

SUM-PRODUCT ESTIMATES IN FINITE FIELDS

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The sum-product phenomenon, due to Erdős and Szemerédi, asserts, roughly speaking, that for any set A of integers either the sum set $A + A$ or the product set AA has the cardinality significantly larger than the cardinality of A . A finite field analogue of this problem was solved in 2003 by Bourgain, Katz and Tao. The sum-product estimate and its versions have found important applications in various areas of mathematics.

In this talk I will discuss sum-product estimates in finite fields and show some of their applications.