Discovering Mathematics with Magma

By Wieb Bosma

Springer Nov 2010, 2010. Taschenbuch. Book Condition: Neu. 235x155x21 mm. This item is printed on demand - Print on Demand Neuware - This volume celebrates the first decade of the Computer Algebra system Magma. With a design based on the ontology and semantics of algebra, Magma enables users to rapidly formulate and perform calculations in the more abstract parts of mathematics. This book introduces the reader to the role Magma plays in advanced mathematical research through 14 case studies which, in most cases, describe computations underpinning new theoretical results. The authors of the chapters were chosen both for their expertise in the particular field and for their innovative use of Magma. Although by no means exhaustive, the topics range over much of Magma's coverage of algorithmic algebra: from number theory and algebraic geometry, via representation theory and group theory to some branches of discrete mathematics and graph theory. A basic introduction to the Magma language is given in an appendix. The book is simultaneously an invitation to learn a new programming language in the context of contemporary research problems, and an exposition of the types of problem that can be investigated using computational algebra. Based on the ontology and semantics...

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