

Large cardinals, forcing axioms, and the theory of subsets of ω_1

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The goal of this research is to rule out natural independence phenomena by maximizing your universe (or theory) in terms of large cardinals and forcing axioms. Using large cardinals in ZFC, by the results of Woodin, we have a clear understanding of the first order theory of subsets of ω and what it should be. In this talk, we try to extend this understanding to the first order theory of subsets of ω_1 by using large cardinals, forcing axioms, and some hypothesis from inner model theory in ZFC. This is joint work with Matteo Viale.