

This bachelor thesis deals with complex random variables and complex random vectors. We introduce the complex normal distribution by deriving it from the multivariate normal distribution and we describe maximum likelihood estimators of mean and variance matrix of a vector with a complex normal distribution. We conclude the theoretical part by describing a test for the nullity of the mean of the complex normal distribution. The practical part of the thesis consists of a simulation study in which we generate realizations of random vectors with complex normal distribution. We investigate the behavior of the parameter estimates of the complex normal distribution and the properties of the test of nullity of the mean for different sample sizes and different numbers of samples. Finally, we compare the empirical distribution of the test statistics derived in the theoretical part of the paper with the corresponding theoretical distribution.