

## ABSTRACT

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Title of Thesis: **The effect of substitution on the basicity of azomethine nitrogens of phthalocyanines**

This work deals with the effect of substituents on the basicity of azomethine nitrogens in phthalocyanines, which are macrocyclic compounds with wide system of conjugation bounds. Substituents differed in their position at the macrocycle (attached at peripheral or non-peripheral positions) and in the type of substituents (alkylsulfanyl-, alkyloxy- or alkyl groups).

Three zinc phthalocyanines were prepared in this project to complete the above mentioned series. In the first step, appropriate precursors were prepared by multi-step procedure using e.g. nucleophilic substitution or Negishi coupling reaction. These precursors were further used for cyclotetramerization reaction to get metal free phthalocyanines. Finally, the zinc cation was coordinated into the center of phthalocyanines.

The second part of the project focused on the determination of the basicity of this series of zinc phthalocyanines by the mean of the absorption spectroscopy. The highest basicity showed phthalocyanine bearing butoxy- and butylsulfanyl groups in non-peripheral positions, where the hydrogen bound to azomethine nitrogen is stabilized by weak bonding interactions (hydrogen bonding and van der Waals interactions). All the others compounds of the series showed basicity of several orders of magnitude lower because these interactions are disabled. The results of this project contributed to the understanding of acid-base behavior of phthalocyanines.