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### Recent progress in computing zeta functions of varieties

In most cases, the best known algorithms for computing zeta functions of algebraic varieties over finite fields use methods of  $p$ -adic analysis. Such algorithms have been developed extensively for curves, but not for higher-dimensional varieties. We describe a practical approach for nondegenerate hypersurfaces in toric varieties, with an emphasis on families of K3 surfaces and Calabi-Yau threefolds that fit this framework. Joint work with Edgar Costa (NYU/Dartmouth) and David Harvey (UNSW).