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Jakubík, Pavel
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Synthesis of [n]Phenacenes

Pavel Jakubík, Vladimír Církva, Jan Storch*

*Institute of Chemical Process Fundamentals AS CR, Rozvojová 1/135, Prague 6,
165 02*

e-mail: jakubik@icpf.cas.cz

[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.

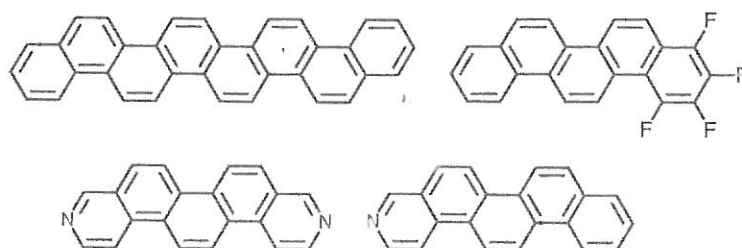


Figure 1: Examples of [n]phenacenes