

Alin Bostan
INRIA, France
alin.bostan@inria.fr

The p -curvature of a linear differential operator in characteristic p is a matrix that measures to what extent the solution space of the operator has dimension close to its order. We describe a recent algorithm for computing the characteristic polynomial of the p -curvature in time $O^\sim(p^{0.5})$. The new algorithm allows to test the nilpotency of the p -curvature for primes p of order 10^6 , for which the p -curvature itself is impossible to compute using current algorithms.

Joint work with Xavier Caruso (Université Rennes 1, France) and Éric Schost (University of Western Ontario, Canada).