Arhangelskii's alpha properties of $C_p(X)$ and covering properties of X

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I will present characterizations of a topological space X, for which the topological space $C_p(X)$ possesses Arhangelskii property (α_1) and (α_2), respectively. The results follow from results obtained by the author and others (the references will be given in my lecture).

Theorem *For a perfectly normal topological space X the following are equivalent:*

1) the set of all real upper semicontinuous functions on X possesses the (α_2) *property,*

2) X is a $S_1(\Gamma, \Gamma)$*-space,*

3) X is a wQN-space.*

Theorem *For a perfectly normal topological space X the following are equivalent:*

1) $C_p(X)$ *possesses the* (α_1) *property,*

2) the set of real lower semicontinuous functions on X possesses the (α_2) *property,*

3) the set of γ*-covers of X possesses the covering* (α_1) *property,*

4) X is a QN-space,

5) every Borel image of X into Baire space ${}^{\omega}\omega$ *is bounded.*

I will present similar result for $C_p(X)$ with the (α_2) property.

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