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Neighbour-transitive codes in odd graphs.

Let $k \geq 2$ and $\Omega := \{1, \dots, 2k + 1\}$. Then the *Odd graph* O_k of order k is the graph whose vertices are the k -subsets of Ω and two vertices are adjacent if and only if they are disjoint. The automorphism group $\text{Aut}(O_k)$ of the odd graph of order k is the symmetric group S_{2k+1} in its natural action on the k -sets of Ω . Now let Γ be a simple graph. A *code* in Γ is a subset C of its vertices, and the *neighbour set* C_1 of C is the set of vertices at distance 1 of C . The automorphism group $\text{Aut}(C)$ of a code C in a graph Γ is the setwise stabiliser of C in $\text{Aut}(\Gamma)$, that is, $\text{Aut}(C) = \text{Aut}(\Gamma)_C$. We are interested in codes C within odd graphs for which $G \leq \text{Aut}(C)$ is transitive on the set of neighbours C_1 . We call codes with an automorphism group G acting this way *G -neighbour-transitive codes*. In this talk we will present some results regarding the possibilities for G and some examples. (Received February 20, 2018)