

STRONGLY LINEAR TREND-FREE BLOCK DESIGNS
AND 1-FACTORS OF REPRESENTATIVE GRAPHS

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ABSTRACT

We consider the existence of strongly linear trend-free block designs. Using a graph to represent a block design, we show that the problem of finding strongly linear trend-free block designs corresponds to a well known problem in graph theory. This connection enables a characterization of all block designs that, through a judicious assignment of the treatments to the units within each block, can be made strongly linear trend-free, and makes available efficient algorithms for finding such assignments.

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