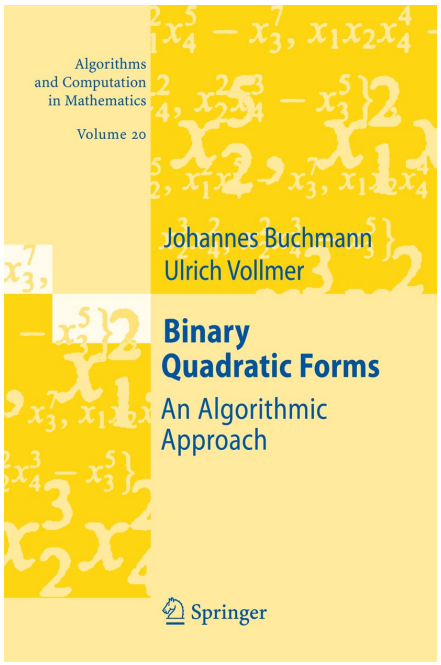

Springer

1st edition

2007, XIV, 318 p.

Printed book
Hardcover

Printed book
Hardcover
ISBN 978-3-540-46367-2
£ 89,99 | CHF 118,00 | 99,99 € | 109,99 € (A) | 106,99 € (D)

Available

Discount group
Science (SC)

Product category
Monograph

Series
Algorithms and Computation in Mathematics

Other renditions
Softcover
ISBN 978-3-642-07971-9

Mathematics : Algebra

Buchmann, Johannes, Vollmer, Ulrich

Binary Quadratic Forms

An Algorithmic Approach

- **Buchmann is a leader in number theory in the world**
- **Only book focussing on the algorithmic aspects of the theory**

This book deals with algorithmic problems concerning binary quadratic forms 2 2 f(X,Y)= aX +bXY +cY with integer coe?cients a, b, c, the mathem- ical theories that permit the solution of these problems, and applications to cryptography. A considerable part of the theory is developed for forms with real coe?cients and it is shown that forms with integer coe?cients appear in a natural way. Much of the progress of number theory has been stimulated by the study of concrete computational problems. Deep theories were developed from the classic time of Euler and Gauss onwards to this day that made the solutions ofmanyof theseproblemspossible.Algorithmicsolutionsandtheirproperties became an object of study in their own right. Thisbookintertwinestheexpositionofoneveryclassicalstrandofnumber theory with the presentation and analysis of algorithms both classical and modern which solve its motivating problems. This algorithmic approach will lead the reader, we hope, not only to an understanding of theory and solution methods, but also to an appreciation of the e?ciency with which solutions can be reached. The computer age has led to a marked advancement of algorithmic - search. On the one hand, computers make it feasible to solve very hard pr- lems such as the solution of Pell equations with large coe?cients. On the other, the application of number theory in public-key cryptography increased the urgency for establishing the complexity of several computational pr- lems: many a computer system stays only secure as long as these problems remain intractable.

Order online at springer.com/booksellers
Springer Nature Customer Service Center GmbH
Customer Service
Tiergartenstrasse 15-17
69121 Heidelberg
Germany
T: +49 (0)6221 345-4301
row-booksellers@springernature.com

Prices and other details are subject to change without notice. All errors and omissions excepted. Americas: Tax will be added where applicable. Canadian residents please add PST, QST or GST. Please add $5.00 for shipping one book and $ 1.00 for each additional book. Outside the US and Canada add $ 10.00 for first book, $5.00 for each additional book. If an order cannot be fulfilled within 90 days, payment will be refunded upon request. Prices are payable in US currency or its equivalent.

ISBN 978-3-540-46367-2 / BIC: PBF / SPRINGER NATURE: SCM11000