

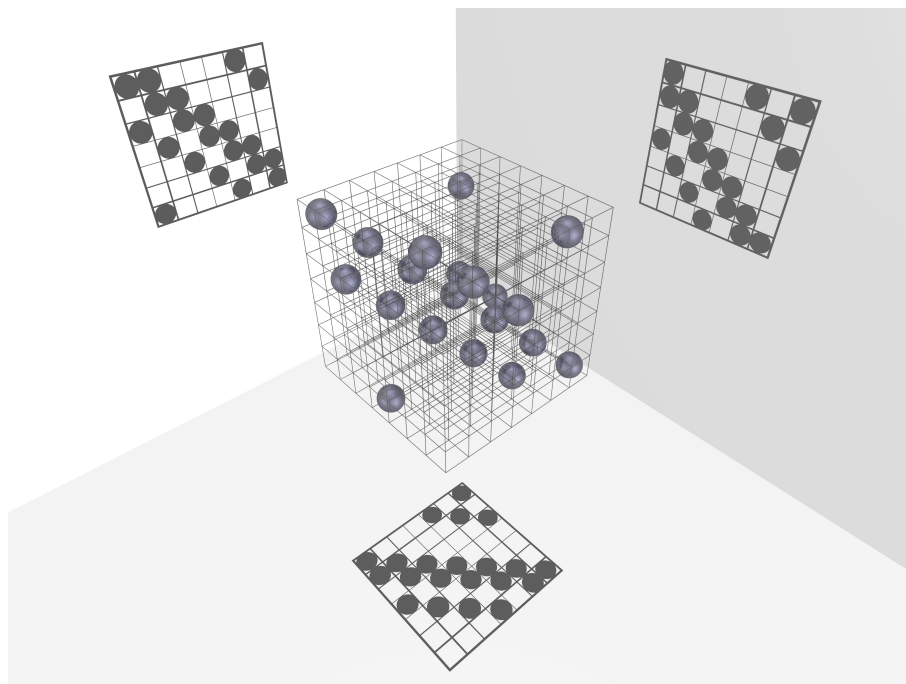
On three-dimensional combinatorial designs

Vedran Krčadinac
University of Zagreb, Croatia

Abstract

Many classes of combinatorial designs can be defined as matrices over a finite set of elements that satisfy certain balance conditions. For example, symmetric block designs with parameters (v, k, λ) are $v \times v$ matrices over $\{0, 1\}$ with row and column sums equal to k , and pairwise scalar products equal to λ . These definitions are extended to higher-dimensional arrays of elements by imposing conditions on its subarrays or by applying other types of constraints.

Recently, there have been a number of works about higher-dimensional Hadamard matrices [1, 3] and symmetric block designs [2, 4, 5]. In this talk, I will give a brief historical overview and survey recent results. I will focus on the three-dimensional case and show pictures rendered using ray tracing software [6].



References

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