
KIUMARS KAVEH, University of Pittsburgh

Toric degenerations and applications

We discuss general Rees algebra constructions from commutative algebra deforming an algebra to the graded of a filtration. In specific we talk about such deformations associated to a valuation on the homogeneous coordinate ring of a variety (considered by Teissier). This gives a "toric degeneration" of the variety. We will then explain how one can use these toric degenerations in the context of symplectic/Kähler geometry, in particular to construct integrable systems/Hamiltonian torus actions on smooth projective varieties, as well as to construct convergence of real polarization to complex polarization in geometric quantization.