A note on automatic construction algorithms for orthogonal designs of experiments using error-correcting codes

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Abstract
In the field of experimental design, it is important to construct orthogonal designs. In this paper, we propose a new algorithm to construct orthogonal design. This algorithm uses Ukita’s algorithm, which is essentially based on projective geometries, and uses orthogonal designs constructed by error-correcting codes. We show some numerical examples of the proposed algorithm, and show that the proposed algorithm can construct good orthogonal designs with low complexity even if there are high order effects.

Keywords and phrases: Experimental design, orthogonal designs, error-correcting codes.

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