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Distribution of Points on Curves over Finite Fields

The distribution of the number points on curves over finite fields with a fixed Galois group has been a topic of much research recently. It began with Kurlberg and Rudnick determining the distribution of the number of points of hyper-elliptic curves. Hyper-elliptic curves are in one-to-one correspondence with Galois extensions of $\mathbb{F}_q(X)$ with Galois group $\mathbb{Z}/2\mathbb{Z}$. Bucur, David, Feigon and Lalin extended this result to smooth project curves that are in one-to-one correspondence with Galois extensions of $\mathbb{F}_q(X)$ with Galois group $\mathbb{Z}/p\mathbb{Z}$, where p is a prime such that $q \equiv 1 \mod p$. Recently Lorenzo, Milione and Meleleo determined the case for Galois group $(\mathbb{Z}/2\mathbb{Z})^n$. This talk will focus on the case where the Galois group is cyclic.