Victor Lozovanu

(Université de Caen Normandie)

From convex geometry of certain valuations to positivity aspects in algebraic geometry

A few years ago Okounkov associated a convex set (Newton–Okounkov body) to a divisor, which encodes the asymptotic vanishing behaviour of all sections of all powers of the divisor along a fixed flag. This, on the other hand, brought to light the following guiding principle "use convex geometry, through the theory of Newton–Okounkov bodies, to study the geometrical/algebraic/arithmetic properties of divisors on smooth projective varieties". The main goal of this talk is to explain some of the philosophical underpinnings of this principle with a view towards studying local positivity and syzygetic properties of algebraic varieties.