

The ground field method and the number of solutions of systems of polynomial equations over finite fields

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Abstract

The ground field method transforms polynomials over \mathbb{F}_{p^m} in n variables to polynomials over \mathbb{F}_p in nm variables. This reduction to the ground field allow us to apply other methods and results that work only over \mathbb{F}_p and in some cases improve known results over \mathbb{F}_{p^m} . In this talk we will present the basics about the ground field method, examples of some results that have been improved by using the method and possible further applications.