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On C-embedded subspaces of weakly Lindelöf spaces. (English) Zbl 07402616
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Summary: We show that if the product space $X = \prod_{i \in I} X_i$ is weakly Lindelöf and a subspace $Y$ of $X$ fills all countable subproducts of $X$, then $Y$ is weakly Lindelöf and $C$-embedded in $X$. In particular, if the product space $X = \prod_{i \in I} X_i$ is weakly Lindelöf and the factors $X_i$ are Tychoff and have countable pseudocharacter, then every dense $C^*$-embedded subspace $Y$ of $X$ is weakly Lindelöf. It is also proved that every dense $C^*$-embedded subspace of an arbitrary product $\Pi = \prod_{i \in I} X_i$ of Eberlein compacta is pseudocompact (hence $C$-embedded in $\Pi$) and weakly Lindelöf. Finally we present an example of a Lindelöf topological group with a dense $C$-embedded subgroup that fails to be weakly Lindelöf.

MSC:
54B10 Product spaces in general topology
54C45 $C$- and $C^*$-embedding
54D20 Noncompact covering properties (paracompact, Lindelöf, etc.)

Keywords: compact; pseudocompact; weakly Lindelöf; pseudo-$\omega_1$-compact; $C$-embedded; $C^*$-embedded; Eberlein compacta; topological group

Full Text: DOI

References:
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