

Graduiertenkolleg

Experimentelle und konstruktive Algebra



Kolloquiumsvortrag

Dienstag, 22. November 2011, 15:45 Uhr, Hörsaal III

VLADIMIR GERDT (Joint Institute for Nuclear Research, Dubna, Russland):
Computer Algebra Based Consistency Analysis of Finite Difference Approximations to Nonlinear PDE Systems

We consider finite difference approximations to systems of polynomially-nonlinear partial differential equations whose coefficients are rational functions over rationals in the independent variables. The notion of strong consistency which was introduced earlier for linear systems is extended to nonlinear ones. For orthogonal and uniform grids we describe an algorithmic procedure for verification of strong consistency based on computation of difference standard bases. The concepts and algorithmic methods of the present paper are illustrated by two finite difference approximations to the two-dimensional Navier-Stokes equations. One of these approximations is strongly consistent and another is not.

Wir laden alle Interessierten herzlich ein.

Ab 15:00 Uhr gibt es Kaffee und Tee in der Bibliothek des Lehrstuhl D für Mathematik.