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# THE NUMBER OF IRREDUCIBLE POLYNOMIALS OVER FINITE FIELDS WITH PRESCRIBED COEFFICIENTS

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## Abstract

In this talk, the formula for the number of monic irreducible polynomials of degree  $n$  over the finite field is discussed. We will review the existing results and the importance of the problem. Then, we will give recent results for the case where the coefficients of  $x^{n-1}$  and  $x$  vanish. In particular, we give a relation between rational points of algebraic curves over finite fields and the number of elements "a" in the  $n$ -th extension of the finite field for which  $\text{Trace}(a) = 0$  and  $\text{Trace}(a^{-1}) = 0$ . Finally, we will show the application of the problem to give an upper bound on the number of distinct constructions of a family of sequences with good family complexity and cross-correlation measure.

**Date :** Friday, April 15, 2022

**Time:** 17:00

**Place:** Zoom & Boğaziçi University, South Campus