Authors' abstract: "In the power set $P(E)$ of a set E, the sets of a fixed finite cardinality k form a "cross-cut", that is, a maximal unordered set C such that if $X, Y \subseteq E$ satisfy $X \subseteq Y$, $X \subseteq$ some X' in C, and $Y \supseteq$ some Y' in C, then $X \subseteq Z \subseteq Y$ for some Z in C. For $E = \omega$, ω_1 and ω_2, it is shown with the aid of the continuum hypothesis that $P(E)$ has cross-cuts consisting of infinite sets with infinite complements, and somewhat stronger results are proved for ω and ω_1."

N.H.Williams

Classification:
04A20 Combinatorial set theory
06A06 Partial order
04A30 Continuum hypothesis and generalizations

Keywords:
power set; sets of a fixed finite cardinality; cross-cut; maximal unordered set; continuum hypothesis