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On set-star-K-Menger spaces

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Abstract. A topological space X is said to have the *set-star-K-Menger* property if for each nonempty subset A of X and for each sequence $(\mathcal{U}_n : n \in \mathbb{N})$ of open families in X such that $\overline{A} \subseteq \bigcup \mathcal{U}_n$ for all $n \in \mathbb{N}$, there is a sequence $(K_n : n \in \mathbb{N})$ of compact subsets of X such that $A \subseteq \bigcup_{n\in\mathbb{N}} \mathrm{St}(K_n, \mathcal{U}_n)$. This property is motivated by the sLindelöf cardinal function in Arhangel'skii [1] and set-star covering properties introduced by Kočinac, Konca and Singh [10]. We investigate the relationships between the set-star-K-Menger and other related properties, and study the topological properties of the set-star-K-Menger property.

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