# SUBSPACES OF COUNTABLY COMPACT TOPOLOGICAL SPACES

TARAS BANAKH, SERHII BARDYLA, AND ALEX RAVSKY

We investigate subspaces of countably compact and $\omega$-bounded topological spaces. A space $X$ is called *$\overline{\omega}$-normal* if for any two disjoint closed subsets $A, B$ of a closed separable subspace $Y \subset X$ there exist disjoint open sets $U, V$ in $X$ such that $A \subset U$ and $B \subset V$. We show that each Hausdorff $\omega$-bounded space is $\overline{\omega}$-normal and each $\overline{\omega}$-normal space can be embedded into an $\omega$-bounded Hausdorff space. We construct a consistent example of a regular separable scattered sequentially compact space which is not Tychonoff and hence can not be embedded into $\omega$-bounded topological spaces. Separation axioms of subspaces of Hausdorff countably compact topological spaces were investigated. Also, we construct an example of a regular separable scattered topological space which can not be embedded into Urysohn countably compact topological spaces. Some open problems will be posed.

## References

[1] T. Banakh, S. Bardyla, A. Ravsky, *Embedding topological spaces into Hausdorff $\omega$-bounded spaces*, preprint, arXiv:1906.00185.

[2] T. Banakh, S. Bardyla, A. Ravsky, *Embeddings into countably compact Hausdorff spaces*, preprint, arXiv:1906.04541.

(Taras Banakh) Ivan Franko National University of Lviv (Ukraine) and Jan Kochanowski University in Kielce (Poland)

*E-mail address*, Taras Banakh: t.o.banakh@gmail.com

(Serhii Bardyla) Institute of Mathematics, Kurt Gödel Research Center, Vienna, Austria

*E-mail address*, Serhii Bardyla: sbardyla@yahoo.com

(Alex Ravsky) Pidstryhach Institute for Applied Problems of Mechanics and Mathematics, Lviv, Ukraine

*E-mail address*, Alex Ravsky: alexander.ravsky@uni-wuerzburg.de

*Key words and phrases.* Countably compact spaces, $\omega$-bounded spaces.

The work of the second author was supported by the Austrian Science Fund FWF (Grant I 3709 N35).