

Abstract:

Among the many aspects that can be subsumed in computational science, the focus of this presentation is on symbolic algorithms. We highlight some of our contributions to the field of computer algebra: manipulation of systems of differential-difference equations, interpolation of linear operators, and the algorithmic treatment of integrals, sums, and determinants. Simultaneously we give examples that underline the impact these developments have in other sciences, and in particular, in other branches of scientific computing.