

Pytkeev property and related concepts.

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ABSTRACT: It is known [Hrusak-Ramos Garcia] (Malykhin problem) that *there exists a model in ZFC where every separable Fréchet-Urysohn group is metrizable*. Therefore any good sufficient condition under which a Fréchet-Urysohn group is metrizable is welcome. Being inspired by this problem, we provide some new and classic results about (strong) Pytkeev property, the property which for topological spaces is located between metrizability and countably tightness. Our approach is based on the useful concept (originally introduced by Cascales-Kąkol-Saxon) which is known under the name a \mathfrak{G} -base.

Recall that a family $\mathcal{U} := (U_\alpha)_{\alpha \in \mathbb{N}^{\mathbb{N}}}$ of subsets in a topological group G is called a **\mathfrak{G} -base** if \mathcal{U} is a base of neighbourhoods of the unit of G and $U_\beta \subseteq U_\alpha$ with $\alpha \leq \beta$ for all $\alpha, \beta \in \mathbb{N}^{\mathbb{N}}$.