

1107-12-165

Yasanthi Kottegoda* (ykottegoda@newhaven.edu). *The zeros of linear recurring sequences over finite fields.* Preliminary report.

I discuss the bounds for the cardinality of the set of possible number of zeros of a homogeneous linear recurring sequence over a finite field \mathbb{F}_q , based on the characteristic polynomial of degree d and order m . Here I give upper and lower bounds on the cardinality of the set of number of zeros. The set of zeros and the cardinality of the set is explicitly determined when $t = \frac{q^d-1}{m}$ has the forms $q^a + 1$ (quadratic form case) and $q^{2a} - q^a + 1$ (Kasami Welch case) where $a \in \mathbb{N}$ and applications of quadratic forms over finite fields of odd and even characteristics is used for the first case. The connection with algebraic coding theory is a key ingredient. (Received January 12, 2015)