Séminaire d'algèbre, topologie et géométrie
Jeudi 24 mars à 14h
Salle de conférences

Helge Ruddat

Mainz

Global Smoothings of Toroidal Crossing Varieties

I am going to define toroidal crossing singularities and toroidal crossing varieties and explain how to produce them in large quantities by subdividing lattice polytopes. I will then explain the statement of a global smoothing theorem proved jointly with Felten and Filip. The theorem follows the tradition of well-known theorems by Friedman, Kawamata-Namikawa and Gross-Siebert. In order to apply a variant of the theorem to construct (conjecturally all) projective Fano manifolds with non-empty anticanonical divisor, Corti and Petracci discovered the necessity to allow for particular singular log structures that are known by the inspiring name "admissible". I will explain the beautiful classical geometric curve-in-surface geometry that underlies this notion and hint at why we believe that we can feed these singular log structures into the smoothing theorem in order to produce all 98 Fano threefolds with very ample anticanonical class by a single method.