Characterizing inverse sequences for which their inverse limits are homeomorphic

Matevž Črepnjak*

Faculty of Natural Sciences and Mathematics, University of Maribor
Faculty of Chemistry and Chemical Engineering, University of Maribor
Slovenia
matevz.crepnjak@um.si

Mioduszewski's classical result characterizes inverse sequences of polyhedra for which their inverse limits are homeomorphic. In the talk, a more general characterization will be presented. More precisely, we characterize inverse sequences of arbitrary compact metric spaces and continuous single-valued functions for which their inverse limits are homeomorphic. In our approach, set-valued functions are used instead of continuous single-valued functions in almost commutative diagrams. We also present an application of the characterization, from which it follows a very short proof that the Brouwer-Janiszewski-Knaster continuum and the pseudo-arc are circle-like continua.

References

[1] M. Črepnjak, T. Sovič, Characterizing inverse sequences for which their inverse limits are homeomorphic, Acta Math. Hungar., 172 (1) (2024), 42–61.

*This is joint work with Tina Sovič (University of Maribor).