

## RESEARCH STATEMENT

CHRISTOPH WEISS

Recently, Matteo Viale and I proved that producing a model of PFA using a standard forcing iteration requires a strongly compact cardinal. If the forcing is proper, then a supercompact cardinal is necessary. These results rely on the principles TP and ITP from my thesis. They characterize strong compactness and supercompactness for inaccessible cardinals but can consistently hold for small cardinals. The proof works by showing PFA implies the principles hold for  $\omega_2$  and then pulling them back to the ground model. Key to this pulling back are the covering and approximation properties.

It seems plausible these ideas might be of help in the attempt to build an inner model with a supercompact cardinal from PFA. This is my current interest in research, and I hope that it will at least shed some new light from a different perspective on the, in my opinion, most important open problem in set theory.