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Approximation and function spaces. — Proceedings of the International conference held in Gdansk, August 27-31, 1979. — Edited by Zbigniew Ciesielski. — Un vol. relié, 19 × 24, de XIV, 898 p. — Prix: Dfl 275.00. — North-Holland publishing company, Amsterdam/New York/Oxford, and, PWN-Polish scientific publishers, Warszawa, 1981.

75 exposés par: S. Aljančić. — A. Andreev. — V. V. Arestov and N. I. Chernykh. — M.-B. A. Babaev. — V. M. Badkow. — V. A. Baskakov. — M. Becker and R. J. Nessel. — V. I. Belyj. — V. I. Berdyshev. — G. Bleimann, J. Junggeburth and E. L. Stark. — G. Bleimann and E. L. Stark. — C. De Boor. — Ya. S. Bugrov. — P. L. Butzer and W. Dickmeis. — V. Chakalov and E. Dimitrov. — Z. Ciesielski and T. Figiel. — L. Csernyák and I. Joó. — W. Dahmen. — R. Devore. — V. G. Doronin and A. A. Ligun. — P. Erdös and P. Vértesi. — H. Hudzik, J. Musielak and R. Urbánski. — K. G. Ivanov. — T. Iwaniec. — R. Johnson. — I. Joó. — V. Khristov and P. P. Petrushev. — A. Kivinukk. — V. Kokilashvili. — V. N. Konovalov. — N. P. Kornejchuk. — V. A. Koshcheev. — W. M. Kosłowski. — A. Kroó. — L. Leindler. — A. A. Ligun. — C. Markett. — H. J. Mertens and R. J. Nessel. — Ch. A. Mi helli. — F. Móricz. — G. O. Müller and R. Trautner. — J. Myjak. — G. Németh. — J. Németh. — M. G. Nikolcheva. — S. M. Nikol'skij. — P. Oswald. — J. Pál. — W. Plesniak. — V. A. Popov. — A. A. Privalov. — P. Pych-Taberska. — R. Scherer and K. Zeller. — F. Schipp. — H. S. Shapiro. — A. Sharma, P. W. Smith and J. Tzimbalario. — I. A. Shevchuk. — P. Simon. — P. Sjölin. — E. A. Storozhenko. — J. Szabados. — I. Szalay. — R. Taberski. — A. A. Talalyan. — K. Tandori. — Sp. Tashev. — M. Tomić. — V. Totik. — H. Triebel. — V. M. Veselinov. — H. Wallin. — A. Wójcik. — Z. Wronicz. — A. A. Zhensykbaev.

Klaus DONNER. — **Extension of positive operators and Korovkin theorems.** — Lecture notes in mathematics, vol. 904. — Un vol. broché, 17 × 25, de XII, 181 p. — Prix: DM 21.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

Cone imbeddings for vector lattices. — A vector valued Hahn-Banach theorem. — Bisublinear and subbilinear functionals. — Extensions of L^1-valued positive operators. — Extension of positive operators in L^p-spaces. — The Korovkin closure for equicontinuous nets of positive operators. — Korovkin theorems for the identity mapping on classical Banach lattices. — Convergence to vector lattice homomorphisms and essential sets.

Numerical analysis. — Proceedings of the third IIMAS workshop held at Cocoyoc, Mexico, January 1981. — Edited by J. P. Hennart. — Lecture notes in mathematics, vol. 909. — Un vol. broché, 17 × 25, de VII, 247 p. — Prix: DM 29.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

23 exposés par: P. T. Boggs and J. W. Tolle. — J. C. P. Bus. — A. V. Levy, A. Montalvo, S. Gomez and A. Calderon. — S. Gomez and A. V. Levy. — R. H. Bartels and

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Shreeram S. ABHYANKAR. — **Weighted expansions for canonical desingularization.** — With foreword by U. Orbanz. — Lecture notes in mathematics, vol. 910. — Un vol. broché, 17 × 25, de VII, 236 p. — Prix: DM 25.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

Semigroups. Strings. Semigroup strings with restrictions. Ordered semigroup strings with restrictions. Strings on rings. Indeterminate strings. Indeterminate strings with restrictions. Restricted degree and order for indeterminate strings. Indexing strings. Nets. Semigroup nets with restrictions. Ordered semigroup nets with restrictions. Nets on rings. Indeterminate nets. Indeterminate nets with restrictions. Restricted degree and order for indeterminate nets. Prechips. Isobars for prechips and premonic polynomials. Substitutions with restrictions. Coordinate nets and monic polynomials. Graded ring of a ring. Graded rings at strings and nets and the notions of separatedness and regularity for strings and nets. Inner products and further notions of separatedness and regularity for strings, for nets. Weighted isobars and weighted initial forms. Initial forms for regular strings and nets. Protochips and parachips. Support of an indexing string. Derived prescales. Supports of prescales. Inner products for protoscales. Scales and isobars. Properties of derived prescales. Isobars for derived scales. Isobars and initial forms for scales. Initial forms for scales and regular nets. Isobars for protochips. Initial forms for protochips and monic polynomials.

J.-P. BEZIVIN, A. LEVY-BRUHL. — **Les groupes finis et leurs représentations complexes: exercices.** — Collection « Maîtrise de mathématiques pures ». — Un vol. broché, 16 × 24, de 107 p. — Masson, Paris/New York/Barcelone/Milan/Mexico/Rio de Janeiro, 1982.

Cet ouvrage suit, chapitre par chapitre, le plan de l'ouvrage de M. P. Malliavin: « Les groupes finis et leurs représentations complexes », soit: Groupes résolubles, permutations, théorèmes de Sylow, représentations des groupes, modules sur l'algèbre du groupe, caractères, représentations induites, représentations du groupe symétrique.

George A. BAKER, Jr. and Peter GRAVES-MORRIS. — **Padé approximants, part I: Basic theory and part II: Extensions and applications.** — Foreword by Peter A. Carruthers. — Encyclopedia of mathematics and its applications, vol. 13 and 14. — 2 vol. reliés, de XX, 325 p. et XVIII, 215 p. — Prix: Part I: $32.50, Part II: $29.50. — Addison-Wesley publishing company, Reading, Mass./London/Amsterdam/Don Mills, Ontario/Sydney/Tokyo, 1981.

