Abstract

This bachelor thesis deals with synthesis, reactivity and characterization of compounds resulting from the reactions of substituted ferrocene ligands with electron-deficient complexes of group 4 transition metals in oxidation state II with the aim of finding experimental conditions for preparation of complexes containing two metal atoms in one molecule. Reactions were performed under inert atmosphere and the products were crystallized. The obtained crystals were subjected to X-ray diffraction analysis and to NMR spectroscopy in order to elucidate molecular structure of the isolated products. Along the way, instability of the prepared compounds towards air oxygen and moisture has surfaced, though it also led to a discovery of several original compounds. Among these, the molecule containing peroxide ligand bonded to zirconocene fragment is worth noting as a fine example of oxygen molecule activation with low oxidative state complexes of transition metals.