The Consistency Strength of the Negation of the Singular Cardinal Hypothesis Without the Axiom of Choice

by Peter Koepke

Oberseminar Mathematische Logik, June 24, 2008

Abstract

We show - joint with Arthur Apter - that the consistency strengths of the theories $ZF + \neg$ SCH and $ZFC +$ "there exists a measurable cardinal" are equal, where $\neg$SCH is interpreted as: there is a singular cardinal κ such that $\forall \nu \in [\omega, \kappa) \, \mathcal{P}(\nu) \sim \nu^+$ and there exists a *surjection* from $\mathcal{P}_{\leqslant \mathrm{cof}(\kappa)}(\kappa)$ onto κ^{++}. The proofs involve a standard application of the Dodd-Jensen core model theory and choiceless submodels of generic extensions by parallel Prikry forcing for a sequence of κ^{++} distinct normal measures on κ.