

On algebraic sums, trees and null sets in the Cantor space and the Baire space

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Let \mathbb{T} be some family of trees in the Cantor space 2^ω or the Baire space \mathbb{Z}^ω . During the talk we will discuss the results of the following form

Theorem. For every null set A and a tree $T \in \mathbb{T}$ there exists $T' \in \mathbb{T}, T' \subseteq T$ such that $A + \underbrace{[T'] + [T'] + \cdots + [T']}_{n\text{-times}}$ is null for each $n \in \omega$.

In the case of the Cantor space we will consider "real" null sets and sets from \mathcal{E} , in the case of the Baire space we will focus on so called "fake" null sets.

These results were obtained together with Łukasz Mazurkiewicz, Robert Rałowski and Szymon Żeberski (see [1] and [2]). The inspiration for the papers came from the series of similarly sounding lemmas from [3]

References

- [1] Łukasz Mazurkiewicz, Marcin Michalski, Robert Rałowski, Szymon Żeberski, On algebraic sums, trees and ideals in the Baire space, arXiv:2409.17748.
- [2] Marcin Michalski, Robert Rałowski, Szymon Żeberski, On algebraic sums, trees and ideals in the Cantor space, arXiv:2405.13775.
- [3] Marcin Michalski, Szymon Żeberski, Some properties of \mathcal{I} -Luzin sets, Topology and its Applications, Volume 189, 2015, pp 122–135.