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Combinatorics of Ramsey ideals

In this talk, we primarily study several combinatorial properties of Ramsey–type ideals on countably infinite sets. Specifically, we show new combinatorial characterizations of Ramsey ideals through various partition and convergence properties. Furthermore, we analyze ideal versions of some relevant high–dimensional Ramsey–type theorems, in order to research ideals related to finite colorings of fronts on the natural numbers as well as ideals associated with finite partitions of any family of finite subsets of the natural numbers. In particular, Galvin ideals are introduced as an intermediate combinatorial concept between Ramsey ideals and semiselective ideals. Finally, we also prove that under CH and $\neg SH$ there is a semiselective coideal that does not contain any selective ultrafilter, although it is also consistent that every semiselective coideal contains a selective ultrafilter.