

Abstract: In this bachelor's thesis we deal with Ulam's problem. In the first chapter, we introduce the basic definitions and the axiomatic theory of ZF extended by the Axiom of Choice; we also formulate and prove the Lemma that will be used for the proofs in the second and third chapters. In the second and third chapters, we prove that, assuming the Continuum Hypothesis holds, the Ulam's problem has a positive solution, and assuming the Full Measure Extension Axiom holds, the Ulam's problem has a negative solution. We carry out both proofs with a high degree of detail. Finally, in chapter four, we prove that the generalized Ulam's problem for sets with cardinality greater than that of the real numbers always has a negative solution.