Differences may still make the difference

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Difference methods have always played a primary role in design theory: my aim is to show that these are still very useful today. In this talk I will select some problems recently solved with the crucial use of some of these methods. I might discuss the following topics.

- The recent, important construction of a 2-analog of a 2-$(13, 3, 1)$-design that might in fact be obtained via difference families.

- The recent complete solution of the existence problem of a (k, λ)-cycle frame of type g^n for any possible quadruple (k, λ, g, n).

- The construction of new infinite families of i-perfect cycle systems obtained by mixing difference methods and some elementary facts on vertex colorings of graphs.

- Some constructions of combinatorial designs with an automorphism group having a prescribed action, such as Steiner triple systems and graph factorizations.

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