

Σ_1 -PARTITION PROPERTIES

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ABSTRACT. We consider colourings of the set of pairs of countable ordinals with two colours that are definable by Σ_1 -formulas that only use the first uncountable cardinal ω_1 and real numbers as parameters. We present results showing that the existence of a measurable cardinal above a Woodin cardinal implies that uncountable homogeneous sets exist for all such colourings. In contrast, a failure of this partition property is compatible with the existence of a single Woodin cardinal. Finally, we show that similar definable partition properties can hold for large cardinals that are not weakly compact; e.g. stationary limits of ω_1 -iterable cardinals.

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