



národní  
úložiště  
šedé  
literatury

**Synthesis of Amidoazaphenacenes for Applications in Organic Molecular Electronics.**

Váňa, Lubomír  
2017

Dostupný z <http://www.nusl.cz/ntk/nusl-369654>

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

Tento dokument byl stažen z Národního úložiště šedé literatury (NUŠL).

Datum stažení: 17.05.2024

Další dokumenty můžete najít prostřednictvím vyhledávacího rozhraní [nusl.cz](http://www.nusl.cz) .

## Synthesis of Amidoazaphenacenes for Applications in Organic Molecular Electronics

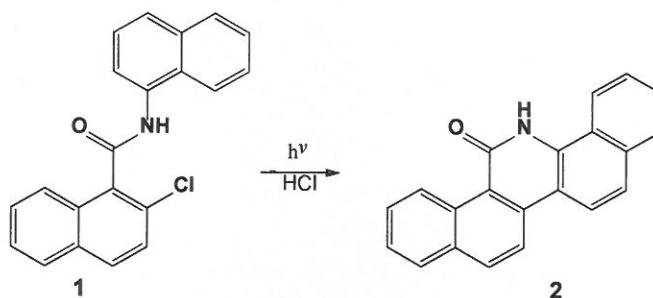
Lubomír Váňa, Jan Storch, Vladimír Církva\*

Institute of Chemical Process Fundamentals of the CAS, Rozvojová 135, 165 02,  
Prague 6, Czech Republic  
e-mail: vana@icpf.cas.cz

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

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.<sup>2</sup>

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 methodology<sup>3</sup> 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

This work was supported by the Czech Science Foundation (reg. No. 17-02578S).

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.