

Daisy Structure in Desarguesian Projective Planes of Order 2^{n+1}

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We distribute the points and lines of the Desarguesian projective plane of order 2^{n+1} , denoted $PG(2, 2^{n+1})$, according to a special structure that we call the DAISY STRUCTURE. This structure distributes the points in three sets using a family of Hyperovals, and allow us to distribute the lines on a dual structure whose combinatoric scheme is controlled by a special block design which turns out to be isomorphic to the projective space of dimension n over Z_2 , denoted $PG(n, 2)$.

Finally, we apply this to find a lower bound for the heterochromatic number of the projective plane, if we see it as a hypergraph.