Philadelphia Area Number Theory Seminar

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Periods of Iterated Rational Functions

Abstract: Choose a random polynomial f uniformly from among the $q^d(q \quad 1)$ 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 $f(v; f(v))g_{v2\mathbb{F}_q}$: In this talk, I will show that if $d = d(q) \; ! \; 1$ as $q \; ! \; 1$; then the numbers $c_1; c_2; : : : ; c_b$ are asymptotically independent Poisson(1=k), just as in the classical theory of random mappings. Futhermore, if $! = !(q) \; \% \; 1$ slowly, and $d = d(q) > \exp\left(\frac{\log q}{! \, 1=3}\right)$, then for all su ciently 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