

## RESEARCH STATEMENT

SPENCER UNGER

Most of my research concerns the tree property and its generalizations. The classical tree property is well studied. There are many consistency results concerning the successors of both regular and singular cardinals. My work focuses on the forcing and large cardinals needed to obtain models where the tree property holds. An old question regarding the tree property is whether it is consistent that every regular cardinal greater than  $\aleph_1$  has the tree property. There are many difficulties in trying to answer this question and my research has focused on some of them.

Recently I have been interested in questions concerning the tree property at the successors of singulars. For example I was able to obtain the consistency of the existence of a singular strong limit cardinal  $\kappa$  of cofinality  $\omega$  which no special  $\kappa^+$ -trees and no  $\kappa^{++}$ -Aronszajn trees from a supercompact cardinal with a weakly compact cardinal above. I am also interested in whether results like the above can be brought down to small cardinals.

Along these lines I ask the following questions.

**Question 1.** *Can one strengthen my result above to get no  $\kappa^+$ -Aronszajn trees.*

**Question 2.** *Is it consistent relative to large cardinals that  $\aleph_\omega$  strong limit,  $2^{\aleph_\omega} > \aleph_{\omega+1}$  and the tree property holds at  $\aleph_{\omega+1}$ ?*