FUNCTION SPACES WITH HYPO-GRAPH FELL TOPOLOGY

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For a topological space X, the Fell topology on the family $\mathrm{Cld}(X)$ of all non-empty closed sets in X is generated by the subbase consisting of the sets

$$U^- = \{A \in \mathrm{Cld}(X) : U \cap A \neq \emptyset\}, K^* = \{A \in \mathrm{Cld}(X) : K \cap A = \emptyset\},$$

where U and K runs over open and compact sets in X respectively, and we denote this space by $\mathrm{Cld}_F(X)$.

For a Tychonoff space X and a linear pospace Y with linear order $\leq$, let $\mathrm{C}(X, Y)$ denote the set of all continuous maps from X to Y, and for every $f \in \mathrm{C}(X, Y)$, let

$$\downarrow f = \{(x, s) \in X \times Y : s \leq f(x)\} \in \mathrm{Cld}(X \times Y$$

be the *hypograph* of f. $\downarrow\mathrm{C}_F(X, Y)$ is the set $\{\downarrow f : f \in \mathrm{C}(X, Y)\}$ endowed with subspace topology from $\mathrm{Cld}_F(X \times Y)$.

In this talk we character Hausdorff, regular, separable, first and second countable property of the function space $\downarrow\mathrm{C}_F(X, Y)$, and we also prove that $\downarrow\mathrm{C}_F(X, \mathbb{I})$ is $\mathfrak{P}_0$-space if and only if X is an $\aleph_0$-space.