Abstract

Classification of Combinatorial Designs

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The aim of classification is to produce one specimen from each isomorphism class of combinatorial designs with given sets of parameters. A particular classification gives the exact number of pairwise nonisomorphic designs as a by-product, but a classification is much more than this; for example—having the designs at one's disposal—conjectures regarding properties of designs can be tested, new conjectures can be made, and the designs can be used in various constructions.

In this talk we look at some of the general principles of classifying combinatorial designs, placing the current state-of-the-art methods in historical perspective. Issues such as computational problems related to constructing designs, isomorph rejection, and validity of computational results are considered. Explicit examples are given, including some recent classification results, for example, [P. Kaski & P.R.J. Östergård, The Steiner triple systems of order 19, *Math. Comp.* **73** (2004), 2075–2092].