BASIC THEORY: Introduction and definitions. Direct application. Padé approximants and numerical methods. Connection with continued fractions. Stieltjes series and Polya series. Convergence theory. — EXTENSIONS AND APPLICATIONS: Extensions of Padé approximants. Connection with integral equations and quantum mechanics. Connection with numerical analysis. Connection with quantum field theory.

D. L. ARMACOST. — **The structure of locally compact abelian groups.** — Monographs and textbooks in pure and applied mathematics, vol. 68. — Un vol. relié, 16 × 24, de VII, 154 p. — Prix: FS 72.00. — Marcel Dekker, Inc., New York/Basel, 1981.

Familiar groups characterized. Topological p-groups. Topological torsion groups. Sufficiency classes. H-dense groups. Splitting problems. Pure subgroups. Connectedness properties. More splitting, and some homological methods. Different topologies.

Manfred KNEBUSCH, Manfred KOLSTER. — **Wittrings.** — Aspects of mathematics, vol. 2. — Un vol. broché, 16 × 23, de XI, 96 p. — Prix: DM 28.00. — Fried. Vieweg & Sohn, Braunschweig/Wiesbaden, 1982.

Basic facts about symmetric bilinear forms, and the definition of the Wittring: Bilinear spaces. Witt- and Grothendieck-rings. Appendix: quadratic forms. — *The structure of Wittrings:* Generators and relations. The prime ideals of a Wittring. Nilpotent and torsion elements. Application: the theorem of Artin-Pfister. Complements to the structure theory. Characterization of abstract Wittrings. Fields with isomorphic Wittrings. — *Reduced Wittrings:* Von Neumann regular rings. Topological description of reduced Wittrings. A Nullstellensatz for Witt ideals and a generalization of the theorem of Artin-Pfister. When are Wittrings group rings? Fields with strong approximations for orderings.

Integer programming and related areas: a classified bibliography 1978-1981. — Compiled at the Institut für Ökonometrie und operations research, University of Bonn. — Edited by R. von Randow. — Lecture notes in economics and mathematical systems, vol. 197. — Un vol. broché, 16,5 × 24, de XIV, 338 p. — Prix: DM 52.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

This volume continues the series "Integer programming and related areas: a classified bibliography", published as Lecture notes in economics and mathematical systems Nos. 128 and 160. It contains the publications appearing in the period from early in 1978 to mid 1981, as well as any previous publications which were not included in the first or second volume.

The following topics are covered: Theory and methods of general integer programming, combinatorial and graph theoretical optimization problems related to integer programming, applications of integer programming.

Biomathematics in 1980. — Papers presented at a workshop on biomathematics: current status and future perspectives, Salerno, April 1980. — Edited by Luigi Ricciardi and Alwyn Scott. — North-Holland mathematics studies, vol. 58. — Un vol. broché, 17 × 24, de XIV, 298 p. — Prix: Dfl 120.00. — North-Holland publishing company, Amsterdam/New York/Oxford, 1982.

R. Rosen: Feedforward control and senescence. — *H. Haken:* Mathematical methods of synergetics for applications to self-organizing systems. — *A. V. Holden:* The mathematics of excitation. — *Alwyn Scott and Uja Vota Pinardi:* Nerve pulse interactions. — *Ryuuzo Shingai:* Models for the transient amacrine cells in the retina. — *F. Angelini, M. Barbi, S. Chillemi, and D. Petracchi:* Operational models of neural encoding. — *J. C. Eilbeck:* A strategy for investigating solutions of coupled nonlinear diffusion equations, with applications to pattern formation models in biology. — *Piero de Mottoni:*

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Qualitative theory of differential equations: vol. I and II. — Colloquium organized in Szeged, Hungary, from 27th to 31st August 1979. — Edited by M. Farkas. — Colloquia mathematica societatis Janos Bolyai, vol. 30. — Deux vol. reliés, 18 × 25, de 1090 p. — Prix: Dfl 375.00 les deux volumes. — North-Holland publishing company, Amsterdam/Oxford/New York, 1981.

53 exposés par: D. D. Bainov, S. D. Milusheva. — K. Balla. — Ju. N. Bibikov. — H. G. Bothe. — G. J. Butler. — L. A. Cherkas. — R. Conti. — Ch. Djaja. — A. Elbert. — J. Elias. — L. Erbe. — P. Érdi, J. Tóth, V. Hars. — J. O. C. Ezeilo. — I. Foltynska, J. Werbowski. — A. Galántai. — B. M. Garay. — M. Gregus. — P. S. Gromova. — D. Gronau. — I. Gyôri. — V. Hárs, J. Tóth. — L. Hatvani. — E. Heil. — J. Kalas. — F. Kappel. — I. T. Kiguradze. — M. Klincsik. — M. M. Konstantinov, D. D. Bainov. — P. Krbec. — Zs. Lipcsey. — W. S. Loud. — S. Manolov. — V. M. Matrosov, R. I. Kozlov. — J. Mawhin. — B. Mehri. — Ju. A. Mitropol'skij. — F. Neuman. — M. Ôtani. — A. S. Oziraner. — T. Radzikowski, W. Sadkowski. — A. A. Rejnfeld. — V. V. Rumjancev. — T. Rzezuchowski. — L. Salvadori. — A.-M. Sändig. — K. R. Schneider. — G. Stépán. — H. O. Tejumola. — J. Terjéki. — G. Tóth. — J. Werbowski, A. Wyrwińska. — M. Yamaguchi. — O. A. Zhautykov.

I. W. Gelman und W. G. Mazja. — **Abschätzungen fur Differentialoperatoren im Halbraum.** — In deutscher Sprache herausgegeben von G. Wildenhain. — Un vol. relié, 18 × 24, de 221 p. — Prix: FS 63.00. — Birkhäuser-Verlag, Basel/Boston/Stuttgart, 1982.

