



národní
úložiště
šedé
literatury

Preparation of Fluorinated [5]- and [6]Helicenes.

Jakubík, Pavel
2017

Dostupný z <http://www.nusl.cz/ntk/nusl-320490>

Dílo je chráněno podle autorského zákona č. 121/2000 Sb.

Tento dokument byl stažen z Národního úložiště šedé literatury (NUŠL).

Datum stažení: 11.04.2024

Další dokumenty můžete najít prostřednictvím vyhledávacího rozhraní nusl.cz.

Preparation of Fluorinated [5]- and [6]Helicenes

Student: Ing. Pavel Jakubík

Supervisor: Ing. Jan Storch, Ph. D.

Supervising Expert: Dr. Ing. Vladimír Církva

Introduction of fluorine substituents into the helicene skeleton is a suitable strategy for enhancing properties required for the construction of optoelectronic devices. The fluorine atoms decrease C-H/ π interactions, which usually organize aromatic molecules in a solid state, and might contribute to solubility enhancement. Fluorine substitution is known to modulate aromatic-aromatic interactions by affecting the HOMO-LUMO gap, changes the electron density of the π -electron system and results in higher electron mobility. It can also lead to changes in a chemical reactivity.

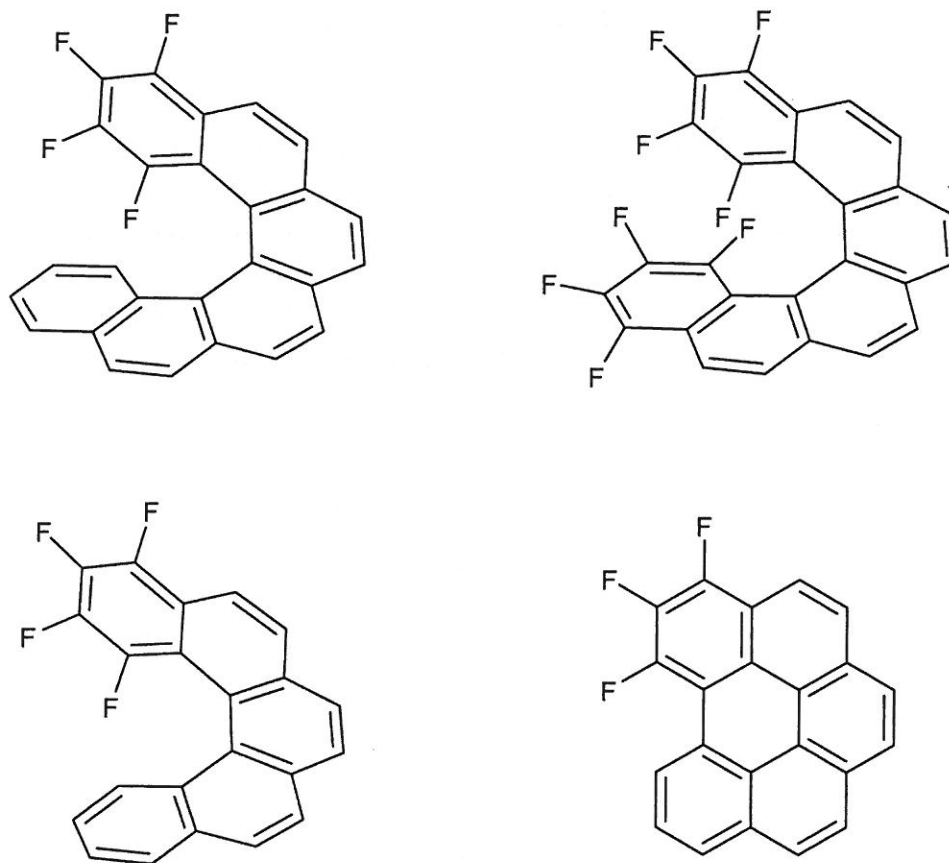


Figure 1: Fluorinated derivatives of [5]- and [6]helicenes

Synthetic strategies to fluorinated helicenes were examined, leading to tetrafluoro[6]helicene and octafluoro[6]helicene. Different mechanisms of photocyclization have been tested and compared, providing interesting insight into the reactivity. An unexpected formation of side-products has been observed during photocyclodehydrofluorination reaction, as well as fluorine atom rearrangement in case of tetrafluoro[5]helicene. This lead to a need of development of new and more complicated synthetic approach towards fluorinated helicenes.