

Igusa fibre integrals over local fields

Abstract: Examples of Igusa fibre integrals are the local singular series from analytic number theory. Igusa obtained fundamental results about these in the univariate case and asked how this could generalize to the multivariate case. First results were obtained by Loeser (1988), Lichtin (1997), and myself (1998). Later Cluckers and Loeser (2005) proved, using cell decomposition, that these multivariate fibre integrals (and generalizations) are specializations of motivic constructible functions. They deduced from this their transfer principle for integrals over local fields of large residue characteristic. I will explain how to obtain a slightly stronger result in the special case that there are no additive characters involved, by using a theorem of Abramovich and Karu on flat toroidalization of morphisms.