RESEARCH STATEMENT

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I am interested in forcing, large cardinals and descriptive set theory. My research interest at the moment is the *splitting tree forcing*, a tree forcing that was found to characterize the countably splitting analytic subsets of the reals by Otmar Spinas in [1]. For a tree forcing S one can define an ideal of small subsets of the reals by $I(S) := \{X \subseteq 2^{\omega} |\ \forall p \in S\ \exists q \leq p : [p] \cap X = \emptyset\}$. Several consistency results regarding the cardinal invariants of these ideals and their relationships are known for a wide array of tree forcings, for example the consistency of $MA + \neg CH + Cov(I(S)) = \omega_1$, where S is the Sacks forcing (see [2]). I am using iterated tree forcing constructions to find analogous results for the splitting tree forcing that are left open. Later research interests will be more general questions regarding splitting reals, for example to find a similar characterization for splitting hereditary subsets of reals of Borel complexity.

References

[1] Otmar Spinas *Analytic countably splitting families*, Journal of Symbolic Logic **69** (2004), pp.101-117.

[2] H. Judah, A. Miller, S. Shelah *Sacks Forcing, Laver Forcing and Martin's Axiom*, Arch. Math. Logic **31** (1992), no.3, pp.145-161.