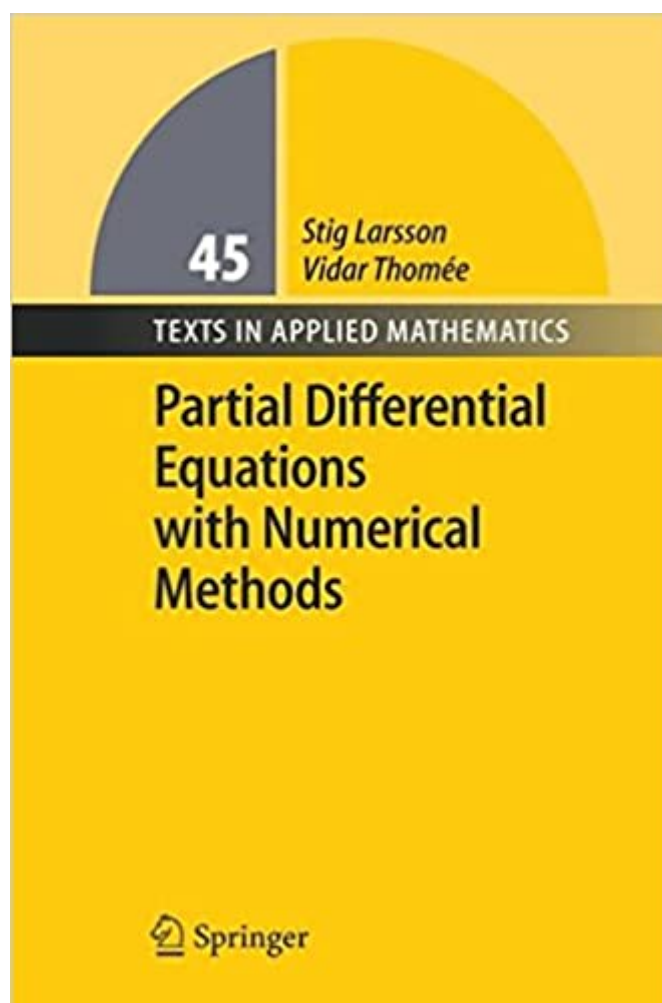**The book was found**

Partial Differential Equations With Numerical Methods (Texts In Applied Mathematics)

Synopsis

The main theme is the integration of the theory of linear PDE and the theory of finite difference and finite element methods. For each type of PDE, elliptic, parabolic, and hyperbolic, the text contains one chapter on the mathematical theory of the differential equation, followed by one chapter on finite difference methods and one on finite element methods. The chapters on elliptic equations are preceded by a chapter on the two-point boundary value problem for ordinary differential equations. Similarly, the chapters on time-dependent problems are preceded by a chapter on the initial-value problem for ordinary differential equations. There is also one chapter on the elliptic eigenvalue problem and eigenfunction expansion. The presentation does not presume a deep knowledge of mathematical and functional analysis. The required background on linear functional analysis and Sobolev spaces is reviewed in an appendix. The book is suitable for advanced undergraduate and beginning graduate students of applied mathematics and engineering.

Book Information

Customer Reviews

The book is suitable for advanced undergraduate and beginning graduate students of applied mathematics and engineering. The main theme is the integration of the theory of linear PDEs and the numerical solution of such equations. For each type of PDE, elliptic, parabolic, and hyperbolic, the text contains one chapter on the mathematical theory of the differential equation, followed by one chapter on finite difference methods and one on finite element methods. As preparation, the

two-point boundary value problem and the initial-value problem for ODEs are discussed in separate chapters. There is also one chapter on the elliptic eigenvalue problem and eigenfunction expansion. The presentation does not presume a deep knowledge of mathematical and functional analysis. Some background on linear functional analysis and Sobolev spaces, and also on numerical linear algebra, is reviewed in two appendices.

