

SPEAKER: Chantal David

TITLE: The fluctuations in the number of points of curves over finite fields

ABSTRACT: We study in this talk the distribution of the number of points on two families of curves over a finite field with q elements: cyclic covers of P^1 and plane curves. The Katz-Sarnak philosophy makes predictions about the statistics for such families in the large q limit as one fixes the genus. We will look at the complementary direction, when the genus varies, but the field of definition is fixed. We also show that when both the genus and q go to infinity, the difference between the number of points and $q + 1$ (properly normalized) has a standard Gaussian distribution. This is joint work with A. Bucur, B. Feigon and M. Lalin.