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*Sets of mutually orthogonal Latin hypercubes*

A  $(d, n, r, t)$ -hypercube of dimension  $d$ , order  $n$ , class  $r$  and type  $t$  is an  $n \times n \times \cdots \times n$  ( $d$  times) array on  $n^r$  symbols such that, in every  $rt$ -codimension-subarray, each of the  $n^r$  symbols appears exactly  $n^{d-r(t+1)}$  times. We introduce bounds on the number of mutually orthogonal *Latin* ( $t = 1$ ) hypercubes (MOLHs). When  $n$  is a prime power, we use permutation polynomials over finite fields to construct sets of MOLHs approaching these bounds.