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Maximal independence and singular cardinals

In this talk, we will deal with the concept of a maximal δ -independent family of subsets of λ , when λ is a singular cardinal of cofinality κ and δ is a regular cardinal $\leq \kappa$. We will show that if λ is a singular cardinal which is a limit of a sequence of regular cardinals $(\lambda_\alpha : \alpha < \kappa)$ and there are maximal δ -independent families at each cardinal λ_α , then it is possible to build a maximal δ -independent family at the singular λ . Afterward, we will use this fact together with the results of Kunen regarding the existence of maximal independent families at regular cardinals to prove our main result: If λ is a singular cardinal which is a limit of supercompact cardinals $(\lambda_\alpha : \alpha < \kappa)$ and $\text{cof}(\lambda) = \kappa$, then consistently there exists a maximal κ -independent family of subsets of λ . Finally, we add a discussion on the possible sizes of these families.