



Mathematics mechanization and applications [

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Monografía

Mathematics Mechanization and Applications provides a uniform presentation of major developments, carried out mostly in Wu's extended Chinese group, on algorithms and software tools for mechanizing algebraic equations solving and geometric theorem proving together with their applications to problems in science and engineering. It is distinguished by its uniform presentation with all-Chinese contributors and a 40-page list of references. There are 20 chapters written by experienced researchers. The book is divided into four parts: polynomial system solving, automated geometric reasoning, algebraic computation, and implementations and applications. Each chapter is devoted to surveying and expounding the main results achieved from one selected subject. The book contains surveys for diverse applications of the theories and methods to real world problems, ranging from the analysis of robotics and mechanisms to nonlinear programming and chemical equilibrium computation. Part of the theoretical and practical work reviewed in the book has been either unpublished or published only in Chinese journals or even only in the Chinese language. This book therefore provides Western readers working in symbolic and algebraic computation, geometric reasoning and modeling, algorithmic mathematics, robotics, CAGD, and other relevant areas with an easily accessible source of references for what the Chinese researchers have been doing under the banner of mathematics mechanization. * Addresses the frontiers of research with original ideas and results * Includes sophisticated, successful applications to scientific and engineering problems * Covers polynomial system solving, geometric reasoning, computer algebra, and mathematical software * Is comprehensive and focused * Contains an extensive bibliography--of high reference value--particularly for western readers

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