

[Dyck, Adam](#); [Meagher, Karen](#)

An Erdős-Ko-Rado theorem for subset partitions. (English) Zbl 1309.05176
[Involve](#) 8, No. 1, 119-127 (2015).

Summary: A $k\ell$ -subset partition, or (k, ℓ) -subpartition, is a $k\ell$ -subset of an n -set that is partitioned into ℓ distinct blocks, each of size k . Two (k, ℓ) -subpartitions are said to t -intersect if they have at least t blocks in common. In this paper, we prove an Erdős-Ko-Rado theorem for intersecting families of (k, ℓ) -subpartitions. We show that for $n \geq k\ell$, $\ell \geq 2$ and $k \geq 3$, the number of (k, ℓ) -subpartitions in the largest 1-intersecting family is at most $\binom{n-k}{k} \binom{n-2k}{k} \cdots \binom{n-(\ell-1)k}{k} / (\ell-1)!$, and that this bound is only attained by the family of (k, ℓ) -subpartitions with a common fixed block, known as the canonical intersecting family of (k, ℓ) -subpartitions. Further, provided that n is sufficiently large relative to k, ℓ and t , the largest t -intersecting family is the family of (k, ℓ) -subpartitions that contain a common set of t fixed blocks.

MSC:

[05D05](#) Extremal set theory
[05A18](#) Partitions of sets

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