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Arithmetic Mirror Symmetry and Isogenies

Arithmetic mirror symmetry is a relationship between the number of points on appropriately chosen mirror pairs of Calabi-Yau varieties over finite fields. We investigate whether arithmetic mirror relationships observed for diagonal pencils in weighted projective spaces can be extended to mirror families obtained via the Batyrev-Borisov construction. Our results show that arithmetic mirror symmetry is controlled by an isogeny structure. This talk describes joint work with Christopher Magyar.