

On certain families of partial exponential sums

Antonio Rojas León
Universidad de Sevilla
e-mail: arojas@us.es

Abstract

Partial exponential sums are a generalization of classical exponential sums which are useful, for instance, for studying the distribution of the rational points along the fibers of a morphism between varieties over a finite field. They share some properties with the classical ones: their values are also governed by a certain L -function, which is rational and whose reciprocal roots are pure Weil algebraic integers. However, their cohomological interpretation is much more complicated in general. It has a strong dependence on the geometry of the morphism and we only have good bounds for particularly nice settings. In this talk we will focus on one particularly simple family, which illustrates the different methods used to study this kind of sums and the results that one would expect in general. It is based on joint work with Daqing Wan.