Abschätzungen für Systeme gewöhnlicher Differentialoperatoren auf der Halbachse. Abschätzungen im Halbraum: notwendige und hinreichende Bedingungen. Beispiele. Über korrekt gestellte Randwertaufgaben im Halbraum. — Abschätzungen für gewöhnliche Differentialoperatoren auf der Halbachse. Abschätzungen im Halbraum: notwendige und hinreichende Bedingungen. Die Beschreibung der Spurräume. — Abschätzungen für gewöhnliche Differentialoperatoren auf der Halbachse. Abschätzungen im Halbraum: notwendige und hinreichende Bedingungen. Beispiele. — Vorbereitende Ergebnisse. Quasielliptische Polynome. Homogene Polynome mit einfachen Wurzeln. Einige Klassen inhomogener Polynome mit einfachen Wurzeln. Polynome zweiten Grades. Über den Spurraum von Funktionen aus dem Definitionsbereich des maximalen Operators.

Samuel S. SHAPIRO, Alan J. GROSS. — **Statistical modeling techniques.** — Statistics: textbooks and monographs, vol. 38. — Un vol. relié, 16 × 24, de XII, 367 p. — Prix: FS 89.00. — Marcel Dekker, Inc., New York/Basel, 1981.

Basic concepts of statistical models : Basic concepts. Uses and selection of statistical models. Definition of terms. — *Concepts of statistical theory :* Probability. Probability distributions in a single variable. Multivariate probability distributions. Marginal and conditional distributions and stochastic independence for bivariate distributions and moments. Principles of statistical estimation. Confidence intervals and tests of statistical hypotheses. — *Models for measurement : continuous case :* The exponential model. The Weibull model. The gamma model. Other continuous models. — *Models for measurement : discrete case :* The binomial model. The Poisson model. The hypergeometric model. The geometric and negative binomial models. The multinomial model. Compound models. Power series models. — *Empirical models :* Systems for classification of distributions. The generalized lambda family. The Johnson system. The Pearson family. — *Testing model assumptions :* Regression tests. Distance tests. Chi-square goodness-of-fit test. — *Analysis of systems :* Monte Carlo simulation. Propagation of moments. Case studies. — *Appendices :* Tables. Equation for $E(y^4)$ in the propagation-of-moments technique.

Hrishikesh D. VINOD, Aman ULLAH. — **Recent advances in regression methods.** — Statistics: textbooks and monographs, vol. 41. — Un vol. relié, 16 × 24, de XII, 361 p. — Prix: FS 118.00. — Marcel Dekker, Inc., New York/Basel, 1981.

Linear regression model. — Criteria for good regression estimators: MSE, consistency, stability, robustness, minimaxity and Bayesian "MELO"ness. — Restricted least squares and Bayesian regression. — Autoregressive moving average (ARMA) regression errors and heteroscedasticity. — Multicollinearity and stability of regression coefficients. — Stein-Rule shrinkage estimator. — Ridge regression. — Further ridge theory and solutions. — Estimation of polynomial distributed lag models. — Multiple sets of regression equations. — Simultaneous equations model. — Canonical correlations, and discriminant analysis with Ridge-type modification. — Improved estimators under nonnormal errors and robust regression.

K. DIEDERICH, I. LIEB. — **Konvexität in der komplexen Analysis: neue Ergebnisse und Methoden.** — DMV Seminar, Bd. 2. — Un vol. broché, 17 × 24, de VIII, 150 p. — Prix: FS 22.00. — Birkhäuser, Basel/Boston/Stuttgart, 1981.

Stetige Forsetzbarkeit eigentlicher holomorpher Abbildungen auf den Rand. — Das Neumann-Problem für den $\bar{\partial}$-Operator. — Pseudokonvexe Gebiete mit reell-analytischen Rändern. — Die C^∞-Fortsetzbarkeit biholomorpher Abbildungen auf den Rand.

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Explanation of statistical terms and procedures. Factorials. Binomial distributions. Negative binomial distribution. Inverse sine transformation. Sign tests. Poisson distributions. Normal distribution. Normal scores. Standardised range. Negative exponential

distributions. Studentised range. Chi-square distributions. *t*-distributions. *F*-distributions. Duncan's multiple range. Tests. Fisher's exact test. Natural logarithms. Wilcoxon signed-rank test. Mann-Whitney rank-sum test. Kolmogorov tests. Smirnov tests. Kruskal-Wallis test. Terry-Hoeffding normal scores test. Friedman test/Kendall coefficient of concordance. Number-of-runs tests. Pearson correlation coefficient. Spearman correlation coefficient/Hotelling-Pabst test. Kendall correlation coefficient. Normal scores correlation coefficient. Quadrant-sum test (Olmstead-Tukey). Multiple correlation coefficient. Von Neumann ratio. Durbin-Watson statistic. Random standardised normal deviates. Random digits. Guide to tests.

Toeplitz centennial. — Toeplitz memorial conference in operator theory, dedicated to the 100th anniversary of the birth of Otto Toeplitz, Tel Aviv, May 11-15, 1981. — Edited by I. Gohberg. — Operator theory: advances and applications, vol. 4. — Un vol. relié, 17 × 24, de 588 p. — Prix: FS 92.00. — Birkhäuser Verlag, Basel/Boston/Stuttgart, 1982.

Research papers : 29 exposés par: E. Albrecht. — R. Arocena, M. Cotlar. — E. Azoff, K. Clancey and I. Gohberg. — J. A. Ball. — H. Bart, I. Gohberg and M. A. Kaashoek. — P. Baum, R. G. Douglas. — L. G. Brown. — D. N. Clark. — L. A. Coburn. — H. O. Cordes. — M. Costabel. — C. Davis. — H. Dym, A. Iacob. — C. Foias. — H. Gauchman. — H. Haller, K. Jacobs. — W. Kaballo. — T. Kailath, H. Lev-Ari. — R. R. Kalman. — H. G. Kaper. — P. D. Lax, R. S. Phillips. — M. S. Livšic. — G. Lumer. — E. Meister. — C. R. Putnam. — L. Waelbroeck. — H. Widom. — M. Wolff. — P. F. Zweifel, W. Greenberg. — *Memorial papers :* 4 exposés par: G. Köthe. — U. Toeplitz. — J. Dieudonné.

