



Berlin
Mathematical
School

BMS Friday Colloquium

Friday 13 November 2015 at 14:15

Tea & Cookies starting at 13:00

TU Berlin, Straße des 17. Juni 136, 10623 Berlin, MA 041

Christian Haase

(FU Berlin)

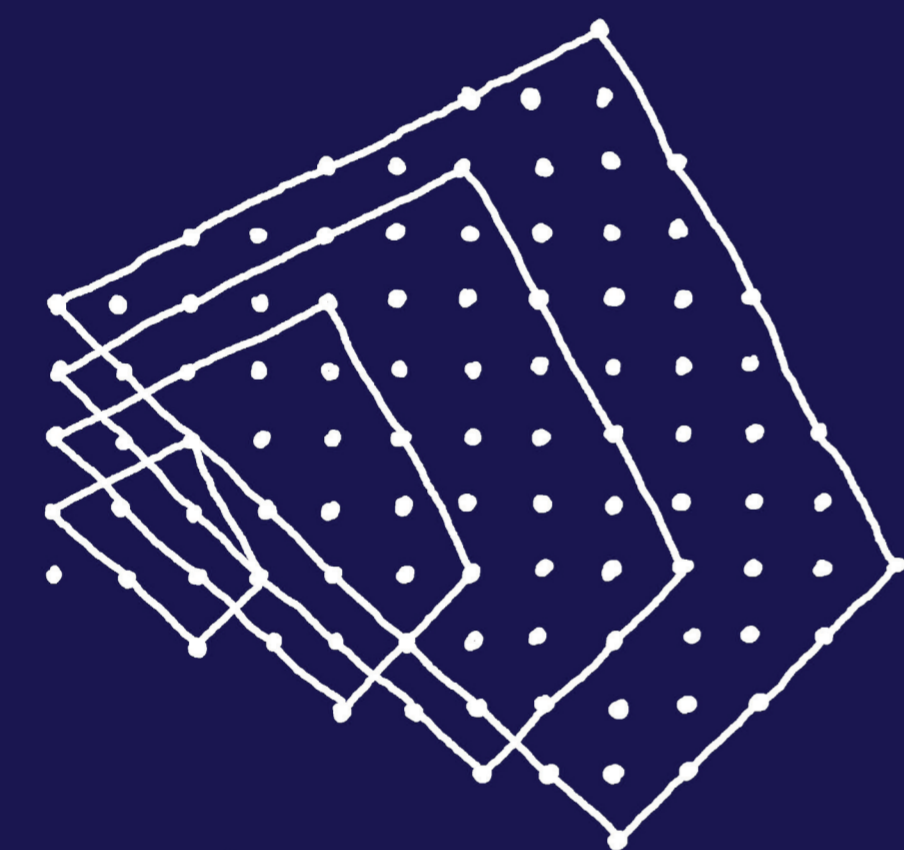
Hodge Numbers & Lattice Points

The study of toric varieties is a wonderful part of algebraic geometry that has deep connections with polyhedral geometry. There are elegant theorems, unexpected applications, and marvelous examples.¹ This talk is an introduction to this rich subject.

As an example of the wonderfulness claimed above, we will look at generalizations of the celebrated Bernstein–Kushnirenko Theorem. It expresses the number of common zeros of n polynomials in $(\mathbb{C}^*)^n$ as the mixed volume of a polytope – a convex-geometric invariant.

If we have only $k < n$ equations, the set of solutions will no longer be finite. However, there are still formulas relating cohomological invariants of the zero set to lattice point counts in Minkowski sums of polytopes. This is an ongoing joint project with S. Di Rocco, M. Juhnke-Kubitzke, B. Nill, R. Sanyal, and T. Theobald.

Christian Haase has been a professor of mathematics at FU Berlin since October 2014. His area of research is located between discrete mathematics and algebraic geometry. After getting his PhD at TU Berlin in 2000, Haase spent a total of five years in the U.S. as an assistant professor, first at UC Berkeley and then at Duke University. He returned to Berlin in 2005 and headed an Emmy Noether research group at FU Berlin until 2010, and also completed his habilitation there in 2009. From 2011 to 2014, he was Heisenberg Professor at Goethe University Frankfurt.



1, 8, 24, 49, 83
3, 14, 34, 63

→ Intrigued?

© NSA/Haase