Mathematisches Institut, Sidlerstrasse 5, CH-3012 Bern

$u^b$

UNIVERSITÄT
BERN

# Mathematical Colloquia

_____

## Monday, 08 March 2021

### 17:15 h, via Zoom

## Tim Seynnaeve, University of Bern

# Complete quadrics and algebraic statistics

## Abstract:

Let L be a generic linear space of symmetric matrices over the complex numbers. By inverting all invertible matrices in this space, we obtain an algebraic variety. Computing the degree of this variety is a natural geometric question in its own right, but is also interesting from the point of view of algebraic statistics: the number we obtain is the so-called maximum likelihood degree (ML-degree) of the generic linear concentration model. In 2010, Sturmfels and Uhler conjectured that if we fix the dimension of L, this ML-degree is a polynomial in the size of the matrices. Using Schubert calculus and intersection theory on the space of complete quadrics, we were able to prove this polynomiality conjecture, and to write an algorithm that can compute these polynomials efficiently. This talk is based on joint work with Laurent Manivel, Mateusz Michalek, Leonid Monin, and Martin Vodicka.

Join Zoom Meeting
https://unibe-ch.zoom.us/j/91493018599?pwd=S1ZIMlp5T2s5OWxmazI5TWNJbnFaZz09

Meeting ID: 914 9301 8599
Passcode: 568114
One tap mobile
+41225910156,,91493018599# Switzerland                    +41315280988,,91493018599# Switzerland

Dial by your location
  +41 22 591 01 56 Switzerland                      +41 31 528 09 88 Switzerland
  +41 43 210 70 42 Switzerland                      +41 43 210 71 08 Switzerland
  +41 22 591 00 05 Switzerland


Meeting ID: 914 9301 8599
Find your local number: https://unibe-ch.zoom.us/u/ac7IQ98Zub