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Synthesis of Amidoazaphenacenes for Applications in Organic Molecular Electronics.

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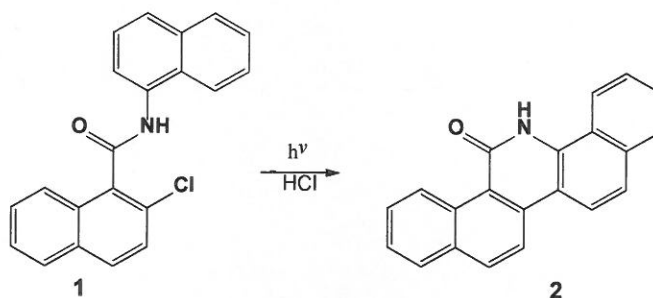
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Research and development in organic electronics (OLEDs, OFETs) based on π -electron network molecules has made rapid progress in recent years. Phenacenes with their extended two-dimensional π -conjugated structure are suitable for this purpose as they can provide charge-transporting pathway when arranged into appropriated thin layer in solid state.¹

This work is focused on preparation of amidoazaphenacenes (e.g. **2**, Scheme 1). Their amide functional groups can make hydrogen bonds, which have a positive effect on formation of a stable supramolecular structure to facilitate the charge carrier transport in thin solid film.²

Amidoazaphenacenes (e.g. **2**, Scheme 1) were prepared by photocyclization of various *ortho*-chloro-substituted aromatic amides (e.g. **1**, Scheme 1). This well-known methodology³ has been used for cyclization of small molecules only and we have found it useful also for preparation of large phenacene-like systems. The resulting compounds will be subsequently investigated in terms of their material properties, especially for the formation of the thin film structures capable of efficient semiconductivity. These findings will be utilized for the synthesis of other amidoazaphenacenes.



Scheme 1: Photocyclization of *ortho*-chloro-substituted aromatic amides

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1 Pisula, W.; Feng, X.; Müllen, K. *Chem. Mater.* **2011**, *23*, 554.

2 Irimia-Vladu, M.; Głowacki, et. al. *Adv. Mater.* **2012**, *24*, 375.

3 Grimshaw, J.; Prasanna de Silva, A. *J. Chem. Soc., Chem. Commun.* **1980**, 302.