

Singularities, desingularization and parallel algorithms

Anne Frühbis-Krüger, Universität Oldenburg

Abstract

For a long time, computational algebraic geometry and singularity theory seemed like fields which do not manage to profit from advances in modern computer technology. The new multi-core processor architectures obviously called for parallelism, something which seemed to be prevented by one of its main work-horses, Groebner bases, which in turn do not have any obvious parallelization.

Aiming at a significantly more coarse grained idea of parallelism, recently several very successful sample applications have proved this former common belief wrong. Surprisingly, an ancestor of a key ingredient leading to the new approach has already appeared in Hironaka style resolution of singularities more than half a century ago. In this talk, I will outline the ideas behind the approach and discuss some sample applications – of course related to singularities.