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 p₁, p₂ are two permutations such that p₁ and p₂ coincide in λ positions, the Hamming distance between p₁ and p₂ is the integer \( d_n(p₁, p₂) = n - \lambda \).

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.