Marcel Bertaud et Bernard Charles. — **Initiation à la statistique et aux probabilités.** — Un vol. broché, 17 × 25, de 360 p. — Prix: FF 60.00. — Les Presses de l'Université de Montréal, Montréal, Québec, et Editions Eyrolles, Paris, 1980.

Distributions expérimentales, représentation. — Distributions à un caractère, résumés numériques. — Distributions à deux caractères, résumés numériques. — Espaces probabilisés, aléas et variables aléatoires. — Espaces probabilisés finis, loi des grands nombres. — Loi exponentielle et loi de Poisson. — Loi normale et lois associées. — Estimation. — Sondages. — Tests d'hypothèses. — Problèmes de liaison. — Statistique et calculateurs. — Tables statistiques. — Nombreux exercices avec solution, à la fin de chaque chapitre.

Carl Faith. — **Injective modules and injective quotient rings.** — Lecture notes in pure and applied mathematics, vol. 72. — Un vol. broché, 18 × 25, de viii, 105 p. — Prix: FS 58.00. — Marcel Dekker, Inc., New York/Basel, 1982.

Injective modules over Levitzki rings : Annihilators and the Galois connection. Levitzki modules. Finite annihilators. Sigma quasi-injective modules. Lemmas from Fitting-Krull-Schmidt. The Teply-Miller theorem. Kasch rings. Injective modules over non-noetherian commutative rings. — *Injective quotient rings of commutative rings :* Survey of relevant background. Quotient injective Pre-FPF rings are FPF. CFPF = FSI . FPF rings with semilocal quotient rings. FPF rings with PF quotient rings. Note on the genus of a module and generic families of rings.

Lawrence J. CORWIN, Robert H. SZCZARBA. — **Multivariable calculus.** — Monographs and textbooks in pure and applied mathematics, vol. 64. — Un vol. relié, 16 × 24, de XI, 524 p. — Prix: FS 145.00. — Marcel Dekker, Inc., New York/Basel, 1982.

Some preliminaries. — Euclidean spaces and linear transformations. — Continuous functions. The derivative. — The geometry of Euclidean spaces. — Higher order derivatives and Taylor's theorem. — Compact and connected sets. — Maxima and minima. — The inverse and implicit function theorems. — Integration. — Iterated integrals and the Fubini theorem. — Line integrals. — Surface integrals. — Differential forms. — Integration of differential forms. — Infinite series. — Infinite series of functions.

Jagdish K. PATEL and Campbell B. READ. — **Handbook of the normal distribution.** — Statistics: textbooks and monographs, vol. 40. — Un vol. relié, 16 × 24, de IX, 337 p. — Prix: FS 105.00. — Marcel Dekker, Inc., New York/Basel, 1982.

Genesis: a historical background. — Some basic and miscellaneous results. — The normal distribution: tables, expansions, and algorithms. — Characterizations. — Sampling distributions. — Limit theorems and expansions. — Normal approximations to distributions. — Order statistics from normal samples. — The Wiener and Gaussian processes. — The bivariate normal distribution.

Low-dimensional topology. — Volume 1 of the proceedings of the conference on topology in low dimension, Bangor, 1979. — Edited by R. Brown and T. L. Thickstun. — London mathematical society lecture note series, vol. 48. — Un vol. broché, 15 × 23, de x, 245 p. — Prix: £13.00. — Cambridge university press, Cambridge/London/New York/New Rochelle/Melbourne/Sydney, 1982.

3-manifolds: P. Scott: The classification of compact 3-manifolds. W. Thurston: Hyperbolic geometry and 3-manifolds. W. R. Brakes: Sewing-up link exteriors. L. Contreras-Caballero: Periodic transformations in homology 3-spheres and the Rohlin invariant. — *Knot theory:* D. Cooper: The universal abelian cover of a link. L. H. Kauffman: Levine's theorem — a remark. C. Kearton: The factorisation of knots. R. Riley: Seven excellent knots. — *Two-dimensional homotopy theory:* R. Brown and J. Huebschmann: Identities among relations. P. Stefan: On Peiffer transformations, link diagrams and a question of J. H. C. Whitehead. R. Brown: Higher-dimensional group theory. — *4 manifolds:* P. Orlik: Actions of compact connected groups on 4-manifolds.

Peter SCHENZEL. — **Dualisierende Komplexe in der lokalen Algebra und Buchsbaum-Ringe.** — Lecture notes in mathematics, vol. 907. — Un vol. broché, 17 × 25, de VII, 161 p. — Prix: DM 21.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

Vorbereitende Ergebnisse und Bezeichnungen. — Bemerkungen zur Theorie dualisierender Komplexe. — Zum Verschwinden lokaler Kohomologiemoduln. — Dualisierender Komplex und Buchsbaum-Moduln. — Konstruktion und Beispiele von Buchsbaum-Ringen. — Simpliziale Komplexe und Kombinatorik.

Ole G. JØRSBOE, Leif MEJLBRO. — **The Carleson-Hunt theorem on Fourier series.** — Lecture notes in mathematics, vol. 911. — Un vol. broché, 17 × 25, de IV, 123 p. — Prix: DM 18.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

Interpolation theorems. — The Hardy-Littlewood maximal operator. — The Stein-Weiss theorem. — Carleson-Hunt's theorem. — Existence of the Hilbert transform and estimates for the Hilbert transform and the maximal Hilbert transform. — Exponential estimates for the Hilbert transform and the maximal Hilbert transform. — The dyadic intervals and the modified Hilbert transforms. — Generalized Fourier coefficients. — Constructions, estimations, proofs.

