Abstract

Small symmetric configurations

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A *symmetric* (v_k) *configuration* is an incidence structure of v points and v lines, each point being incident with k lines and vice versa, such that every pair of points is incident with at most one line. The number of points "parallel" to a given point (i.e. not connected by a line) is called the *deficiency* and can be expressed as $d = v - k^2 + k - 1$. In this poster we shall present existence and enumeration results about symmetric configurations with $k \leq 12$ and $d \leq 11$. For $d < k - 3$ there are many cases in which existence is undecided. The only known examples seem to be the elliptic semiplanes, i.e. symmetric configurations with parallelism being an equivalence relation.