Construction of transitive q-designs and q-graphs

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The notion of q-analog of designs has been introduced by Delsarte [5]. In 1987, Thomas [6] constructed the first non-trivial q-analog of design with parameters 2-$(n, 3, 7; 2)$, $n > 6, n = 6k + 1$ or $n = 6k - 1$. An important result was given in [2], where the authors constructed a design over a finite field with parameters 2-$(13, 3, 1; 2)$ which was the first known example of a Steiner q-design that does not arise from spreads. Further, in [1] we introduced the notion of q-analog of strongly regular graphs. We will present the method of constructing transitive q-analogs of designs given in [4], as a generalization of the construction of transitive block designs presented in [3], as well as a method of constructing transitive q-analogs of graphs.

References

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