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*Sperner partition systems*

A Sperner set system is a set system in which no set is a subset of another. Sperner proved that the maximum size of a Sperner set system on  $\{1, 2, \dots, n\}$  is  $\binom{n}{\lfloor \frac{n}{2} \rfloor}$  and the only systems meeting this bound are the middle levels of the poset of sets ordered by inclusion. A *Sperner partition system* is a set of partitions with the property that no class from one partition is the subset of a class from another partition. A Sperner partition system can be considered to be a resolvable Sperner set system. In 2005 Lucia Moura, Brett Stevens and I proved a bound on the size of a Sperner partition system and showed that this bound can be met if the size of the classes in the partitions are all equal. Recently, P. C. Li and I determined bounds on the sizes of some Sperner partition systems when the sizes of the classes cannot be all the same.