



2nd ed. 2015, XXII, 366 p. 13 illus. in color.

#### Printed book

Hardcover

129,99 € | £109.99 | \$159.99

<sup>[1]</sup>139,09 € (D) | 142,99 € (A) | CHF 153,50

Softcover

89,99 € | £79.99 | \$109.99

<sup>[1]</sup>96,29 € (D) | 98,99 € (A) | CHF 106,50

#### eBook

74,89 € | £63.99 | \$84.99

<sup>[2]</sup>74,89 € (D) | 74,89 € (A) | CHF 85,00

Available from your library or [springer.com/shop](http://springer.com/shop)

#### MyCopy <sup>[3]</sup>

Printed eBook for just

€ | \$ 24.99

[springer.com/mycopy](http://springer.com/mycopy)

Harm Derksen, Gregor Kemper

# Computational Invariant Theory

Series: Encyclopaedia of Mathematical Sciences

- Excellent presentations of topics one cannot find in books elsewhere
- Presents not only various algorithms and computer-based methods, but also some theoretical results
- Detailed discussion of the notion of a Gröbner basis
- Covers a lot of illustrating and instructing examples
- With two new appendices by V.L. Popov and an Addendum by N. A'Campo and V.L. Popov

This book is about the computational aspects of invariant theory. Of central interest is the question how the invariant ring of a given group action can be calculated. Algorithms for this purpose form the main pillars around which the book is built. There are two introductory chapters, one on Gröbner basis methods and one on the basic concepts of invariant theory, which prepare the ground for the algorithms. Then algorithms for computing invariants of finite and reductive groups are discussed. Particular emphasis lies on interrelations between structural properties of invariant rings and computational methods. Finally, the book contains a chapter on applications of invariant theory, covering fields as disparate as graph theory, coding theory, dynamical systems, and computer vision. The book is intended for postgraduate students as well as researchers in geometry, computer algebra, and, of course, invariant theory. The text is enriched with numerous explicit examples which illustrate the theory and should be of more than passing interest. More than ten years after the first publication of the book, the second edition now provides a major update and covers many recent developments in the field. Among the roughly 100 added pages there are two appendices, authored by Vladimir Popov, and an addendum by Norbert A'Campo and Vladimir Popov.

Order online at [springer.com](http://springer.com) / or for the Americas call (toll free) 1-800-SPRINGER / or email us at: [customerservice@springernature.com](mailto:customerservice@springernature.com). / For outside the Americas call +49 (0) 6221-345-4301 / or email us at: [customerservice@springernature.com](mailto:customerservice@springernature.com).

The first € price and the £ and \$ price are net prices, subject to local VAT. Prices indicated with [1] include VAT for books; the €(D) includes 7% for Germany, the €(A) includes 10% for Austria. Prices indicated with [2] include VAT for electronic products; 19% for Germany, 20% for Austria. All prices exclusive of carriage charges. Prices and other details are subject to change without notice. All errors and omissions excepted. [3] No discount for MyCopy.

