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Perfect sets and collapsing continuum

Comment.Math.Univ.Carolinae 44,2 (2003) 315-327.

Abstract: Under Martin's axiom, collapsing of the continuum by Sacks forcing $\mathbb{S}$ is characterized by the additivity of Marczewski's ideal (see [4]). We show that the same characterization holds true if $\mathfrak{d} = \mathfrak{c}$ proving that under this hypothesis there are no small uncountable maximal antichains in $\mathbb{S}$. We also construct a partition of into $\mathfrak{c}$ perfect sets which is a maximal antichain in $\mathbb{S}$ and show that s^0-sets are exactly (subsets of) selectors of maximal antichains of perfect sets.

Keywords: Sacks forcing, Marczewski's ideal, cardinal invariants
AMS Subject Classification: Primary 03E40; Secondary 03E17