# Counting spaces of functions on separable compact lines

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Let $\mathcal{K}$ be a class of separable compact lines of topological weight $\omega_1$. The main problem of this talk is as follows.

**Question 1** *How many isomorphic types of spaces $C(K)$ are there for $K \in \mathcal{K}$?*

Assuming the continuum hypothesis, by methods of Cabello Sanchez, Castillo, Marciszewski, Plebanek and Salguero-Alarcon [1] it follows that there are $2^{\omega_1}$ many such isomorphic types. On the other hand, assuming the Baumgartner's axiom, we have only one class of isomorphic types $C(K)$, for $K \in \mathcal{K}$.

Using methods of Michalak [2], it is also not very hard to show similar results for the class $\mathcal{K}'$ of finite products of spaces from the class $\mathcal{K}$ and metrizable spaces.

## References

[1] F. Cabello Sánchez, J.M.F. Castillo, W. Marciszewski, G. Plebanek and A. Salguero Alarcón, *Sailing over three problems of Koszmider*, J. Funct. Anal. **279** (2020), no. 4, 108571, 22 pp.

[2] A. Michalak, *On Banach spaces of continuous functions on finite products of separable compact lines* Stud. Math. **251** (2020), no. 3, 247–275.

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