Numerical analysis. — Proceedings of the 9th Biennial conference held at Dundee, Scotland, June 23-26, 1981. — Edited by G. A. Watson. — Lecture notes in mathematics, vol. 912. — Un vol. broché, 17 × 25, de XIV, 245 p. — Prix: DM 29.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

P. H. Calamai and A. R. Conn: A second-order method for solving the continuous multifacility location problem. — *M. P. Cullinan and M. J. D. Powell:* Data smoothing by divided differences. — *G. Dahlquist:* On the control of the global error in stiff initial value problems. — *L. M. Delves:* Chebyshev methods for integral and differential equations. — *J. Douglas, Jr.:* Simulation of miscible displacement in porous media by a modified method of characteristic procedure. — *I. S. Duff:* Full matrix techniques in sparse Gaussian elimination. — *R. Fletcher:* Second order corrections for non-differentiable optimization. — *C. W. Gear and K. A. Gallivan:* Automatic methods for highly oscillatory ordinary differential equations. — *G. H. Golub and M. L. Overton:* Convergence of a two-stage Richardson iterative procedure for solving systems of linear equations. — *J. G. Hayes:* Curved knot lines and surfaces with ruled segments. — *P. J. van der Houwen:* On the time integration of parabolic differential equations. — *T. E. Hull:* Precision control, exception handling and a choice of numerical algorithms. — *P. Lancaster:* Generalized hermitian matrices: a new frontier for numerical analysis? — *R. J. Y. McLeod:* Some applications of geometry in numerical analysis.— *L. B. Wahlbin:* A quasioptimal estimate in piecewise polynomial Galerkin approximation of parabolic problems.

Olli TAMMI. — **Extremum problems for bounded univalent functions II.** — Lecture notes in mathematics, vol. 913. — Un vol. broché, 17 × 25, de VI, 168 p. — Prix: DM 21.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

The first coefficient body and related problems: Determination of the coefficient body by aid of a perfect square method. Determination of extremal domains. — *On the second coefficient body:* A Löwner-identity for finding the power-inequality for a second coefficient body. Schiffer's differential equation. A generalized power-inequality. Consequences for the second coefficient body.

Max L. WARSHAUER. — **The Witt group of degree k maps and asymmetric inner product spaces.** — Lecture notes in mathematics, vol. 914. — Un vol. broché, 17 × 25, de IV, 269 p. — Prix: DM 29.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

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GORENSTEIN, Daniel. — **Finite simple groups: and introduction to their classification.** — The university series in mathematics. — Un vol. relié, 16 × 24, de X, 333 p. — Prix: $29.50. — Plenum press, New York/London, 1982.

Local analysis and the four phases of the classification: From character theory to local analysis. Internal geometric analysis. Why the extreme length ? Some standard

terminology and results. The shape of the proof. The four phases of the classification. Consequences of the classification. The future of finite group theory. — *The known simple groups :* The groups of Lie type. The Mathieu groups. Janko's first group. Sporadic groups from centralizers of involutions. Computer construction of sporadic groups. Sporadic groups and rank 3 permutation groups. Janko's group. Transpositions and the Fischer groups. The Leech lattice and the Conway groups. The Fischer-Griess group. The list of known simple groups and their orders. Statement of the general classification theorem. — *Recognition theorems :* The groups of Lie type. Doubly transitive groups. The alternating groups. The sporadic groups. — *General techniques of local analysis :* Solvable groups. Strong embbeding. Signalizer functors k-balanced groups. L-balance. p-fusion. Stability and characteristic subgroups for odd primes. The Bender method, small class Sylow 2-subgroups, strong closure. Product fusion and strong closure. Weak closure and trivial intersection sets. Factorizations. Failure of Thompson factorization. Pushing-up, Aschbacher blocks, and the local theorem. Properties of K-groups.

Robert L. HERSHEY. — **How to think with numbers.** — Un vol. broché, 16 × 23, de 133 p. — Prix: £5.00. — William Kaufmann, Inc., Los Altos, California, distributed by W. H. Freeman and Company Limited, Oxford, 1982.

It's easy to tell the winners in life from the losers. Who wins and who loses depends to a great extent on how well you can think with numbers. This book will show you how to think more effectively about numbers-whether it be installment purchases, investments, mortage payments, or life insurance-and help you to become a winner too.

Séminaire Pierre Lelong-Henri Skoda (analyse), années 1980/81, et Colloque de Wimereux, Mai 1981 : « les fonctions plurisousharmoniques en dimension finie ou infinie », organisé en l'honneur de Pierre Lelong. — Edité par Pierre Lelong et Henri Skoda. — Lecture notes in mathematics, vol. 919. — Un vol. broché, 17 × 25, de VII, 386 p. — Prix: DM 39.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

SÉMINAIRE D'ANALYSE: *C. A. Berenstein, B. A. Taylor :* On the geometry of interpolating varieties. — *M. Blel :* Fonctions plurisousharmoniques et idéal définissant un ensemble analytique. — *J.-P. Demailly :* Relations entre les différentes notions de fibrés et de courants positifs. Scindage holomorphe d'un morphisme de fibrés vectoriels semi-positifs avec estimations L^2.— *B. Gaveau :* Intégrales de courbure et potentiels sur les hypersurfaces analytiques de $\mathbf{C}^n$. — *B. Gaveau et G. Laville :* Fonctions holomorphes et particule chargée dans un champ magnétique uniforme. — *B. Gaveau et J. Lawrynowicz :* Intégrale de Dirichlet sur une variété complexe I. — *P. Lelong :* Calcul du nombre densité et lemme de Schwarz pour les fonctions plurisousharmoniques dans un espace vectoriel topologique. — *M. Range :* Boundary regularity for the Cauchy-Riemann complex. — COLLOQUE DE WIMEREUX, Mai 1981 : *V. Avanissian :* Sur les fonctions harmoniques d'ordre quelconque et leur prolongement analytique dans $\mathbf{C}^n$. — *D. Barlet :* Développements asymptotiques des fonctions obtenues par intégration sur les fibres. — *E. Bedford :* The operator $(dd^c)^n$ on complex spaces. — *Ch. O. Kiselman :* Stabilité du nombre de Lelong par restriction à une sous-variété. — *R. E. Molzon, B. Shiffman :* Capacity, Tchebycheff constant, and transfinite hyperdiameter on complex projective space. — *V. S. Vladimirov :* Several complex variables in mathematical physics.

Séminaire d'algèbre Paul Dubreil et Marie-Paule Malliavin: proceedings, Paris 1981 (34e année). — Edité par Marie-Paule Malliavin. — Lecture notes in mathematics, vol. 924. — Un vol. broché, 17 × 25, de v, 461 p. — Prix: DM 48.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

These proceedings reflect the main activities of the P. Dubreil and M.-P. Malliavin seminar in 1980, with a series of papers on invariant theory, representation theory and rings of differential operatars. — *Extrait du sommaire : S. Gelfand, R. MacPherson :* Verma modules and Schubert cells: a dictionary. — *W. Borho :* Invariant dimension and restricted extension of noetherian rings. — *R. Fossum :* Decompositions revisited. — *G. Mislin :* Classes caractéristiques pour les représentations de groupes discrets. — *H. Bass :* Automorphismes de schémas et de groupes de type fini. — *L. L. Avramov :* Invariants d'un groupe fini, engendré par des pseudo-réflexions. — *D. Bartels :* On non-normality of affine quasi-homogeneous *SL* (2, C)-varieties. — *J. E. Björk :* On the maximal number of $\mathfrak{a}$-independent elements in ideals of noetherian rings.

Geometric techniques in gauge theories. — Proceedings of the 5th Scheveningen conference on differential equations, the Netherlands, August 23-28, 1981. — Edited by R. Martini and E. M. de Jager. — Lecture notes in mathematics, vol. 926. — Un vol. relié, 17 × 25, de IX, 219 p. — Prix: DM 25.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

R. Hermann : Fiber spaces, connections and Yang-Mills fields. — *Th. Friedrich :* A geometric introduction to Yang-Mills equations. — *F. A. Bais :* Symmetry as a clue to the physics of elementary particles. — *F. A. Bais :* Topological excitations in gauge theories; an introduction from the physical point of view. — *P. J. M. Bongaarts :* Particles, fields and quantum theory. — *E. F. Corrigan :* Monopole solitons. — *A. Trautman :* Yang-Mills theory and gravitation: a comparison. — *M. G. Eastwood :* The twistor description of linear fields. — *R. S. Ward :* Twistor techniques in gauge theories. — *P. Molino :* Simple pseudopotentials for the KdV-equation.

Yuval Z. FLICKER. — **The trace formula and base change for GL (3).** — Lecture notes in mathematics, vol. 927. — Un vol. broché, 17 × 25, de XII, 219 p. — Prix: DM 28.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

Introduction. — Local theory. — The trace formula. — The twisted trace formula. — The continuous spectrum. — Equality of traces. — The correspondence. — This book is intended for researchers in the fields of automorphic forms, trace formulae, representation theory of linear algebraic groups over local fields and adèle rings, and harmonic analysis of *p*-adic groups as a higher rank example of Langland's principle of functionality.

Makoto SAKAI. — **Quadrature domains.** — Lecture notes in mathematics, vol. 934. — Un vol. broché, 17 × 25, de IV, 133 p. — Prix: DM 19.80. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

Construction of quadrature domains : Elementary properties and examples. Domains with quasi-smooth boundaries. Modifications of positive measures. Modifications under restrictions. Construction of quadrature domains for harmonic and analytic functions. — *Properties of quadrature domains :* Basic properties of quadrature domains. Existence of

minimal quadrature domains. Relations between quadrature domains. Uniqueness in the strict sense. Monotone increasing families of quadrature domains. Quadrature domains with infinite area. — *Applications :* Analytic functions with finite Dirichlet integrals. Hele-Shaw with a free boundary. Quadrature formulas.

Rüdiger SCHMIDT. — **Advances in nonlinear parameter optimization.** — Lecture notes in control and information sciences, vol. 37. — Un vol. broché, 17 × 25, de VI, 159 p. — Prix: DM 23.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

Formulation of the problem. — Well-known methods for the solution of nonlinear least squares problems. — A new method for the solution of nonlinear least squares problems. — Application of the new method for the solution of the linear least squares problem. — The problem of the choice of a starting point x^0. — Applications of the proposed method for the solution of nonlinear least squares problems.

D. MUMFORD, J. FOGARTY. — **Geometric invariant theory.** — Second enlarged edition. — Ergebnisse der Mathematik und ihrer Grenzgebiete, vol. 34. — Un vol. relié, 17 × 25, de XII, 220 p. — Prix: DM 74.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

Preliminaries : Definitions. First properties. Good and bad actions. Further properties. Résumé of some results of Grothendieck. — *Fundamental theorems for the actions of reductive groups :* Definitions. The affine case. Linearization of an invertible sheaf. The general case. Functional properties. — *Analysis of stability :* A numerical criterion. The flag complex. Applications. — *An elementary example :* Pre-stability. Stability. — *Further examples :* Binary quantics. Hypersurfaces. Counter-examples. Sequences of linear subspaces. The projective adjoint action. Space curves. — *The problem of moduli : 1st construction :* General discussion. Moduli as an orbit space. First Chern classes. Utilization. — *Abelian schemes :* Duals. Polarizations. Deformations. — *The method of covariants : 2d construction :* The technique. Moduli as an orbit space. The covariant application to curves. — *Appendices.*

W. M. L. HOLCOMBE. — **Algebraic automata theory.** — Cambridge studies in advanced mathematics, vol. 1. — Un vol. relié, 16 × 24, de XI, 228 p. — Prix: £17.50. — Cambridge university press, Cambridge/London/New York/New Rochelle/Melbourne/Sydney, 1982.

Semi groups and their relatives : Relations. Semigroups and homomorphisms. Products. Groups. Permutation groups. — *Machines and semigroups :* State machines. The semigroup of a state machine. Homomorphisms and quotients. Coverings. Mealy machines. Products of transformation semigroups. More on products. Examples and applications. — *Decompositions :* Decompositions. Orthogonal partitions. General admissible partitions. Permutation-reset machines. Group machines. Connected transformation semigroups. Automorphism decompositions. Admissible subset system decompositions. Complexity. — *The homology decomposition :* Relational coverings. The skeleton and height functions. The holonomy groups. An ‚improved' holonomy decomposition and examples. The Krohn-Rhodes decomposition. — *Recognizers :* Automata or recognizers. Minimal recognizers. Recognizable sets. The syntactic monoids. Rational decompositions of recognizable sets. Prefix decompositions of recognizable sets. The pumping lemma and the size of a recognizable set. — *Sequential machines and functions :* Mealy machines again. Minimizing Mealy machines. Two sorts of covering. Sequential functions. Decompositions of sequential functions. Conclusion. Exercices à la fin de chaque chapitre.

