Vera Fischer

Kurt Gödel Research Center, University of Vienna
vera.fischer@univie.ac.at

The spectrum of independence

The set of possible sizes of maximal independent families is referred to as the spectrum of independence and denoted $\mathsf{Sp}(\mathfrak{i})$. We will show that:

• Whenever $\{\kappa_i\}_{i=1}^n$ are regular uncountable cardinals, it is consistent that $\{\kappa_i\}_{i=1}^n \subseteq \mathsf{Sp}(\mathfrak{i})$.

• Whenever κ has uncountable cofinality, it is consistent that $\mathsf{Sp}(\mathfrak{i}) = \{\aleph_1, \kappa = \mathfrak{c}\}$.

• Assuming that $\kappa_1 < \cdots < \kappa_n$ are measurable cardinals, it is consistent that

$$\{\kappa_i\}_{i=1}^n \subseteq \mathsf{Sp}(\mathfrak{i}) \text{ and } \Big(\bigcup_{i=1}^{n-1}(\kappa_i, \kappa_{i+1})\Big) \cap \mathsf{Sp}(\mathfrak{i}) = \emptyset.$$

In addition, to any independent family, we will associate two ideals on ω and define a class of maximal independent families for which Sacks indestructibility can be naturally characterized in terms of these ideals.