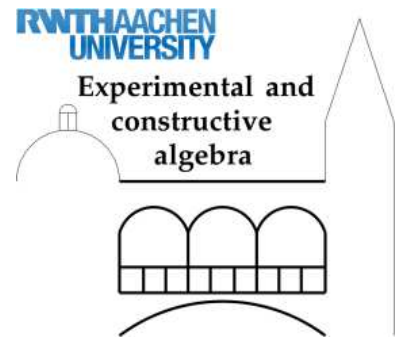


Graduiertenkolleg

Experimentelle und konstruktive Algebra



Kolloquiumsvortrag

Dienstag, 29. Oktober 2013, 14:15 Uhr, Hörsaal klPhys

BERND STURMFELS (MAX-PLANCK-INSTITUT BONN; UNIVERSITY OF CALIFORNIA, BERKELEY, KALIFORNIEN, USA):

Non-Negative Polynomials versus Sums of Squares

We discuss the geometry underlying the difference between non-negative polynomials and sums of squares. The hypersurfaces that discriminate these two cones for ternary sextics and quaternary quartics are shown to be Noether-Lefschetz loci of $K3$ surfaces. The projective duals of these hypersurfaces are defined by rank constraints on Hankel matrices. We compute their degrees using numerical algebraic geometry, thereby verifying results due to Maulik and Pandharipande. The non-SOS extreme rays of the two cones of non-negative forms are parametrized respectively by the Severi variety of plane rational sextics and by the variety of quartic symmetroids. This lecture is based on work of Greg Blekherman, and on our joint paper with Jonathan Hauenstein, John Christian Ottem and Kristian Ranestad.

Wir laden alle Interessierten herzlich ein.

Ab 13:30 Uhr gibt es Kaffee und Tee in der Bibliothek des Lehrstuhl D für Mathematik.