Jean MARTINET. — **Singularities of smooth functions and maps.** — London mathematical society lecture note series, vol. 58. — Un vol. broché, 15 × 23, de XIII, 256 p. — Prix: £12.50. — Cambridge university press, Cambridge/London/New York/New Rochelle/Melbourne/Sydney, 1982.

The ring of germs in differentiable functions of n real variables. — The group of local diffeomorphisms of R^n. — Elements of the classifications of germs of functions of n variables. — Introduction to the study of deformations. — Generic singularities of mappings of the plane to the plane. — The division theorem of order two. — Thom's transversality theorem. — The importance of flat functions. — The division theorem. — The Malgrange-Mather preparation theorem. — Universal deformations of real-valued functions. — Classification of germs of real-valued functions of dimension less than six; the elementary catastrophes of R. Thom. — Introduction to the local study of differential mappings. Tangent space. — Universal unfoldings. — Classification of stable map germs. — Classification of stable germs. — Generic singularities: examples.

Friedrich WILLE. — **Humor in der Mathematik: eine unnötige Untersuchung lehrreichen Unfugs, mit scharfsinnigen Bemerkungen, durchlaufender Seitennumerierung und freundlichen Grüssen.** — Un vol. broché, 16 × 24, de 119 p. — Prix: DM 19.80. — Vandenhoeck und Ruprecht, Göttingen, 1982.

Wissen Sie, wie der Mathematiker Fussball spielt, Kartoffeln schält, Wasser kocht oder seine Heiratsprobleme löst ? Auf diese und andere Fragen gibt der Band Antworten, die für die Praxis garantiert unbrauchbar sind. Ueberdies finden Sie darin Mathematik in Mundart, in Busch-Versen, in Parodien, Denksportaufgaben, Witzen und Theaterszenen, ja in einer kompletten Kantate. Sowohl Leser mit bescheidenen mathematischen Kenntnissen als auch gestandene Mathematiker kommen in diesem Bändchen auf ihre Kosten.

Jacques-Louis LIONS. — **Some methods in the mathematical analysis of systems and their control.** — Un vol. relié, 17 × 25, de XXIII, 542 p. — Prix: $85.00. — Science press, Beijing, China and Gordon and Breach, Science Publishers, Inc., New York, 1981.

Asymptotic methods in periodic structures. — Some problems connected with Navier-Stokes equations. — Some remarks on the reduction of complexity in the analysis of systems. — Optimal control of distributed systems. — Appendices by Li Ta Tsien: Properties of the function space $\mathcal{U}$. Limit behaviors of solutions for some problems of optimal control of systems governed by parabolic equations. — Reduction of complexity in the optimal control of distributed systems. — Introduction to some aspects of game theory, for distributed systems. — Optimal control of non well posed systems.

HUA LOO KENG. — **Introduction to number theory.** — Translated from the Chinese by Peter Shiu. — Un vol. relié, 18 × 25, de XVIII, 572 p. — Prix: DM 96.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

The factorization of integers. — Congruences. — Quadratic residues. — Properties of polynomials. — The distribution of prime numbers. — Arithmetic functions. — Trigonometric sums and characters. — On several arithmetic problems associated with the

elliptic modular function. — The prime number theorem. — Continued fractions and approximation methods. — Indeterminate equations. — Binary quadratic forms. — Unimodular transformations. — Integer matrices and their applications. — p-adic numbers. — Introduction to algebraic number theory. — Algebraic numbers and transcendental numbers. — Waring's problem and the problem of Prouhet and Tarry. — Schnirelmann density. — The geometry of numbers.

Takayuki ODA. — **Periods of Hilbert modular surfaces.** — Progress in mathematics, vol. 19. — Un vol. relié, 16 × 24, de XVI, 123 p. — Prix: FS 36.00. — Birkhäuser, Boston/Basel/Stuttgart, 1982.

Historical background, motivations and outline of the contents. — Hodge structures attached to primitive forms of weight 2. — Abelian varieties attached to primitive forms. — Correspondence between real Nebentype elliptic modular forms and Hilbert modular forms. — Period relation for the lifting of modular forms and transcendental cycles.

Glenn STEVENS. — **Arithmetic on modular curves.** — Progress in mathematics, vol. 20. — Un vol. relié, 16 × 24, de XVI, 214 p. — Prix: FS 36.00. — Birkhäuser, Boston/Basel/Stuttgart, 1982.

Background: Modular curves. Hecke operators. The cusps. T-modules and periods of cusp forms. Congruences. The universal special values. Points of finite order. Eisenstein series and the cuspidal group. — *Periods of modular forms:* L-functions. A calculus of special values. The cocycle Π_f and periods of modular forms. Eisenstein series. Periods of Eisenstein series. — *The special values associated to cuspidal groups:* Special values associated to the cuspidal group. Hecke operators and Galois modules. An aside on Dirichlet L-functions. Eigenfunctions in the space of Eisenstein series. Nonvanishing theorems. The group of periods. — *Congruences:* Eisenstein ideals. Congruences satisfied by values of L-functions. Two examples. — *P-adic L-functions and congruences:* Distributions, measures and p-adic L-functions. Construction of distributions. Universal measures and measures associated to cusp forms. Measures associated to Eisenstein series. The modular symbol associated to E. Congruences between p-adic L-functions. — *Tables of special values.*

The Scottish book: mathematics from the Scottish Café. — Edited by R. Daniel Mauldin. — Un vol. relié, 18 × 25, de XIII, 268 p. — Prix: FS 54.00. — Birkhäuser, Boston/Basel/Stuttgart, 1981.

