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Chromatic Numbers and Unconditional Sequences in Banach Spaces

We will discuss how some combinatorial Ramsey principles force the existence of certain basic sequences in a Banach space. For example, there are two graphs G_1, G_2 , whose edges are finite sets of a cardinal κ , and finite sequences of finite subsets of κ respectively, such that if G_1 and G_2 have countable chromatic number, then there is a normalized weakly-null basic sequence $(x_\alpha)_{\alpha < \kappa}$ without unconditional basic sequences. This fact about G_1 and G_2 is true for $\kappa < \aleph_\omega$. We will also talk about the existence of subsymmetric basic sequences and its relationship with ω -Erdős cardinals.

(This is a joint work with S. Todorćević.)