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***Subgroups and products of  $\mathbb{R}$ -factorizable  $P$ -groups***

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**Abstract:** We show that *every* subgroup of an  $\mathbb{R}$ -factorizable abelian  $P$ -group is topologically isomorphic to a *closed* subgroup of another  $\mathbb{R}$ -factorizable abelian  $P$ -group. This implies that closed subgroups of  $\mathbb{R}$ -factorizable  $P$ -groups are not necessarily  $\mathbb{R}$ -factorizable. We also prove that if a Hausdorff space  $Y$  of countable pseudocharacter is a continuous image of a product  $X = \prod_{i \in I} X_i$  of  $P$ -spaces and the space  $X$  is pseudo- $\omega_1$ -compact, then  $nw(Y) \leq \aleph_0$ . In particular, direct products of  $\mathbb{R}$ -factorizable  $P$ -groups are  $\mathbb{R}$ -factorizable and  $\omega$ -stable.

**Keywords:**  $P$ -space,  $P$ -group, pseudo- $\omega_1$ -compact,  $\omega$ -stable,  $\mathbb{R}$ -factorizable,  $\aleph_0$ -bounded, pseudocharacter, cellularity,  $\aleph_0$ -box topology,  $\sigma$ -product

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