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Fans whose Hyperspaces are Cones

A *continuum* is a compact connected metric space. A *fan* is an arcwise connected continuum such that the intersection of any two subcontinua is connected and has exactly one point which is the common part of three otherwise disjoint arcs called the *top* of the fan.

Given a continuum X, we define its *hyperspaces* as the following sets:

$$2^X = \{A \subset X \mid A \text{ is closed and nonempty}\}$$

$$C_n(X) = \{A \in 2^X \mid A \text{ has at most } n \text{ components}\}$$

$$F_n(X) = \{A \in 2^X \mid A \text{ has at most } n \text{ points}\}$$

It is known that 2^X is a metric space with the Hausdorff metric.

Given a fan F, let $\mathcal{G}(F)$ denote any of the hyperspaces 2^F, $C_n(F)$ and $F_n(F)$, for $n \geq 2$.

In this talk we present the following result:

Theorem. If F is a fan with top τ, which is homeomorphic to the cone over a compact metric space, then $\mathcal{G}(F)$ is homeomorphic to the cone over a continuum.

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