

TITLE: *A transformation formula for quadratic character sums over a finite field and some applications.*

ABSTRACT:

In this talk I would like to discuss a certain transformation formula for quadratic character sums which, in its original form over the prime field, is due to K. Williams. We extend this formula to general finite fields using just the Hasse-Weil bound for elliptic curves, and then apply it to the evaluation of character sums using elliptic curves with complex multiplication and algebraic curves over finite fields.

This is a joint work with A. Rajan.