

In this thesis we study the concepts of relative topological properties and present some basic facts and relations between them. Our main focus is on various versions of relative normality, relative regularity and relative compactness. We give examples which answer some open questions and contradict some conjectures in the literature. The theory of relative topological properties was introduced by A. V. Arhangel'skii and H. M. M. Genedi in 1989.

Our main results are (1) an example which presents a way to modify any Dowker space to get a normal space  $X$  such that  $X \times [0, 1]$  is not  $\omega$ -normal (Example 4.2.12). (2) A theorem which implies the existence of a non-Tychonoff space that is internally compact in a larger regular space (Theorem 5.2.8), and (3) a theorem that characterizes couples of closed subsets of the Niemytzki plane which cannot be separated by open sets (Theorem 4.3.4).