



The Optimization of Direct Heteroarylation and Sonogashira Cross-Coupling Reactions as Efficient and Sustainable Synthetic Methods To Access π -Conjugated Materials with Near-Infrared Absorption

Submitted by Clément Cabanetos on Thu, 03/09/2017 - 08:37

Titre	The Optimization of Direct Heteroarylation and Sonogashira Cross-Coupling Reactions as Efficient and Sustainable Synthetic Methods To Access π -Conjugated Materials with Near-Infrared Absorption
Type de publication	Article de revue
Auteur	McAfee, Seth M [1], Cann, Jonathan. R [2], Josse, Pierre [3], Blanchard, Philippe [4], Cabanetos, Clément [5], Welch, Gregory C [6]
Pays	Etats-Unis
Editeur	American Chemical Society
Ville	Washington
Type	Article scientifique dans une revue à comité de lecture
Année	2016
Langue	Anglais
Date	30 Avril 2016
Numéro	6
Pagination	3504-3517
Volume	4
Titre de la revue	ACS Sustainable Chemistry & Engineering
ISSN	2168-0485
Mots-clés	C-H Bond activation; Direct heteroarylation; Heterogeneous catalyst [7], near-ir absorption [8], Organic electronics [9], Sonogashira coupling [10], Sustainable synthesis [11], Thienoisindigo [12]
Résumé en anglais	<p>Two π-conjugated thienoisindigo-based organic small molecules have been designed to be synthetically accessible through sustainable direct heteroarylation or Sonogashira C-C bond forming cross-coupling reactions utilizing a heterogeneous palladium catalyst. To access these materials, one molecule, TII-ThNaph2, contains a thiophene π-bridge to facilitate direct heteroarylation protocols, whereas the other, TII-AcNaph2, contains an acetylene π-bridge required for Sonogashira couplings. The synthetic route to both final materials was optimized to investigate the reactivity of thienoisindigo, which to this point has not been significantly explored in comparison to other popular organic dyes such as diketopyrrolopyrrole and isoindigo. Considering the reported interest of thienoisindigo-based materials in organic solar cells and field-effect transistors, both final materials have been characterized for their optical, electrochemical and thermal properties offering a comparison of the structure-property relationships that manifest as a result of the two different π-bridging units.</p>

URL de la notice <http://okina.univ-angers.fr/publications/ua15684> [13]
DOI 10.1021/acssuschemeng.6b00554 [14]
Lien vers le document <http://pubs.acs.org/doi/abs/10.1021/acssuschemeng.6b00554> [15]
Titre abrégé ACS Sustainable Chem. Eng.

Liens

- [1] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26388>
- [2] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26389>
- [3] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26390>
- [4] <http://okina.univ-angers.fr/philippe.blanchard/publications>
- [5] <http://okina.univ-angers.fr/clement.cabanetos/publications>
- [6] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26392>
- [7] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=22483>
- [8] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=5470>
- [9] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=9579>
- [10] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=22484>
- [11] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=22485>
- [12] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=16115>
- [13] <http://okina.univ-angers.fr/publications/ua15684>
- [14] <http://dx.doi.org/10.1021/acssuschemeng.6b00554>
- [15] <http://pubs.acs.org/doi/abs/10.1021/acssuschemeng.6b00554>

Publié sur *Okina* (<http://okina.univ-angers.fr>)