

Sequential Covering Designs

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In 1995 Wal Wallis discovered/invented the notion of looking at a classical design as a sequence, thus discovering/inventing a *sequential covering design*.

Sequence A of length t based on v -set V is a *sequential covering design*, SCD , if *every* pair $\{x, y\}$ ($x \neq y$) from V is covered by A , *i.e.*, is contained within some k -block of A . We denote such an A by $SCD(v, k, t)$.

For a fixed v and $k \geq 2$ we define $g(v, k)$ to be the smallest t for which a $SCD(v, k, t)$ exists, and call a $SCD(v, k, g(v, k))$ *minimal*, and *non-minimal* otherwise.

In this talk we extend some results of Wallis and carry on with further research into SCD . We present new constructions, a greedy algorithm, and connections with other combinatorial objects, such as Steiner Triple Systems. Many examples will be given, we mainly concentrate on $k = 3$.