Very Large Cardinals and Combinatorics

Large cardinals are currently one of the main areas of investigation in Set Theory, and they have been proven essential in the analysis of the relative consistency of mathematical propositions. It is therefore natural to ask how flexible can be the set-theoretical universe under large cardinals assumptions. In other words, once a large cardinal hypotheses is assumed, which structural characteristics are admissible in the universe?
Which combinatorial principles are consistent or inconsistent?

The talk will delineate the state-of-the-art of this research applied to the large cardinal hypotheses that are at the top of the large cardinal hierarchy: rank-into-rank embeddings like I3, I1 and I0. We will show that they are consistent with L-like properties like GCH, Diamond, V = HOD, while under I0 we have also the consistency of I1 and the opposite of those principles, like the negation of SCH and others.

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