Asymptotically good 4-quasi transitive AG-codes over prime fields

Ricardo A. Podestá

Universidad Nacional de Córdoba, Argentina

podesta@famaf.unc.edu.ar

It is known, by works of Stichtenoth and Bassa, that several classes of algebraic geometry codes, such as transitive codes, self-dual codes and quasi transitive codes among others, are asymptotically good over finite fields with square and cubic cardinality. Similar results were proved by Bassa, Beelen, Garcia and Stichtenoth for general non-prime fields.

Remarkably, few things are known with respect to the behavior of families of AG-codes over prime fields with some additional structure besides linearity. We will show that there are asymptotically good 4-quasi transitive codes over prime fields $\mathbb{F}_p$ for infinte prime numbers of a given form (for instance of the form $p = 220k + 1$).

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