

Neighbour-transitive incidence structures in odd graphs.

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Given $k > 0$ and a set X of size $2k + 1$, the odd graph O_{k+1} is a $(k + 1)$ -regular graph whose vertices are the k -sets of X and any two are adjacent if and only if they are disjoint. For a subset Γ of $V(O_{k+1})$, there is an incidence structure D between the elements of X and those of Γ . If we define Γ_1 as the set of neighbours of Γ in D , (that is, Γ_1 is the set of vertices of O_{k+1} that are not in Γ and are adjacent in the graph to at least one element of Γ), then a group of automorphisms of D is neighbour-transitive if it is transitive on Γ_1 . In this talk we will present some results and examples of these incidence structures, which are part of ongoing joint work with Brian Corr, Wei Jin, Cheryl Praeger, and Csaba Schneider.