A (para)topological group $G$ is called simply sm-factorizable if for each co-zero set $U$ in $G$, there exists a continuous homomorphism $\pi$ of $G$ onto a separable metrizable (para)topological group $H$ such that $U = \pi^{-1}(\pi(U))$.

It is proved that a regular (para)topological group $G$ is simply sm-factorizable if and only if $G$ is projectively strongly submetrizable and every continuous real-valued function on $G$ is uniformly continuous on $G_\omega$, the $P$-modification of $G$.

It is also established that every precompact paratopological group is simply sm-factorizable.

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MSC:
22A05 Structure of general topological groups
22A30 Other topological algebraic systems and their representations
54H11 Topological groups (topological aspects)
54A25 Cardinality properties (cardinal functions and inequalities, discrete subsets)
54C30 Real-valued functions in general topology

Keywords:
strongly submetrizable; (para)topological group; simply sm-factorizable; R-factorizable; P-group; weakly Lindelöf

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References: