Title: Small cap decoupling for the moment curve in R^3

Abstract: I will present the full solution to a small cap decoupling problem for the moment curve in R^3 motivated by a question about exponential sums. In particular, we prove Conjecture 2.5 in dimension 3 from the original small cap decoupling paper of Demeter, Guth, and Wang. Decoupling for the moment curve involves the following set-up. Begin with a function f with Fourier transform supported on a small neighborhood of a curve. Break the curve up into pieces which are approximately linear blocks. Then we estimate the size of f in terms of an expression with the Fourier projections onto each of these blocks. This is possible since the Fourier projections of f onto different blocks cannot both be large for a long time, which we exploit using a high-low frequency argument. This is based on joint work in collaboration with Larry Guth.