

Peter Scheiblechner  
(Purdue University)

A quick tour through computational algebra and geometry

Friday, March 12  
2:40pm-3:30pm, in MG 124  
Refreshments in MG 226 at 2:20pm

Abstract: We start with efficient parallel algorithms for linear algebra and show how these can be used to solve certain problems in algebra and geometry over the complex numbers. In particular, we consider the problems of deciding whether a system of polynomial equations is feasible, counting the irreducible factors of a multivariate polynomial, and counting the connected components of an algebraic variety. Ultimately, the computation of the topological Betti numbers of smooth projective varieties can also be reduced to linear algebra.