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## **Synthesis of [n]Phenacenes for Optoelectronics**

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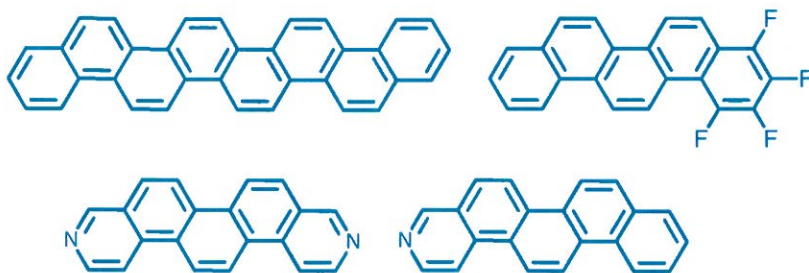
# Synthesis of [n]Phenacenes for Optoelectronics

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[n]Phenacenes are a group of polycyclic aromatic hydrocarbons, which are isomeric forms of linear [n]acenes. Thanks to their conjugated  $\pi$ -electron system, both of these groups are suitable for usage in optoelectronics (OLED, OFET). But unlike [n]acenes, attributes of [n]phenacenes are more promising in practical use. Due to higher stability and preferable semiconductive characteristics in both N-type and P-type semiconductors, [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 precursors. In the past, vast efforts were made to examine [n]phenacenes-based organic P-type semiconductors, but this work is focused on introduction of electron-acceptor substituents (fluorine, nitrogen, oxygen) into or onto phenacene system (Scheme 1). These substitutions lead to a shift of semiconductivity from P-type to N-type and with their proper choice, semiconductive properties of [n]phenacenes could be modulated and their use in practical applications can be predetermined.



Scheme 1. Examples of [n]phenacenes