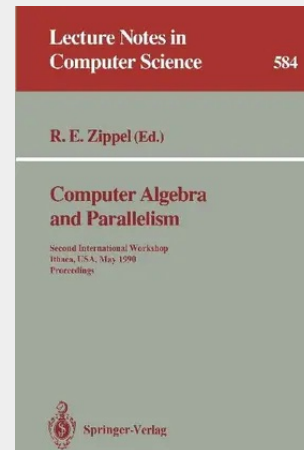


Computer Algebra and Parallelism

Second International Workshop, Ithaca, USA, May 9-11, 1990. Proceedings

This book contains papers presented at a workshop on the use of parallel techniques in symbolic and algebraic computation held at Cornell University in May 1990. The eight papers in the book fall into three groups. The first three papers discuss particular programming substrates for parallel symbolic computation, especially for distributed memory machines. The next three papers discuss novel ways of computing with elements of finite fields and with algebraic numbers. The finite field technique is especially interesting since it uses the Connection Machine, a SIMD machine, to achieve surprising amounts of parallelism. One of the parallel computing substrates is also used to implement a real root isolation technique. One of the crucial algorithms in modern algebraic computation is computing the standard, or Gröbner, basis of an ideal. The final two papers discuss two different approaches to speeding their computation. One uses vector processing on the Cray and achieves significant speed-ups. The other uses a distributed memory multiprocessor and effectively explores the trade-offs involved with different interconnect topologies of the multiprocessors.

This volume contains eight workshop papers on the use of parallelism to speed up computations in computer algebra. Topics discussed range from programming environments for parallel symbolic computation to performance measurements of Gröbner basis computations on parallel machines.



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