world and used more and more by physicists as well. This book offers a self-contained presentation of basic *p*-adic analysis. The author is especially interested in the analytical topics in this field. Some of the features that are not treated in other introductory *p*-adic analysis texts are topological models of *p*-adic spaces inside Euclidean space, a construction of spherically complete fields, a *p*-adic mean value theorem and some consequences, a special case of Hazewinkel's functional equation lemma, a remainder formula for the Mahler expansion, and most importantly a treatment of analytic elements.

Daniel B. SHAPIRO. — **Compositions of quadratic forms.** — De Gruyter expositions in mathematics, vol. 33. — Un vol. relié, 17×24, de XIII, 417 p. — ISBN 3-11-012629-X. — Prix: DM 248.00. — Walter de Gruyter, Berlin, 2000.

The central topic of this book is the theorem of Hurwitz and Radon concerning composition formulas for sums of squares, first proved in the 1920's. Techniques from algebra and topology are used to generalize that theorem in several directions. The text includes worked examples and many exercises which develop still more variations of the central topic. The main audience is people who have had some graduate courses in abstract algebra, but many sections of the book are accessible to anyone with some training in linear algebra. Several major topics in this book will be of interest to students of topology and geometry. The author has attempted to make the presentation as clear and as elementary as possible.

Corps et polynômes

Karl RUBIN. — **Euler systems.** — Annals of mathematics studies, no. 147. — Un vol. broché, 15,5×23,5, de XI, 225 p. — ISBN 0-691-05076-7. — Prix: US$24.95. — Princeton University Press, Princeton, N.J., 2000.

Euler systems are special collections of cohomology classes attached to *p*-adic Galois representations. The author presents a self-contained development of the theory of Euler systems. Rubin first reviews and develops the necessary facts from Galois cohomology. He then introduces Euler systems, states the main theorems, and develops examples and applications. The remainder of the book is devoted to the proofs of the main theorems as well as some further speculations.

Andrzej SCHINZEL. — **Polynomials with special regard to reducibility.** — Encyclopedia of mathematics and its applications, vol. 77. — Un vol. relié, 16×24, de X, 558 p. — ISBN 0-521-66225-7. — Prix: £60.00. — Cambridge University Press, Cambridge, 2000.

This book is an attempt to cover most of the results on reducibility of polynomials over fairly large classes of fields; results valid only over finite fields, local fields or the rational field have not been included. On the other hand, included are many topics of interest to the author that are not directly related to reducibility, e.g. Ritt's theory of composition of polynomials. *Contents*: Arbitrary polynomials over an arbitrary field. — Lacunary polynomials over an arbitrary field. — Polynomials over an algebraically closed field. — Polynomials over a finitely generated field. — Polynomials over a number field. — Polynomials over a Kroneckerian field.

Géométrie algébrique

Jean-Benoît BOST, François LOESER, Michel RAYNAUD, (Editeurs). — **Courbes semi-stables et groupe fondamental en géométrie algébrique: Luminy, décembre 1998.** — Progress in mathematics, vol. 187. — Un vol. relié, 16×24, de VII, 289 p. — ISBN 3-7643-6308-8. — Prix: SFr. 98.00. — Birkhäuser, Basel, 2000.

The purpose of this volume is twofold. Firstly, it gives an account of basic facts concerning rigid geometry, stable curves, and algebraic fundamental groups, in a form which should make

them largely accessible to graduate students. Most of this material has not yet appeared in book form. In particular, the semi-stable reduction theorem for curves is covered with special care, including various detailed proofs. Secondly, the book presents self-contained expositions of important recent developments aimed at experts in number theory and algebraic geometry, but it is also accessible to students who have read the first part.

Alessio CORTI, Miles REID, (Editors). — **Explicit birational geometry of 3-folds.** — London Mathematical Society lecture note series, vol. 281. — Un vol. broché, 15×23, de v, 349 p. — ISBN 0-521-63641-8. — Prix: £27.95. — Cambridge University Press, Cambridge, 2000.

One of the main achievements of algebraic geometry over the last 20 years is the work of Mori and others extending minimal models and Enriques-Kodaira classification to 3-folds. This book is an integral suite of papers centred around applications of Mori theory to birational geometry. Four of the papers (those by Pukhlikov, Iano-Fletcher, Corti, and the joint paper Corti, Pukhlikov and Reid) work out in detail the theory of birational rigidity of Fano 3-folds; these papers work for the first time with a representative class of Fano varieties, 3-fold hypersurfaces in weighted projective space, and include an attractive introductory treatment and a wealth of detailed computation of special cases.

David EISENBUD, Joe HARRIS. — **The geometry of schemes.** — Graduate texts in mathematics, vol. 197. — Un vol. broché, 15,5×23,5, de x, 294 p. — ISBN 0-387-98637-5. — Prix: DM 52.00. — Springer, New York, 2000.

This book is intended to bridge the chasm between a first course in classical algebraic geometry and a technical treatise on schemes. It focuses on examples and strives to show "what's going on" behind the definitions. There are many exercises to test and extend the reader's understanding. The book aims to show schemes in relation to other geometric ideas, such as the theory of manifolds. Some familiarity with these ideas is helpful, though not required.

