Abstract

Permutation Arrays and Isometries of $Sym(n)$

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Let $Sym(n)$ be the group of all permutations of n elements. If p_1, p_2 are two permutations such that p_1 and p_2 coincide in λ positions, the Hamming distance between p_1 and p_2 is the integer $d_n(p_1, p_2) = n - \lambda$.
A permutation array (PA) $\Gamma_{(n,d)}$ of size s and minimum distance d is a set of s permutations of n elements such that the distance between any two permutations is at least d.
Some data-transmission codes use PA's of maximum size s with respect to n and d. We review some known results and use the group $Iso(Sym(n))$ of isometries of $Sym(n)$ to study and construct PA's.