

Philadelphia Area Number Theory Seminar

Charles Burnette
Drexel University

Periods of Iterated Rational Functions

Abstract: Choose a random polynomial f uniformly from among the $q^d(q-1)$ polynomials of degree d in $\mathbb{F}_q[x]$. Let c_k be the number of cycles of length k in the directed graph on \mathbb{F}_q with edges $f(v; f(v))_{g_{v \in \mathbb{F}_q}}$. In this talk, I will show that if $d = d(q) \rightarrow \infty$ as $q \rightarrow \infty$; then the numbers c_1, c_2, \dots, c_b are asymptotically independent Poisson($\lambda=k$), just as in the classical theory of random mappings. Furthermore, if $d = d(q) \rightarrow \infty$ slowly, and $d = d(q) > \exp\left(\frac{\log q}{7^{1-3}}\right)$, then for all sufficiently large prime powers q

Thursday, April 7, 2016
2:40-4:00PM

Bryn Mawr College
Department of Mathematics
Park Science Center 328

Tea and refreshments at 2:20PM in Park 355