

Research Statement

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My research mainly focus on strong condensation principle(SC) and precipitous ideal on ω_1 . SC was introduced by Woodin in [3], which is an abstract version of Condensation Lemma in L. Independently S. Friedman [1] and I [4] construct set-size forcings for SC on $H(\omega_2)$. On the other hand, in [2] Schimmerling and Velickovic show that SC on $H(\omega_3)$ refutes the existence of precipitous ideal on ω_1 . Now I am looking for a set forcing for SC on $H(\omega_3)$ or some fragment of it which may be a solution to “Larger Cardinal entails precipitous ideal“ problem.

Also, I am interesting in the relation between canonical complete ideals and nonstationary ideals. There are forcing notions with respect to some canonical ideals on ω_1 (e.g club guessing ideal, \diamond ideal etc.) which force these ideals to be $NS \upharpoonright S$ for some stationary $S \subset \omega_1$. The further step is to seek for the consistency strength of the statement that all normal, countably complete ideal on ω_1 is of the form $NS \upharpoonright S$ for some stationary $S \subset \omega_1$. This statement is a consequence of the saturation of NS_{ω_1} , hence the strength is below one Woodin cardinal.

References

- [1] Sy. Friedman, Forcing Condensation, preprint
- [2] Ernest Schimmerling, Boban Velickovic. Collapsing Function. Mathematical Logic Quarterly 50 (2004), No 1, 3-8
- [3] W. Hugh Woodin, The Axiom of Determinacy, Forcing Axioms, and the Nonstationary Ideal, de Gruyter Series in Logic and its Applications 1, Walter de Gruyter & Co., Berlin, 1999
- [4] Liuzhen Wu. Forcing Strong Condensation over $H(\omega_2)$ and Precipitous Ideal. PhD thesis.