A lively mathematics community developed in Poland between the world wars. One result of this was the genesis of The Scottish book, a collection of problems, many to this day unsolved. The Scottish book is a record of informal discussions by many of today's leading mathematicians on topics ranging from summability theory, functional and real analysis, group, measure and set theory and probability. This first U.S. edition also includes commentaries on many of the problems and a series of lectures by Stanislaw Ulam, Mark Kac, A. Zygmund, Paul Erdös, Andrzej Granas, from the Scottish book conference held at North Texas State University, May 1979.

Arthur LINDER, Willi BERCHTOLD. — **Statistische Methoden II: Varianzanalyse und Regressionsrechnung.** — Uni-Taschenbücher, vol. 1110. — Un vol. broché, 13 × 19, de 295 p. — Prix: FS 28.80. — Birkhäuser Verlag, Basel/Boston/Stuttgart, 1982.

Grundlagen : Daten. Wahrscheinlichkeit und Wahrscheinlichkeitsverteilung. Wahrscheinlichkeitsverteilungen. — Statistiche Tests. Schätzen von Parametern und Vertrauensgrenzen. Das Berechnen der Summe von Quadraten. — *Varianzanalyse :* Einfache Varianzanalyse. Zweifache Varianzanalyse. Mehrfache Varianzanalyse. Bestimmen von Varianzkomponenten. — *Regression :* Idee und Uebersicht. Einfache lineare Regression. Mehrfache lineare Regression. Nichtlineare Regression. Spezialfälle. — *Kovarianzanalyse :* Vergleich von Regressionsgeraden. Einfache Varianzanalyse mit einer Kovariablen. Zweifache Varianzanalyse mit einer Kovariablen. — *Das lineare Modell :* Lineares Modell, kleinste Quadrate und Likelihood. Regression. Varianzanalyse. Kovarianzanalyse. — *Tafeln :* Normale Verteilung. Verteilung von χ^2, von t, von F. Orthogonale Polynome.

Jacqueline FOURASTIE, Shemaya LEVY. — **Statistiques appliquées à l'économie.** — Un vol. broché, 16 × 22, de XIV, 178 p. — Prix: FF 68.00. — Masson, Paris/New York/Barcelone/Milan/Mexico/Rio de Janeiro, 1982.

Principes généraux de la méthode statistique : Définition de la population et des caractères étudiés. Collecte des renseignements. Dépouillement des observations et présentation des résultats. — *Distributions statistiques à un caractère : tableaux et graphiques :* Cas du caractère qualitatif, du caractère quantitatif discret, du caractère quantitatif continu. — *Caractéristiques élémentaires d'une distribution statistique :* Les caractéristiques de tendance centrale, de dispersion. Présentation générale du tableau statistique. Formules théoriques de la moyenne et de l'écart-type. — *Séries statistiques doubles ; corrélation :* Présentation générale d'un tableau statistique à deux dimensions et définition de base. Observations individuelles: nuage de points; corrélation entre deux variables; coefficient de corrélation linéaire; droites ajustées par la méthode des moindres carrés. Observations nombreuses. Tables de contingence. Ajustements non linéaires. — *Séries chronologiques :* Définition. Représentation graphique. Graphique semi-logarithmique. — *Décomposition des séries chronologiques et utilisation dans le domaine de la prévision :* Exposé du problème. Décomposition des séries chronologiques mensuelles. Processus de prévision à court terme. — *Notions sur les indices :* Comparaison de deux grandeurs-indices simples. Indices synthétiques. — *Compléments :* Courbe et indice de concentration d'une distribution statistique continue. Notion de loi de répartition théorique, cas de la loi normale. Papier log-log.

Probability measures on groups. — Proceedings of the 6th conference held at Oberwolfach, Germany, June 28-July 4, 1981. — Edited by H. Heyer. — Lecture notes in mathematics, vol. 928. — Un vol. broché, 17 × 25, de X, 477 p. — Prix: DM 55.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

The subjects billed for discussion in this volume are: probability measures on groups (locally compact groups, Lie groups, and vector spaces); semigroups (also of matrices) and hypergroups (for example, of double-coset spaces); stochastic processes with values in groups; the connection between probability theory on groups and representations or special functions; applications of probability theory on groups to quantum and atomic physics.

J. M. BISMUT,, L. GROSS et K. KRICKEBERG. — **Ecole d'été de probabilités de Saint-Flour X, 1980.** — Edité par P. L. Hennequin. — Lecture notes in mathematics, vol. 929. — Un vol. broché, 17 × 25, de x, 313 p. — Prix: DM 39.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

J. M. BISMUT: *Mécanique aléatoire:* Flots. Tubes. Intégrales stochastiques. Calcul différentiel dépendant d'un paramètre stochastique. Diffusions symplectiques. Problèmes variationnels et diffusions hamiltoniennes. Calcul géométrique de Ito. — L. GROSS: *Thermodynamics, statistical mechanics and random fields:* Equilibrium thermodynamics. Equilibrium statistical mechanics. Random fields. — K. KRICKEBERG: *Processus ponctuels en statistique:* Modèles peu spécifiés. Modèles spécifiques.

P. BERTHELOT, L. BREEN, W. MESSING. — **Théorie de Dieudonné cristalline II.** — Un vol. broché, 17 × 25, de XI, 261 p. — Prix: DM 33.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1982.

Conventions générales. – Extensions de faisceaux abéliens sur le site cristallin: Sites cristallins d'un schéma. Cristaux en modules. Extensions de faisceaux abéliens. Relations entre extensions cristallines et torseurs. — *Calculs de faisceaux d'extensions:* Résolutions canoniques d'un groupe abélien et cohomologie cristalline. Variantes. Quelques conséquences. Généralisation aux groupes p-divisibles. Le cristal de Dieudonné d'un schéma abélien. — *Cristaux de Dieudonné:* Le cristal de Dieudonné d'un groupe fini. Relations entre complexe de Dieudonné et complexe de co-Lie d'un groupe fini. Le cristal de Dieudonné d'un groupe p-divisible. — *Comparaison avec la théorie de Dieudonné classique:* L'extension canonique de CW. Cristaux de Dieudonné et modules de Dieudonné. Le cristal de Dieudonné des groupes annulés par F ou V. — *Théorèmes de dualité:* Le cas des schémas abéliens, des groupes finis, des groupes p-divisibles.