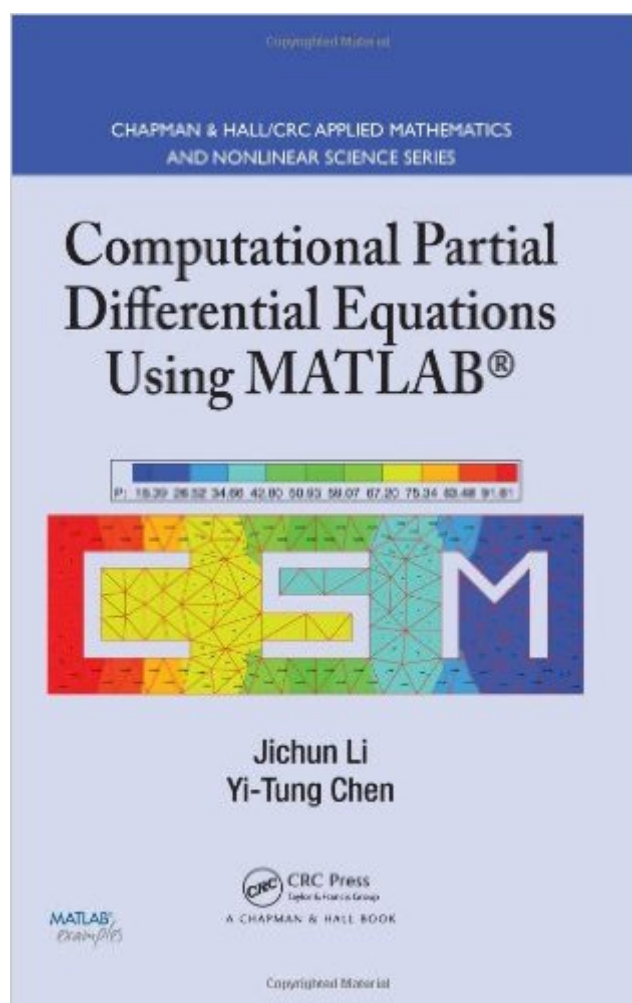# Computational Partial Differential Equations Using MATLAB (Chapman & Hall/CRC Applied Mathematics & Nonlinear Science)

Synopsis

This textbook introduces several major numerical methods for solving various partial differential equations (PDEs) in science and engineering, including elliptic, parabolic, and hyperbolic equations. It covers traditional techniques that include the classic finite difference method and the finite element method as well as state-of-the-art numerical methods, such as the high-order compact difference method and the radial basis function meshless method. Helps Students Better Understand Numerical Methods through Use of MATLAB®The authors uniquely emphasize both theoretical numerical analysis and practical implementation of the algorithms in MATLAB, making the book useful for students in computational science and engineering. They provide students with simple, clear implementations instead of sophisticated usages of MATLAB functions. All the Material Needed for a Numerical Analysis CourseBased on the authorsâ ™ own courses, the text only requires some knowledge of computer programming, advanced calculus, and difference equations. It includes practical examples, exercises, references, and problems, along with a solutions manual for qualifying instructors. Students can download MATLAB code from www.crcpress.com, enabling them to easily modify or improve the codes to solve their own problems.

Book Information

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Customer Reviews

This book is one of the best written on the subject and is suitable for readers in a wide variety of fields, including mathematics, computational sciences and engineering. It is certainly well-suited for

classroom use, and it includes many stand alone MATLAB source codes.The book not only cover classic finite difference methods, but also finite element methods, and meshless methods. The book also include some advanced topics such as high-order compact difference methods, radial basis meshless methods and Maxwell's equaations in dispersive media.I found those codes are very helpful for me to learn the algorithms (many books just talk the algorithms in the air), and I can even extend some codes in the book immediately for my research, since the authors kindly released their most recent work (such as compact scheme and meshless methods, which are currently quite active research areas) in the book.Very useful!

I bought this book from .com for a graduate course in numerical solution of PDE. It comes with a CD that contain all MATLAB codes. This book is kind of middle of engineer and mathematician's perspective on numerical analysis. MATLAB codes runs great, exercise problems are also good to understand many difficult relevant concepts. Overall, I think, this book is one the best numerical analysis book. did a little delay to deliver this book to me.

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