

Leonid V. Genze, Sergei P. Gul'ko, Tat'ana E. Khmyleva
Classification of spaces of continuous functions on ordinals

Comment.Math.Univ.Carolin. 59,3 (2018) 365 –370.

Abstract: We conclude the classification of spaces of continuous functions on ordinals carried out by Górał [Górał R., *Function spaces on ordinals*, Comment. Math. Univ. Carolin. **46** (2005), no. 1, 93–103]. This gives a complete topological classification of the spaces $C_p([0, \alpha])$ of all continuous real-valued functions on compact segments of ordinals endowed with the topology of pointwise convergence. Moreover, this topological classification of the spaces $C_p([0, \alpha])$ completely coincides with their uniform classification.

Keywords: space of continuous functions; pointwise topology; homeomorphism of function spaces; uniform homeomorphism; ordinal number

AMS Subject Classification: 54C35

REFERENCES

- [1] Arhangel'skij A. V., *On linear homeomorphisms of function spaces*, Sov. Math., Dokl. **25** (1982), 852–855; translation from Dokl. Akad. Nauk SSSR **264** (1982), 1289–1292 (Russian).
- [2] Baars J. A., de Groot J. A. M., *On Topological and Linear Equivalence of Certain Function Spaces*, CWI Tract 86, Stichting Mathematisch Centrum, Centrum voor Wiskunde en Informatica, Amsterdam, 1992.
- [3] Bessaga C., Pełczyński A., *Spaces of continuous functions. IV. On isomorphic classification of spaces $C(S)$* , Studia Math. **19** (1960), 53–62.
- [4] Engelking R., *General Topology*, Sigma Series in Pure Mathematics, 6, Heldermann Verlag, Berlin, 1989.
- [5] Górał R., *Function spaces on ordinals*, Comment. Math. Univ. Carolin. **46** (2005), no. 1, 93–103.
- [6] Gul'ko S. P., *Free topological groups and a space of continuous functions on ordinals*, Vestnik of Tomsk State University (2003), no. 280, 34–38 (Russian).
- [7] Gul'ko S. P., Os'kin A. V., *Isomorphic classification of spaces of continuous functions on totally ordered compact sets*, Funkcional Anal. i Prilozhen. **9** (1975) no. 1, 56–57 (Russian).
- [8] Kislyakov S. V., *Classification of spaces of continuous functions of ordinals*, Siberian Math. J. **16** (1975), no. 2, 226–231; translated from Sibirskii Matematicheskij Zhurnal **16** (1975), no. 2, 293–300 (Russian).
- [9] Semadeni Z., *Banach spaces non-isomorphic to their Cartesian squares. II*, Bull. Acad. Polon. Sci. Sér. Sci. Math. Astr. Phys. **8** (1960), 81–84.
- [10] Tkachuk V. V., *A C_p -Theory Problem Book*, Topological and Function Spaces, Problem Books in Mathematics, Springer, New York, 2011.