

- JÖRG BRENDLE, YURII KHOMSKII, *Polarized partition properties for Δ_2^1 and Σ_2^1 sets.*

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Infinite polarized partition properties are weakenings of the Ramsey property and have been investigated by Henle, Di Prisco, Llopis and Todorcevic [1, 2, 3, 4]. Its simplest version says “for every $A \subseteq \omega^\omega$, there is a sequence $\{H_i \mid i < \omega\}$, each $H_i \in [\omega]^{<\omega}$, such that $\prod_i H_i \subseteq A$ or $\prod_i H_i \cap A = \emptyset$ ”. In [4] it was proved that this property, as well as its parametrized version, holds for analytic sets of reals and for all sets of reals in Solovay’s model, and that it is not equivalent to being Ramsey.

We study this property on the Δ_2^1 - and Σ_2^1 -levels, i.e., we investigate the logical strength of the statement “all Δ_2^1/Σ_2^1 sets satisfy the polarized partition property”, and compare it to the strength of other well-known regularity properties on this level.

[1] CARLOS A. DI PRISCO, JAMES M. HENLE, *Partitions of products*, ***The Journal of Symbolic Logic***, vol. 58 (1993), no. 3, pp. 860–871.

[2] CARLOS A. DI PRISCO, JIMENA LLOPIS, STEVO TODORCEVIC, *Borel partitions of products of finite sets and the Ackermann function*, ***Journal of Combinatorial Theory, Series A***, vol. 93 (2001), pp. 333–349.

[3] ——— *Parametrized partitions of products of finite sets*, ***Combinatorica***, vol. 24 (2004), no. 2, pp. 209–232.

[4] CARLOS A. DI PRISCO, STEVO TODORCEVIC, *Souslin partitions of products of finite sets*, ***Advances in Mathematics***, vol. 176 (2003), pp. 145–173.