Geir ELLINGSRUD, William FULTON, Angelo VISTOLI, (Editors). — **Recent progress in intersection theory.** — Trends in mathematics. — Un vol. relié, 16×24, de VIII, 327 p. — ISBN 0-8176-4122-X. — Prix: SFr. 148.00. — Birkhäuser, Boston, 2000.

This collection of papers focuses on new concepts and results in intersection theory, enumerative geometry, and related topics; it is an outgrowth of a conference in intersection theory held in Bologna, Italy, in December 1997. Many of the papers included here have a strongly expository content, yet they lead to the forefront of our knowledge. For this reason the work will be very useful to experts in intersection theory, as well as to graduate students and specialists in other areas of mathematics and physics. The broad range of topics covered includes: algebraic stacks, moduli theory and Gromov-Witten invariants; recent applications of homotopy theory to intersection theory; an introduction to the formalism of motives, and to the Bloch-Beilinson filtration; an introduction to the excess intersection algorithm of Stückrad and Vogel and its geometric aspects.

H. HAUSER, J. LIPMAN, F. OORT, A. QUIRÓS, (Editors). — **Resolutions of singularities: a research textbook in tribute to Oscar Zariski: based on the courses given at the Working Week in Obergurgl, Austria, September 7-14, 1997.** — Progress in mathematics, vol. 181. — Un vol. relié, 16×24, de XXI, 598 p. — ISBN 3-7643-6178-6. — Prix: SFr. 138.00. — Birkhäuser, Basel, 2000.

J. Lipman: Oscar Zariski 1899-1986. — H. Hauser: Resolution of singularities 1860-1999. — D. Abramovich, F. Oort: Alterations and resolution of singularities. — J.-M. Aroca:

Reduction of singularities for differential equations. — J.M. Aroca: Puisieux solutions of singular differential equations. — S. Encinas, O. Villamayor: A course on constructive desingularization and equivariance. — G. Bodnár, J. Schicho: A computer program for the resolution of singularities. — V. Cossart: Uniformisation et désingularisation des surfaces d'après Zariski. — D. Cox: Toric varieties and toric resolution. — B. van Geemen, F. Oort: A compactification of a fine moduli space of curves. — T. Geisser: Applications of de Jong's theorem on alterations. — R. Goldin, B. Teissier: Resolving singularities of plane analytic branches with one toric morphism. — H. Hauser: Excellent surfaces and their taut resolution. — A.-J. de Jong: An application of alterations to Dieudonné modules. — F.-V. Kuhlmann: Valuation theoretic and model theoretic aspects of local uniformization. — D.T. Lê: Les singularités Sandwich. — J. Lipman: Equisingularity and simultaneous resolution of singularities. — G. Müller: Resolution of weighted homogeneous surface singularities. — F. Pop: Alterations and birational anabelian geometry. — H. Reitberger: The turbulent fifties in resolution of singularities. — M. Vaquié: Valuations.

Marc HINDRY, Joseph H. SILVERMAN. — **Diophantine geometry: an introduction.** — Graduate texts in mathematics, vol. 201. — Un vol. broché, 15,5×23,5, de XIII, 558 p. — ISBN 0-387-98981-1. — Prix: DM 79.00. — Springer, New York, 2000.

Diophantine geometry is the study of integral and rational solutions to systems of polynomial equations using ideas and techniques from algebraic number theory and algebraic geometry. The ultimate goal is to describe the solutions in terms of geometric invariants of the underlying algebraic variety. This book contains complete proofs of four of the fundamental finiteness theorems in Diophantine geometry, the Mordell-Weil theorem, Roth's theorem, Siegel's theorem, Faltings' theorem. Also included are a lengthy overview (with sketched or omitted proofs) of algebraic geometry, a detailed development of the theory of height functions, a discussion of further results and open problems, numerous exercises, and a comprehensive index.

Vladimir VOEVODSKY, Andrei SUSLIN, and Eric M. FRIEDLANDER. — **Cycles, transfers, and motivic homology theories.** — Annals of mathematics studies, no. 143. — Un vol. broché, 15,5×23,5, de V, 254 p. — ISBN 0-691-04815-0. — Prix: US$24.95. — Princeton University Press, Princeton, N.J., 2000.

The original goal that ultimately led to this volume was the construction of motivic cohomology theory, whose existence was conjectured by A. Beilinson and S. Lichtenbaum. This is achieved in the book's fourth paper, using results of the other papers whose additional role is to contribute to our understanding of various properties of algebraic cycles. The material presented provides the foundations for the recent proof of the celebrated Milnor conjecture by Vladimir Voevodsky. — *Contents:* Introduction. Relative cycles and Chow sheaves. — Cohomological theory of presheaves with transfers. — Bivariant cycle cohomology. — Triangulated categories of motives over a field. — Higher Chow groups and Etale cohomology.

Algèbre linéaire et multilinéaire, théorie des matrices

R.B. BAPAT. — **Linear algebra and linear models.** — 2nd edition. — Universitext. — Un vol. relié, 16×24, de X, 138 p. — ISBN 0-387-98871-8. — Prix: DM 89.00. — Springer, New York, 2000.

The main purpose of *Linear Algebra and Linear Models* is to provide a rigorous introduction to the basic aspects of the theory of linear estimation and hypothesis testing. The necessary prerequisites in matrices, multivariate normal distribution, and distributions of quadratic forms are