

Group divisible designs $\text{GDD}(n, n, n, 2; \lambda_1, \lambda_2)$

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A *group divisible design* $\text{GDD}(g = g_1 + g_2 + \cdots + g_s, s, k; \lambda_1, \lambda_2)$ is an ordered pair (G, \mathcal{B}) where G is a g -set of treatments which is partitioned into s sets (called *groups*) of sizes g_1, g_2, \dots, g_s , and \mathcal{B} is a collection of k -subsets of G called *blocks* such that each pair of elements from the same group appear together in λ_1 blocks and each pair of elements from distinct groups appear together in λ_2 blocks. In this talk, for each tuple of integers $(n, \lambda_1, \lambda_2)$ we give a complete solution for the existence problem of $\text{GDD}(g = n + n + n + 2, 4, 3; \lambda_1, \lambda_2)$.