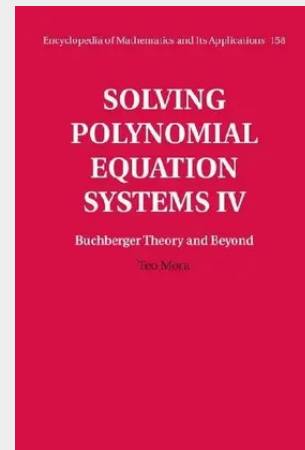


Solving Polynomial Equation Systems

In this fourth and final volume the author extends Buchberger's Algorithm in three different directions. First, he extends the theory to group rings and other Ore-like extensions, and provides an operative scheme that allows one to set a Buchberger theory over any effective associative ring. Second, he covers similar extensions as tools for discussing parametric polynomial systems, the notion of SAGBI-bases, Gröbner bases over invariant rings and Hironaka's theory. Finally, Mora shows how Hilbert's followers - notably Janet, Gunther and Macaulay - anticipated Buchberger's ideas and discusses the most promising recent alternatives by Gerdt (involution bases) and Faugère (F4 and F5). This comprehensive treatment in four volumes is a significant contribution to algorithmic commutative algebra that will be essential reading for algebraists and algebraic geometers.

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