LARGE CARDINALS, STRONG LOGICS AND REFLECTION PRINCIPLES

PHILIPP LÜCKE

Abstract. Various results establish deep connections between the existence of large cardinals, regularity properties of strong logics and the validity of set-theoretic reflection principles. In particular, several compactness properties of strong logics were proven to be equivalent to large cardinal axioms. An important example of such an equivalence is given by a theorem of Makowsky that shows that *Vopěnka's Principle* is equivalent to the existence of strong compactness cardinals for all abstract logics. Motivated by work of Boney, Dimopoulos, Gitman and Magidor, I recently proved an analogous combinatorial characterization of the existence of weak compactness cardinals for all abstract logics that is closely connected to the notion of *subtle cardinals*, introduced by Kunen and Jensen in their studies of strong diamond principles, and the concept of *shrewd cardinals*, defined by Rathjen in proof-theoretic work. In my talk, I want to first discuss the details of this characterization and then present connections to recent joint work with Joan Bagaria (Barcelona) on recurring patterns in the large cardinal hierarchy.