Unique hyperspaces and homeomorphisms

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Abstract: The hyperspace 2^X of a continuum X is the set of all closed non-empty subsets of X with the Vietoris topology. Besides 2^X itself, other hyperspaces used in continua theory are the n-fold hyperspaces $C_n(X)$ and the n-th symmetric product $F_n(X)$, for each $n \in \mathbb{N}$. Let $\mathcal{H}(X)$ denote one of these hyperspaces for an arbitrary continuum X. Then a continuum Y is said to have unique hyperspace $\mathcal{H}(Y)$ if every time Z is a continuum and $\mathcal{H}(Z)$ is homeomorphic to $\mathcal{H}(Y)$, then Z is homeomorphic to Y. In this talk, we will discuss the problem of finding classes of continua with unique hyperspaces and how this relates to what types of self-homeomorphisms a hyperspace has.