From the reviews:"The book under review is an introduction to the field of linear partial differential equations and to standard methods for their numerical solution. Ã¢â ¬Â¦ The balanced combination of mathematical theory with numerical analysis is an essential feature of the book. Ã¢â ¬Â¦ The book is easily accessible and concentrates on the main ideas while avoiding unnecessary technicalities. It is therefore well suited as a textbook for a beginning graduate course in applied mathematics." (A. Ostermann, IMN - Internationale Mathematische Nachrichten, Vol. 59 (198), 2005)"This book, which is aimed at beginning graduate students of applied mathematics and engineering, provides an up to date synthesis of mathematical analysis, and the corresponding numerical analysis, for elliptic, parabolic and hyperbolic partial differential equations. Ã¢â ¬Â¦ This widely applicable material is attractively presented in this impeccably well-organised text. Ã¢â ¬Â¦ Partial differential equations with numerical methods covers a lot of ground authoritatively and without ostentation and with a constant focus on the needs of practitioners." (Nick Lord, The Mathematical Gazette, March, 2005)"Larsson and ThomÃƒÂ©e Ã¢â ¬Â¦ discuss numerical solution methods of linear partial differential equations. They explain finite difference and finite element methods and apply these concepts to elliptic, parabolic, and hyperbolic partial differential equations. Ã¢â ¬Â¦ The text is enhanced by 13 figures and 150 problems. Also included are appendixes on mathematical analysis preliminaries and a connection to numerical linear algebra. Summing Up: Recommended. Upper-division undergraduates through faculty." (D. P. Turner, CHOICE, March, 2004)"This book presents a very well written and systematic introduction to the finite difference and finite element methods for the numerical solution of the basic types of linear partial differential equations (PDE). Ã¢â ¬Â¦ the book is very well written, the exposition is clear, readable and very systematic." (Emil Minchev, Zentralblatt MATH, Vol. 1025, 2003)"The authorÃ¢â ¬â„¢s purpose is to give an elementary, relatively short, and readable account of the basic types of linear partial differential equations, their properties, and the most commonly used methods for their numerical solution. Ã¢â ¬Â¦ We warmly recommend it to advanced undergraduate and beginning graduate students of applied mathematics and/or engineering at every university of the world." (Ferenc MÃƒÂ ricz, Acta Scientiarum Mathematicarum, Vol. 71, 2005)"The presentation of the book is smart

and very classical; it is more a reference book for applied mathematicians Ã¢â ¬Â| . The convergence results, error estimates, variation formulations, all the theorems proofs, are very clear and well presented, the annexes A and B summary the necessary background for the understanding, without redundant generalisation or forgotten matter. The bibliography is presented by theme, well targeted on the topic of the book." (Anne Lemaitre, Physicalia Magazine, Vol. 28 (1), 2006)Ã¢â ¬Å"Offers basic theory of linear partial differential equations and discusses the most commonly used numerical methods to solve these equations. Ã¢â ¬Â| There are two appendices providing some extra basic material, useful to help understanding some of the theoretical principles that might be unfamiliar to unexperienced readers and students. The text is elementary and meant for students in mathematics, physics, engineering. Ã¢â ¬Â| The bibliography is well arranged according to the important issues, which makes it easy to get informed about possible references for further study.Ã¢â ¬Â• (Paula Bruggen, Bulletin of the Belgian Mathematical Society, Vol. 15 (1), 2008)

I've found this book to be an excellent refresher, and I think that folks who don't have much experience in this field may find it to be an excellent introduction. It offers a theoretical overview of partial differential equations with examples of numerical methods for solving these equations.Sadly I must warn anyone thinking of buying the Kindle version: download the sample first and examine the formatting. You will find that the equations, while effectively readable, are not well produced on the Kindle. From time to time you will have to guess what a character is, and infer what is meant when, for example, we are told the length is "a |" when in fact it should read "| a |". Another example, the subscript "i" looks like an "l" which is definitely not a good thing for mathematical text. This doesn't make the book impossible to read, but it does slow down the reading flow in a very annoying way.If you are planning on purchasing this book, you may want to consider buying the paperback for just a few dollars (or cents, if you go from other sellers) more, and not have to waste your time and money paying for a poor 1980s xerox-copy quality overpriced version.To be 100% clear, though, I loved the book, but did not appreciate 's quality in the Kindle version and feel a bit cheated.

A very nice introduction to numerical methods for solving partial differential equations. The book discusses the essential equations and methods with both clarity and rigor. This is probably the only rigorous numerical PDE book at this level.

This book covers all of the important points in solving numerical partial differential equations

numerically and is a pretty good reference if you are already familiar with the material. The organization, index, and formatting of the text make it difficult to learn from, so I would not recommend either teaching from it or learning from it.

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