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Preparation of Soluble [n]Phenacene Derivatives

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Preparation of soluble [*n*]phenacene derivatives

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[*n*]Phenacenes are group of polycyclic aromatic hydrocarbons, which are isomeric form of linear [*n*]acenes. Owing to their conjugated π -electron system, both of these groups are suitable for use in optoelectronic. For utilization in these applications, solubility in common organic solvents is desired. In case of [*n*]phenacenes, which are generally poorly soluble, increase in solubility is achieved by suitable substitution. Compared to unsubstituted [*n*]phenacenes, currently prepared derivatives: 1,2,3,4-tetrafluoro[5]phenacene, 2-aza[5]phenacene, 2,9-diaza[5]phenacene and 12,13-diaza[5]phenacene (Figure 1) show significantly increased solubility.

Batch arranged photocyclization reaction is not effective in terms of time consumption and purity of resulting products, which limits its use for large-scale synthesis. Due to this fact, a prototype of flow photocyclization apparatus was designed, allowing time-effective photocyclization in a multi-gram scale, which is crucial for future research of [*n*]phenacenes.

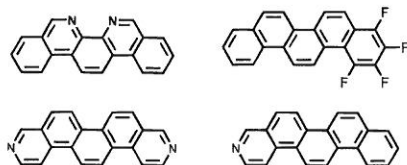


Figure 1. Prepared [*n*]phenacenes with increased solubility