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*Homological Sperner-type Theorems*

Let  $K$  be a simplicial complex. Suppose the vertices of  $K$  are painted with  $I = \{1, \dots, m\}$  colours. A homological Sperner-type theorem concludes the existence of a rainbow simplex of  $K$  under the hypothesis that certain homology groups of certain subcomplexes of  $K$  are zero. The problem of the existence of a rainbow simplex of  $K$  is equivalent to the problem of the existence of a system of distinct representatives in a family of sets.