

BLOCKING SETS IN $\text{PG}(r, q)$ AND TERNARY CODES OF DIMENSION 6

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ABSTRACT

In this talk we characterize the blocking sets with parameters $(v_r + 2v_{r-1}, v_{r-1} + 2v_{r-2})$ in $\text{PG}(r, q)$, $r \geq 3$, where $v_r = (q^r - 1)/(q - 1)$. For $q \geq 5$ there exist only canonical blocking sets with these parameters. For $q = 4$ such blocking sets are either canonical or lifted from a Baer subplane. In the case $q = 3$, apart from the canonical blocking set there exist two further sporadic examples with these parameters.

The characterization of these blocking sets in $\text{PG}(4, 3)$ is used to prove the non-existence of $(211, 68)$ -blocking sets in $\text{PG}(5, 3)$. This implies the nonexistence of Griesmer codes with parameters $[518, 6, 344]_3$ and $[519, 6, 345]_3$.

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