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I am a PhD student at the Logic group of Bonn, under the supervision of Peter Koepke. My main area of interest is set theory ZF under the *negation of the Axiom of Choice* ($\neg\mathsf{AC}$). In particular, I'm working on large cardinals, singular cardinal patterns, and variants of the Chang conjecture, all under $\neg\mathsf{AC}$. The main method I am using is symmetric forcing.

I finished my Masters degree in the Institute for Logic, Language, and Computation, at the University of Amsterdam, the Netherlands. My masters thesis was supervised by Benedikt Löwe and it's entitled "Strong limits and inaccessibility with non-wellorderable powersets". Work from this was published in a joint paper with Andreas Blass and Benedikt Löwe, [BDL06].

My PhD thesis is now at the last stages. The first main chapter is on symmetric forcing and the approximation lemma. There I present several models of $\mathsf{ZF} + \neg\mathsf{AC}$ and large cardinals made small (successor cardinals). Symmetric class forcing is also discussed there. There is also a section on second order arithmetic (SOA), in particular a model of SOA in which all sets of reals are Lebesgue measurable, have the Baire property and the perfect set property. This model is constructed from just a model of ZFC by collapsing all ordinals to ω and it's part of a joint paper with Peter Koepke and Michael Möllerfeld, [DKM], which is under preparation.

The next chapter is on patterns of singular cardinals of cardinality ω that is based mainly on Moti Gitik's paper "All uncountable cardinals can be singular" [Gi80]. From this Chapter there is a joint paper with Arthur Apter and Peter Koepke, entitled "The first measurable cardinal can be the first uncountable regular cardinal at any successor height" [ADK].

I am currently finishing the last chapter which is on the variants of the Chang conjecture, in which I also use some arguments and black boxes from core model theory. There, variants of the Chang conjecture that are very strong under AC, are shown to be equiconsistent (under $\neg\mathsf{AC}$) with very weak hypotheses (e.g., an Erdős cardinal). The core model arguments there are based mainly on [DJK79] and on [DK83].

References

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