ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

14. Mathematical Aspects of Computer Science

1991 MS Classification: 68, 76

Bazarov, S. B., Moscow State University, A. N. Andrianov, K. N. Efimkin, I. B. Zadykhailo, KIAM, Russia

The declarative NORMA language for the solution of mathematical physics problems on multiprocessors computers

The application of nonprocedural NORMA language for the solution of the nonstationary multidimensional gas dynamics problems is considered. The NORNA language is a tool aimed at the automated solution of the mathematical physics problems on parallel computer systems. This language eliminate the programming phase which is necessary to pass from computational formulas, derived by an application specialist, to a computer program. There is no essential difference between computational formulas and the NORMA program structures. This formulas are an input for the NORMA translator-synthesizer. The solutions of several nonstationary three-dimensional problems are indicated. For the best resolution of discontinuities' shape and its type (shock wave, tangential discontinuity etc) the methods of the digital image processing were applied to the results of the numerical simulation.