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2014

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

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Datum stažení: 20.04.2024

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Synthesis of [*n*]Phenacenes

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[*n*]Phenacenes are group of polycyclic aromatic hydrocarbons, which are isomeric form of [*n*]acenes and [*n*]helicenes. Such compounds are suitable for use in optoelectronic applications (OLED, OFET), owing to their highly delocalized π -electron system. Due to the higher stability, [*n*]phenacenes can potentially find practical utilization in optoelectronics over [*n*]acenes.

The goal of this work was to develop a multigram scale photochemical synthesis of [*n*]phenacenes and their derivatives from stilbene-type precursors. Vast effort was made to examine [*n*]phenacenes-based organic P-type semiconductors in the past. This work is also focused on an introduction of electron-acceptor substituents (fluorine, nitrogen) into or onto phenacene skeleton (figure 1). The proper choice of substitutions can lead to change in semiconductivity of [*n*]phenacenes so their properties could be easily modulated.

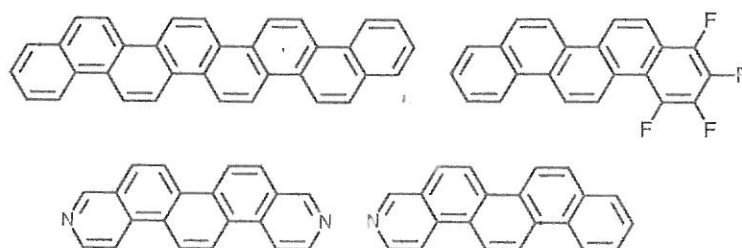


Figure 1: Examples of [*n*]phenacenes