

**Zeitschrift:** L'Enseignement Mathématique  
**Herausgeber:** Commission Internationale de l'Enseignement Mathématique  
**Band:** 48 (2002)  
**Heft:** 3-4: L'ENSEIGNEMENT MATHÉMATIQUE

**Kapitel:** Informatique

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Prem K. KYTHE, Pratap PURI. — **Computational methods for linear integral equations.** — Un vol. broché, 16×24, de xviii, 508 p. — ISBN 0-8176-4192-0. — Prix: SFr. 190.00. — Birkhäuser, Boston, 2002.

This book presents basic theoretical material that deals with numerical analysis, convergence, error estimates, and accuracy. The unique computational aspect leads the reader from theoretical and practical problems all the way through to computation with hands-on guidance for input files and the execution of computer programs. — *Features:* offers all supporting *Mathematica* files related to the book via the Internet at the authors' web sites: [www.math.uno.edu/fac/pkythe.html](http://www.math.uno.edu/fac/pkythe.html) or [www.math.uno.edu/fac/ppuri.html](http://www.math.uno.edu/fac/ppuri.html); contains identification codes for problems, related methods, and computer programs that are cross-referenced throughout the book to make the connections easy to understand; illustrates a how-to approach to computational work in the development of algorithms, construction of input files, timing, and accuracy analysis; covers linear integral equations of Fredholm and Volterra types of the first and second kinds as well as associated singular integral equations, integro-differential equations, and eigenvalue problems; provides clear, step-by-step guidelines for solving difficult and complex computational problems.

Denis SERRE. — **Matrices: theory and applications.** — Graduate texts in mathematics, vol. 216. — Un vol. relié, 16×24, de xv, 202 p. — ISBN 0-387-95460-0. — Prix: €49.95. — Springer, New York, 2002.

Denis Serre provides a clear and concise introduction to the basic theory of matrices. He discusses many interesting applications of matrices to different aspects of mathematics and provides a detailed analysis of classical algorithms used in large-scale computation. The book combines algebra, analysis, complexity theory, and numerical analysis, and it will provide many scientists, not just mathematicians, with a useful and reliable reference. Based on a course given by the author at the École Normale Supérieure de Lyon, the book is intended for advanced undergraduate and graduate students with either applied or theoretical goals.

## *Informatique*

Joel S. COHEN. — **Computer algebra and symbolic computation: elementary algorithms.** — Un vol. relié, 24×16, de xvii, 323 p. — ISBN 1-56881-158-6. — Prix: US\$50.00. — A.K. Peters, Natick, Massachusetts, 2002.

The author explores the structure and implementation of computer algebra algorithms as well as the mathematical and computational concepts behind them. This book bridges the gap between software manuals, which only explain how to use computer algebra programs such as *Mathematica*, *Maple*, *Derive*, etc., and graduate level texts, which only describe algorithms. For a more advanced look at computer algebra, including the application of algorithms to methods such as automatic simplification, polynomial decomposition, and polynomial factorization, see *Computer Algebra and Symbolic Computation: Mathematical Methods*.

## *Mécanique des fluides, acoustique*

C.I. CHRISTOV, A. GURAN, (Editors). — **Selected topics in nonlinear wave mechanics.** — Un vol. relié, 24×16, de xii, 263 p. — ISBN 0-8176-4059-2. — Prix: SFr. 198.00. — Birkhäuser, Boston, 2002.

This comprehensive reference text gives an overview of the current state of nonlinear wave mechanics in both elastic and fluid media. Consisting of self-contained chapters, the book covers new aspects on strong discontinuities (shock waves) and localized self-preserving (permanent)