

## **ABSTRACT**

The diploma thesis compares the photophysical, photooxidative and photocytotoxic properties of four polymer nanofabrics with encapsulated 5,10,15,20 - *meso* - tetraphenylporphyrin (TPP). The main focus of the work lies especially in the study of the effect of polymer oxygen permeability on the ability of nanofabrics to produce singlet oxygen and the utilization of nanofabrics for measurement of the polymer oxygen permeability and polymer oxygen diffusion coefficients. A possible application of nanofabrics in the framework of oxygen detection, photooxidation of substrates and photodesinfection has been studied as well.