

## Jeff Serbus

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As a Master student at the University of Bonn, I became interested in forcing. In particular I was interested in the notion of proper forcing and the effects it could have on cardinal invariants. In my Master Thesis, titled *Generic Reals and Proper Forcing*, I demonstrated my understanding of these ideas by giving some concrete examples of forcing, presenting a proof of the iteration theorem of proper forcing, and using them together to construct a model with a nontrivial Cichoń diagram.

I am now currently in my first year as a PhD student at the University of Freiburg, and continue to be interested in proper forcing notions. Along the way my readings have already taken me on many detours to better understand some of the results. For example, given a ladder system  $\eta$ , one can construct a forcing notion that is a countable support iteration of proper forcing notions (and thus itself proper) that forces every coloring of  $\eta$  to be uniformizable. The natural questions to arise ask when is there a coloring of a ladder system that is not uniformizable, and when is every coloring is uniformizable. Some answers came when looking at principals like Martin's Axiom (MA), and variations of the  $\diamond$  property, like the weak- $\diamond$  introduced by Devlin and Shelah. I am currently investigating the Proper Forcing Axiom (PFA), as well as some weaker notions that follow from it, like the P-Ideal Dichotomy(PID).