

Séminaire d'Algèbre, Topologie et Géométrie

Jeudi 22 octobre à 13h40

Salle II

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Titre : *Relative mixed volume and its applications*

Résumé : Minkowski mixed volume is a certain function of n convex bodies in \mathbb{R}^n , whose value at n copies of the same body A equals the volume of A . Topological and geometric invariants of analytic objects can often be expressed as mixed volumes of their Newton polytopes. The first example is the Kouchnirenko-Bernstein formula : the number of solutions of a system of algebraic equations with given Newton polytopes and generic coefficients equals the mixed volume of the Newton polytopes.

We present a relative version of mixed volume, which helps to simplify many well known results (e.g. the Oka formula for the Milnor number of a complete intersection and the Gelfand-Kapranov-Sturmfels-Zelevinsky description of the Newton polytope of a resultant), as well as to formulate some new ones (e.g. formulas for basic topological invariants of determinantal singularities in terms of Newton polytopes).