

Parallelisms of $PG(3, q)$ and a ‘New’ Polynomial Invariant for Spreads

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Abstract

I will define the three-dimensional projective space over the field $GF(q)$, known as $PG(3, q)$, and I will review its main properties, and the (interesting) ways of partition it using lines, spreads, and parallelisms. A few results on parallelisms of $PG(3, q)$ will be mentioned.

An attempt to solve a very old conjecture on parallelisms will be presented, the main tool used is a ‘new’ invariant for spreads of $PG(3, q)$ that I am working on (unpublished work).

This talk should be accessible to students. I will just use linear algebra and very little abstract algebra.