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Wettl, F.

Internal nuclei of k-sets in finite projective spaces of three dimensions. (English)

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In recent years, the nuclei of sets of points in finite projective planes have been studied intensively. The author proposes the following generalization to projective spaces: A point p in PG(n,q) is called an m- nucleus of a k-set K of points if every m-dimensional subspace of PG(n,q) through p intersects $K \setminus \{p\}$ in at most m points. He then considers the case of 1-nuclei in PG(3,q) in detail and describes connections to caps and arcs. Finally, some results are also given for the case $m = n - 1$.

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