
ANDRIJA PERUNICIC, The Fields Institute
Arithmetic Aspects of Berglund-Hübsch-Krawitz Duality

Berglund-Hübsch-Krawitz (BHK) duality is an instance of mirror symmetry establishing an isomorphism between certain orbifold cohomology groups associated to a pair of hypersurfaces defined by an invertible polynomial and its dual (or transpose) polynomial. In this talk, I will define a p -adic version of BHK duality using Monsky-Washnitzer cohomology and study the action of Frobenius and its compatibility with the duality isomorphism. I will show that by using an analogue of Borisov's adaptation of BHK duality to the vertex algebra setting utilized in Batyrev-Borisov mirror symmetry we recover a formula for the number of points on a hypersurface defined by an invertible polynomial in terms of eigenvalues of Frobenius.