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transfer when chemical kinetics and turbulent mixing are equally important. The developed models include the evolutionary transfer equations for the single-point second correlation moments of turbulent fluctuations of thermohydrodynamical parameters. As compared to previously published books on the problem of turbulence, this book deals, for the first time, with the complicated models of reacting gas mixtures. It is intended for graduate and postgraduate students in the fields of fluid gas dynamics, astrophysics, space physics, planetary sciences, and aeronomy, and especially for those dealing with computer modelling of the processes in such natural media. The book may also be of interest to specialists in the relevant fields of ecology, engineering, and material processing.

Économie, recherche opérationnelle, jeux

Maïtine BERGOUNIOUX. — **Optimisation et contrôle des systèmes linéaires: cours et exercices avec solutions.** — Sciences sup, cours 2^e cycle. — Un vol. broché, 17×24, de IX, 260 p. — ISBN 2-10-005626-3. — Prix: € 25.90. — Dunod, Paris, distribution Vivendi Universal, Fribourg, Suisse, 2001.

Cet ouvrage présente une introduction à la théorie du contrôle optimal des équations différentielles ordinaires ainsi que les fondements de l'optimisation en dimension finie et les algorithmes de base. Une première partie évoque l'optimisation en dimension finie en abordant les notions de convexité, de minimisation sans contraintes et avec contraintes et les principales méthodes de résolution numérique. En seconde partie, les résultats obtenus sont appliqués au contrôle optimal des systèmes différentiels linéaires; quelques notions de calcul différentiel y sont également rappelées.

Gerard SIERKSMA. — **Linear and integer programming: theory and practice.** — Second edition. — Monographs and textbooks in pure and applied mathematics, vol. 245. — Un vol. relié, 19×26, de XIV, 633 p. + 1 disquette. — ISBN 0-8247-0673-0. — Prix: US\$ 175.00. — New York, Marcel Dekker, 2002.

Thoroughly reorganized throughout to provide enhanced logical and clear presentation of the topics discussed, this second edition of *Linear and Integer Programming* offers theory and solutions for in-depth analyses... covers duality, degeneracy, and multiplicity from a geometrical viewpoint... considers branch-and-bound, simplex, revised simplex, and network simplex techniques... examines sensitivity analysis... details the Gilmore–Gomory and Bender decomposition methods... highlights the interior path version of Karmarkar's method... examines mixed-integer programming and the theory of logical variables... demonstrates the theory of totally unimodular and network matrices... outlines linear algebra, convexity, and graph theory... displays flow diagrams for composing courses... contains software for the interior path method and more.

Biologie et sciences du comportement

Martin BENISTON, (Editor). — **Climatic change: implications for the hydrological cycle and for water management.** — Advances in global change research, vol. 10. — Un vol. relié, 16,5×24,5, de XX, 501 p. — ISBN 1-4020-0444-3. — Prix: € 140.00. — Kluwer Academic Publishers, Dordrecht, 2002.

The material presented in this book covers such diverse areas as shifts in precipitation patterns in a changing global climate, the implications of floods or drought, and considerations of managing water resources stressed by poor management practices, overexploitation, and climatic change. In this sense, bringing together, under one cover, issues that are often otherwise dealt with in a mono-disciplinary manner, i.e. either through the physical sciences or through

economic or social considerations, is what constitutes the originality of this work. By presenting the interdisciplinary nature of these topics, the book has added value for scientists who wish to broaden their horizons and avenues of research.

Information, communication, circuits

Kazimierz ALSTER, Jerzy URBANOWICZ, Hugh C. WILLIAMS, (Editors). — **Public-key cryptography and computational number theory.** — Proceedings of the International Conference organized by the Stefan Banach International Mathematical Center Warsaw, Poland, September 11-15, 2000. — Un vol. relié, 18×25, de XII, 331 p. — ISBN 3-11-017046-9. — Prix: DM 256.00. — Walter de Gruyter, Berlin, 2001.

This volume contains articles from leading experts in the world on cryptography and computational number theory, providing an account of the state of research in a wide variety of topics related to the conference theme. It contains fifteen articles on public-key cryptography which are concerned with efficiency and security of DL-cryptosystems, DL-cryptosystems based on elliptic curves, the Jacobian of a hyperelliptic curve, algebraic groups and class groups of imaginary and real quadratic orders, connections between cryptography and error correcting codes, new cryptosystems (NTRU and XTR) and other new ideas in cryptography.

R.J. McELIECE. — **The theory of information and coding.** — Second edition. — Encyclopedia of mathematics and its applications, vol. 86. — Un vol. relié, 16×23,5, de XII, 397 p. — ISBN 0-521-00095-5. — Prix: £60.00. — Cambridge University Press, Cambridge, 2002.

This volume is a self-contained introduction to all basic results in the theory of information and coding. This theory was developed to deal with the fundamental problem of communication, that of reproducing at one point, either exactly or approximately, a message selected at another point. First there is a short and elementary overview that introduces the reader to the concept of coding. Following that part 1 is devoted to Shannon's main results, the channel and source coding theorems, and part 2 is devoted to a study of specific coding schemes which can be used for channel and source coding. The main changes in this edition are in part 2 which has been revised and expanded.

Annette WERNER. — **Elliptische Kurven in der Kryptographie.** — Un vol. broché, 15,5×23,5, de X, 142 p. — ISBN 3-540-42518-7. — Prix: € 22.95. — Springer, Berlin, 2002.

Dieses Lehrbuch bietet eine elementare Einführung in ein mathematisch anspruchsvolles Gebiet der modernen Kryptographie, das zunehmend an praktischer Bedeutung gewinnt. Die relevanten Tatsachen über elliptische Kurven und Public-Key-Kryptographie werden ausführlich erläutert. Dabei werden nur geringe Vorkenntnisse vorausgesetzt, um den Text für Studierende der Mathematik und Informatik ab dem fünften Semester sowie für Praktiker zugänglich zu machen.