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ON SOME RESULTS CONCERNING k-SPACES

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Moskva

We consider two classes of spaces. Members of the first class are those topological spaces in which the sequential closure of arbitrary set coincides with the closure of the set. These spaces are called FU-spaces (Fréchet-Urysohn spaces). The second class contains all those spaces, all subspaces of which are k-spaces. We call these spaces very k-spaces. The main theorem says that these two classes of spaces coincide (we consider only Hausdorff spaces). In interplay with some other results of the author this theorem leads us to the following assertions:

A. *Very k-spaces are precisely those spaces which are pseudoopen continuous images of metric spaces.*

Recall that a map $f : X \to Y$ is called pseudoopen (see [1]) iff for each point $y \in Y$ and for each open set U, containing the set $f^{-1}[y]$, the interior of the set fU contains y.

B. *Let X be a topological group, the space of which is a p-space (see* [2]*). Then either of the two following conditions is fulfilled:*

1) *X is metrizable;*
2) *X contains a subspace which is not a k-space.*

C. We say that a point x of a space X is λ-achievable, where λ is a cardinal number, if there exists a subset $M \subset X - \{x\}$ of the cardinality λ such that $x \in [M]$.

Using the technic, developed for the proof of A, we show that *if X is an extremally disconnected bicompact Hausdorff space and if the character of a point $x \in X$ in X is equal to τ, then x is λ-achievable for some $\lambda < \tau$.*

Literature

[1] *А. В. Архангельский:* Бикомпактные множества и топология пространств. Труды Моск. матем. о-ва *13* (1965), 3—55.

[2] *А. В. Архангельский:* О замкнутых отображениях, бикомпактных множествах и одной задаче П. С. Александрова. Матем. сб. *69* (111) (1966), 13—34.